

DEPARTMENT OF THE TREASURY
Office of the Comptroller of the Currency
12 CFR Part 3
[Docket No. 06-09]
RIN 1557-AC91

FEDERAL RESERVE SYSTEM
12 CFR Parts 208 and 225
[Regulations H and Y; Docket No. R-1261]

FEDERAL DEPOSIT INSURANCE CORPORATION
12 CFR Part 325
RIN 3064-AC73

DEPARTMENT OF THE TREASURY
Office of Thrift Supervision
12 CFR Parts 559, 560, 563, and 567
RIN 1550-AB56

Risk-Based Capital Standards: Advanced Capital Adequacy Framework — Basel

II

AGENCIES: Office of the Comptroller of the Currency, Treasury; Board of Governors of the Federal Reserve System; Federal Deposit Insurance Corporation; and Office of Thrift Supervision, Treasury.

ACTION: Final rule.

SUMMARY: The Office of the Comptroller of the Currency (OCC), the Board of Governors of the Federal Reserve System (Board), the Federal Deposit Insurance Corporation (FDIC), and the Office of Thrift Supervision (OTS) (collectively, the agencies) are adopting a new risk-based capital adequacy framework that requires some and permits other qualifying banks¹ to use an internal ratings-based approach to calculate

¹ For simplicity, and unless otherwise indicated, this final rule uses the term “bank” to include banks, savings associations, and bank holding companies (BHCs). The terms “bank holding company” and

regulatory credit risk capital requirements and advanced measurement approaches to calculate regulatory operational risk capital requirements. The final rule describes the qualifying criteria for banks required or seeking to operate under the new framework and the applicable risk-based capital requirements for banks that operate under the framework.

DATES: This final rule is effective [INSERT DATE].

FOR FURTHER INFORMATION CONTACT:

OCC: Mark Ginsberg, Risk Expert, Capital Policy (202-927-4580) or Ron Shimabukuro, Senior Counsel, Legislative and Regulatory Activities Division (202-874-5090). Office of the Comptroller of the Currency, 250 E Street, SW, Washington, DC 20219.

Board: Barbara Bouchard, Deputy Associate Director (202-452-3072 or barbara.bouchard@frb.gov) or Anna Lee Hewko, Senior Supervisory Financial Analyst (202-530-6260 or anna.hewko@frb.gov), Division of Banking Supervision and Regulation; or Mark E. Van Der Weide, Senior Counsel (202-452-2263 or mark.vanderweide@frb.gov), Legal Division. For users of Telecommunications Device for the Deaf (“TDD”) only, contact 202-263-4869.

FDIC: Jason C. Cave, Associate Director, Capital Markets Branch, (202) 898-3548, Bobby R. Bean, Chief, Policy Section, Capital Markets Branch, (202) 898-3575, Kenton Fox, Senior Policy Analyst, Capital Markets Branch, (202) 898-7119, Division of Supervision and Consumer Protection; or Michael B. Phillips, Counsel, (202) 898-3581,

“BHC” refer only to bank holding companies regulated by the Board and do not include savings and loan holding companies regulated by the OTS.

Supervision and Legislation Branch, Legal Division, Federal Deposit Insurance Corporation, 550 17th Street, NW, Washington, DC 20429.

OTS: Michael D. Solomon, Director, Capital Policy, Supervision Policy (202) 906-5654; David W. Riley, Senior Analyst, Capital Policy (202) 906-6669; Austin Hong, Senior Analyst, Capital Policy (202) 906-6389; or Karen Osterloh, Special Counsel, Regulations and Legislation Division (202) 906-6639, Office of Thrift Supervision, 1700 G Street, NW, Washington, DC 20552.

SUPPLEMENTARY INFORMATION:

Table of Contents

- I. Introduction**
 - A. Executive Summary of the Final Rule**
 - B. Conceptual Overview**
 - 1. The IRB approach for credit risk
 - 2. The AMA for operational risk
 - C. Overview of Final Rule**
 - D. Structure of Final Rule**
 - E. Overall Capital Objectives**
 - F. Competitive Considerations**
- II. Scope**
 - A. Core and Opt-In Banks**
 - B. U.S. Subsidiaries of Foreign Banks**
 - C. Reservation of Authority**
 - D. Principle of Conservatism**
- III. Qualification**

- A. The Qualification Process**
 - 1. In general
 - 2. Parallel run and transitional floor periods

- B. Qualification Requirements**
 - 1. Process and systems requirements
 - 2. Risk rating and segmentation systems for wholesale and retail exposures
 - Wholesale exposures
 - Retail exposures
 - Definition of default
 - Rating philosophy
 - Rating and segmentation reviews and updates
 - 3. Quantification of risk parameters for wholesale and retail exposures
 - Probability of default (PD)
 - Loss given default (LGD)
 - Expected loss given default (ELGD)
 - Economic loss and post-default extensions of credit
 - Economic downturn conditions
 - Supervisory mapping function
 - Pre-default reductions in exposure
 - Exposure at default (EAD)
 - General quantification principles
 - Portfolios with limited data or limited defaults
 - 4. Optional approaches that require prior supervisory approval
 - 5. Operational risk
 - Operational risk data and assessment system
 - Operational risk quantification system
 - 6. Data management and maintenance
 - 7. Control and oversight mechanisms
 - Validation
 - Internal audit
 - Stress testing
 - 8. Documentation

- C. Ongoing Qualification**

- D. Merger and Acquisition Transition Provisions**

- IV. Calculation of Tier 1 Capital and Total Qualifying Capital**

- V. Calculation of Risk-Weighted Assets**
 - A. Categorization of Exposures**
 - 1. Wholesale exposures
 - 2. Retail exposures
 - 3. Securitization exposures

4. Equity exposures
5. Boundary between operational risk and other risks
6. Boundary between the final rule and the market risk rule

B. Risk-Weighted Assets for General Credit Risk (Wholesale Exposures, Retail Exposures, On-Balance Sheet Assets that Are Not Defined by Exposure Category, and Immaterial Credit Exposures)

1. Phase 1 – Categorization of exposures
2. Phase 2 – Assignment of wholesale obligors and exposures to rating grades and retail exposures to segments
 - Purchased wholesale exposures
 - Wholesale lease residuals
3. Phase 3 – Assignment of risk parameters to wholesale obligors and exposures and retail segments
4. Phase 4 – Calculation of risk-weighted assets
5. Statutory provisions on the regulatory capital treatment of certain mortgage loans

C. Credit Risk Mitigation (CRM) Techniques

1. Collateral
2. Counterparty credit risk of repo-style transactions, eligible margin loans, and OTC derivative contracts
 - Qualifying master netting agreement
 - EAD for repo-style transactions and eligible margin loans
 - Collateral haircut approach
 - Simple VaR methodology
3. EAD for OTC derivative contracts
 - Current exposure methodology
4. Internal models methodology
 - Maturity under the internal models methodology
 - Collateral agreements under the internal models methodology
 - Alternative methods
5. Guarantees and credit derivatives that cover wholesale exposures
 - Eligible guarantees and eligible credit derivatives
 - PD substitution approach
 - LGD adjustment approach
 - Maturity mismatch haircut
 - Restructuring haircut
 - Currency mismatch haircut
 - Example
 - Multiple credit risk mitigants
 - Double default treatment
6. Guarantees and credit derivatives that cover retail exposures

D. Unsettled Securities, Foreign Exchange, and Commodity Transactions

E. Securitization Exposures

1. Hierarchy of approaches
 - Gains-on-sale and CEIOs
 - The ratings-based approach (RBA)
 - The internal assessment approach (IAA)
 - The supervisory formula approach (SFA)
 - Deduction
 - Exceptions to the general hierarchy of approaches
 - Servicer cash advances
 - Amount of a securitization exposure
 - Implicit support
 - Operational requirements for traditional securitizations
 - Clean-up calls
 - Additional supervisory guidance
2. Ratings-based approach (RBA)
3. Internal assessment approach (IAA)
4. Supervisory formula approach (SFA)
 - General requirements
 - Inputs to the SFA formula
5. Eligible disruption liquidity facilities
6. CRM for securitization exposures
7. Synthetic securitizations
 - Background
 - Operational requirements for synthetic securitizations
 - First-loss tranches
 - Mezzanine tranches
 - Super-senior tranches
8. Nth-to-default credit derivatives
9. Early amortization provisions
 - Background
 - Controlled early amortization
 - Non-controlled early amortization
 - Securitization of revolving residential mortgage exposures

F. Equity Exposures

1. Introduction and exposure measurement
 - Hedge transactions
 - Measures of hedge effectiveness
2. Simple risk-weight approach (SRWA)
 - Non-significant equity exposures
3. Internal models approach (IMA)
 - IMA qualification
 - Risk-weighted assets under the IMA
4. Equity exposures to investment funds
 - Full look-through approach
 - Simple modified look-through approach

Alternative modified look-through approach

VI. Operational Risk

VII. Disclosure

1. Overview
 - Comments on the proposed rule
2. General requirements
 - Frequency/timeliness
 - Location of disclosures and audit/attestation requirements
 - Proprietary and confidential information
3. Summary of specific public disclosure requirements
4. Regulatory reporting

I. Introduction

A. Executive Summary of the Final Rule

On September 25, 2006, the agencies issued a joint notice of proposed rulemaking (proposed rule or proposal) (71 FR 55830) seeking public comment on a new risk-based regulatory capital framework for banks.² The agencies previously issued an advance notice of proposed rulemaking (ANPR) related to the new risk-based regulatory capital framework (68 FR 45900, August 4, 2003). The proposed rule was based on a series of releases from the Basel Committee on Banking Supervision (BCBS), culminating in the BCBS's comprehensive June 2006 release entitled "International Convergence of Capital Measurement and Capital Standards: A Revised Framework" (New Accord).³ The New Accord sets forth a "three pillar" framework encompassing risk-based capital requirements for credit risk, market risk, and operational risk (Pillar 1); supervisory review of capital adequacy (Pillar 2); and market discipline through enhanced public

² The agencies also issued proposed changes to the risk-based capital rule for market risk in a separate notice of proposed rulemaking (71 FR 55958, September 25, 2006). A final rule on that proposal is under development and will be issued in the near future.

³ The BCBS is a committee of banking supervisory authorities established by the central bank governors of the G-10 countries in 1975. The BCBS issued the New Accord to modernize its first capital Accord, which was endorsed by the BCBS members in 1988 and implemented by the agencies in 1989. The New Accord, the 1988 Accord, and other documents issued by the BCBS are available through the Bank for International Settlements' website at www.bis.org.

disclosures (Pillar 3). The New Accord includes several methodologies for determining a bank's risk-based capital requirements for credit, market, and operational risk.

The proposed rule included the advanced capital methodologies from the New Accord, including the advanced internal ratings-based (IRB) approach for credit risk and the advanced measurement approaches (AMA) for operational risk (together, the advanced approaches). The IRB approach uses risk parameters determined by a bank's internal systems in the calculation of the bank's credit risk capital requirements. The AMA relies on a bank's internal estimates of its operational risks to generate an operational risk capital requirement for the bank.⁴

The agencies now are adopting this final rule implementing a new risk-based regulatory capital framework, based on the New Accord, that is mandatory for some U.S. banks and optional for others. While the New Accord includes several methodologies for determining risk-based capital requirements, the agencies are adopting only the advanced approaches at this time.

The agencies received approximately 90 public comments on the proposed rule from banking organizations, trade associations representing the banking or financial services industry, supervisory authorities, and other interested parties. This section of the preamble highlights several fundamental issues that commenters raised about the agencies' proposal and briefly describes how the agencies have responded to those issues in the final rule. More detail is provided in the preamble sections below. Overall, commenters supported the development of the framework and the move to more risk-sensitive capital requirements. One overarching issue, however, was the areas where the proposal differed from the New Accord. Commenters said the divergences generally

⁴ The agencies issued draft guidance on the advanced approaches. See 72 FR 9084 (February 28, 2007).

created competitive problems, raised home-host issues, entailed extra cost and regulatory burden, and did not necessarily improve the overall safety and soundness of banks subject to the rule.

Commenters also generally disagreed with the agencies' proposal to adopt only the advanced approaches from the New Accord. Further, commenters objected to the agencies' retention of the leverage ratio, the transitional arrangements in the proposal, and the 10 percent numerical benchmark for identifying material aggregate reductions in risk-based capital requirements to be used for evaluating and responding to capital outcomes during the parallel run and transitional floor periods (discussed below). Commenters also noted numerous technical issues with the proposed rule.

As noted in an interagency press release issued July 20, 2007 ([Banking Agencies Reach Agreement on Basel II Implementation](#)), the agencies have agreed to eliminate the language from the preamble concerning a 10 percent limitation on aggregate reductions in risk-based capital requirements. The press release also stated that the agencies are retaining intact the transitional floor periods (see preamble sections I.E. and III.A.2.). In addition, while not specifically mentioned in the press release, the agencies are retaining the leverage ratio and the prompt corrective action (PCA) regulations without modification.

The final rule adopts without change the proposed criteria for identifying core banks (banks required to apply the advanced approaches) and continues to permit other banks (opt-in banks) to adopt the advanced approaches if they meet the applicable qualification requirements. Core banks are those with consolidated total assets (excluding assets held by an insurance underwriting subsidiary of a bank holding

company) of \$250 billion or more or with consolidated total on-balance-sheet foreign exposure of \$10 billion or more. A depository institution (DI) also is a core bank if it is a subsidiary of another DI or bank holding company that uses the advanced approaches. The final rule also provides that a bank's primary Federal supervisor may determine that application of the final rule is not appropriate in light of the bank's asset size, level of complexity, risk profile, or scope of operations (see preamble sections II.A. and B.).

As noted above, the final rule includes only the advanced approaches. The July 2007 interagency press release stated that the agencies have agreed to issue a proposed rule that would provide non-core banks with the option to adopt an approach consistent with the standardized approach included in the New Accord. This new proposal (the standardized proposal) will replace the earlier proposal to adopt the so-called Basel IA option (Basel 1A proposal).⁵ The press release also noted the agencies' intention to finalize the standardized proposal before core banks begin the first transitional floor period under this final rule.

In response to commenters' concerns that some aspects of the proposed rule would result in excessive regulatory burden without commensurate safety and soundness enhancements, the agencies included a principle of conservatism in the final rule. In general, under this principle, in limited situations, a bank may choose not to apply a provision of the rule to one or more exposures if the bank can demonstrate on an ongoing basis to the satisfaction of its primary Federal supervisor that not applying the provision would, in all circumstances, unambiguously generate a risk-based capital requirement for each such exposure that is greater than that which would otherwise be required under the regulation, and the bank meets other specified requirements (see preamble section II.D.).

⁵ 71 FR 77445 (Dec. 26, 2006).

In the proposal, the agencies modified the definition of default for wholesale exposures from that in the New Accord to address issues commenters had raised on the ANPR. Commenters objected to the agencies' modified definition of default for wholesale exposures, however, asserting that a definition different from the New Accord would result in competitive inequities and significant implementation burden without associated supervisory benefit. In response to these concerns, the agencies have adopted a definition of default for wholesale exposures that is consistent with the New Accord (see preamble section III.B.2.). For retail exposures, the final rule retains the proposed definition of default and clarifies that, subject to certain considerations, a foreign subsidiary of a U.S. bank may, in its consolidated risk-based capital calculations, use the applicable host jurisdiction definition of default for retail exposures of the foreign subsidiary in that jurisdiction (see preamble section III.B.2.).

Another concept introduced in the proposal that was not in the New Accord was the expected loss given default (ELGD) risk parameter. ELGD had four functions in the proposed rule — as a component of the calculation of expected credit loss (ECL) in the numerator of the risk-based capital ratios; in the expected loss (EL) component of the IRB risk-based capital formulas; as a floor on the value of the loss given default (LGD) risk parameter; and as an input into a supervisory mapping function. Many commenters objected to the inclusion of ELGD as a departure from the New Accord that would create regulatory burden and competitive inequity. Many commenters also objected to the supervisory mapping function, which the agencies intended as an alternative for banks that were not able to estimate reliably the LGD risk parameter. The agencies have eliminated ELGD from the final rule. Banks are required to estimate only the LGD risk

parameter, which reflects economic downturn conditions (see preamble section III.B.3.). The supervisory mapping function also has been eliminated from the rule.

Commenters also objected to the agencies' decision not to include a distinct risk weight function for exposures to small- and medium-size enterprises (SMEs) as provided in the New Accord. In the proposal, the agencies noted they were not aware of compelling evidence that smaller firms with the same probability of default (PD) and LGD as larger firms are subject to less systemic risk than is already reflected in the wholesale risk-based capital functions. The agencies continue to believe an SME-specific risk weight function is not supported by sufficient evidence and might give rise to competitive inequities across U.S. banks, and have not adopted such a function in the final rule (see preamble section V.A.1.)

With regard to the proposed treatment for securitization exposures, commenters raised a number of technical issues. Many objected to the proposed definition of a securitization exposure, which included exposures to investment funds with material liabilities (including exposures to hedge funds). The agencies agree with commenters that the proposed definition for securitization exposures was quite broad and captured some exposures that would more appropriately be treated under the wholesale or equity frameworks. To limit the scope of the IRB securitization framework, the agencies have modified the definition of traditional securitization in the final rule as described in preamble section V.A.3. Technical issues related to securitization exposures are discussed in preamble sections V.A.3. and V.E.

For equity exposures, commenters focused on the proposal's lack of a grandfathering period. The New Accord provides national discretion for each

implementing jurisdiction to adopt a grandfather period for equity exposures.

Commenters asserted that this omission would result in competitive inequity for U.S. banks as compared to other internationally active institutions. The agencies believe that, overall, the proposal's approach to equity exposures results in a competitive risk-based capital requirement. The final rule does not include a grandfathering provision, and the agencies have adopted the proposed treatment for equity exposures without significant change (see preamble section V.F.).

A number of commenters raised issues related to operational risk. Most significantly, commenters noted that activities besides securities processing and credit card fraud have highly predictable and reasonably stable losses and should be considered for operational risk offsets. The agencies believe that the proposed definition of eligible operational risk offsets allows for the consideration of other activities in a flexible and prudent manner and, thus, are retaining the proposed definition in the final rule.

Commenters also noted that the proposal appeared to place limits on the use of operational risk mitigants. The agencies have provided flexibility in this regard and under the final rule will take into consideration whether a particular operational risk mitigant covers potential operational losses in a manner equivalent to holding regulatory capital (see preamble sections III.B.5. and V.I.).

Many commenters expressed concern that the proposed public disclosures were excessive and would hinder, rather than facilitate, market discipline by requiring banks to disclose information that would not be well understood by or useful to the market.

Commenters also expressed concern about possible disclosure of proprietary information. The agencies believe that it is important to retain the vast majority of the proposed

disclosures, which are consistent with the New Accord. These disclosures will enable market participants to gain key insights regarding a bank's capital structure, risk exposures, risk assessment processes, and, ultimately, capital adequacy. The agencies have modified the final rule to provide flexibility regarding proprietary information.

B. Conceptual Overview

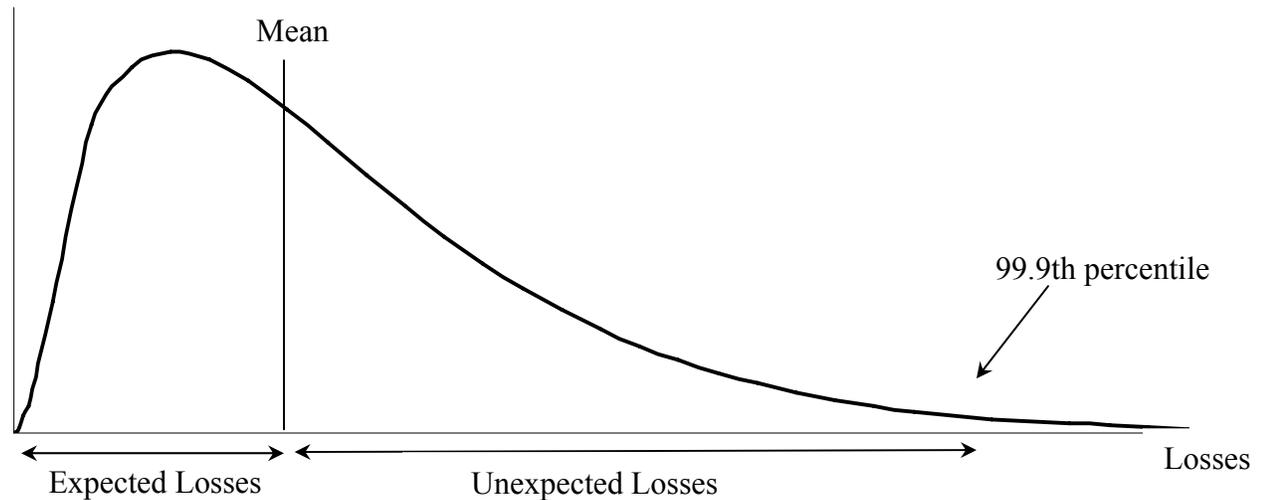
This final rule is intended to produce risk-based capital requirements that are more risk-sensitive than those produced under the agencies' existing risk-based capital rules (general risk-based capital rules). In particular, the IRB approach requires banks to assign risk parameters to wholesale exposures and retail segments and provides specific risk-based capital formulas that must be used to transform these risk parameters into risk-based capital requirements.

The framework is based on "value-at-risk" (VaR) modeling techniques that measure credit risk and operational risk. Because bank risk measurement practices are both continually evolving and subject to uncertainty, the framework should be viewed as an effort to improve the risk sensitivity of the risk-based capital requirements for banks, rather than as an effort to produce a statistically precise measurement of risk.

The framework's conceptual foundation is based on the view that risk can be quantified through the estimation of specific characteristics of the probability distribution of potential losses over a given time horizon. This approach assumes that a suitable estimate of that probability distribution, or at least of the specific characteristics to be measured, can be produced. Figure 1 illustrates some of the key concepts associated with the framework. The figure shows a probability distribution of potential losses associated

with some time horizon (for example, one year). It could reflect, for example, credit losses, operational losses, or other types of losses.

Figure 1 – Probability Distribution of Potential Losses



The area under the curve to the right of a particular loss amount is the probability of experiencing losses exceeding this amount within a given time horizon. The figure also shows the statistical mean of the loss distribution, which is equivalent to the amount of loss that is “expected” over the time horizon. The concept of “expected loss” (EL) is distinguished from that of “unexpected loss” (UL), which represents potential losses over and above the EL amount. A given level of UL can be defined by reference to a particular percentile threshold of the probability distribution. For example, in the figure UL is measured at the 99.9th percentile level and thus is equal to the value of the loss distribution corresponding to the 99.9th percentile, less the amount of EL. This is shown graphically at the bottom of the figure.

The particular percentile level chosen for the measurement of UL is referred to as the “confidence level” or the “soundness standard” associated with the measurement. If

capital is available to cover losses up to and including this percentile level, then the bank should remain solvent in the face of actual losses of that magnitude. Typically, the choice of confidence level or soundness standard reflects a very high percentile level, so that there is a very low estimated probability that actual losses would exceed the UL amount associated with that confidence level or soundness standard.

Assessing risk and assigning regulatory capital requirements by reference to a specific percentile of a probability distribution of potential losses is commonly referred to as a VaR approach. Such an approach was adopted by the FDIC, Board, and OCC for assessing a bank's risk-based capital requirements for market risk in 1996 (market risk rule). Under the market risk rule, a bank's own internal models are used to estimate the 99th percentile of the bank's market risk loss distribution over a ten-business-day horizon. The bank's market risk capital requirement is based on this VaR estimate, generally multiplied by a factor of three. The agencies implemented this multiplication factor to provide a prudential buffer for market volatility and modeling uncertainty.

1. The IRB approach for credit risk

The conceptual foundation of this final rule's approach to credit risk capital requirements is similar to the market risk rule's approach to market risk capital requirements, in the sense that each is VaR-oriented. Nevertheless, there are important differences between the IRB approach and the market risk rule. The current market risk rule specifies a nominal confidence level of 99.0 percent and a ten-business-day horizon, but otherwise provides banks with substantial modeling flexibility in determining their market risk loss distribution and capital requirements. In contrast, the IRB approach for assessing credit risk capital requirements is based on a 99.9 percent nominal confidence

level, a one-year horizon, and a supervisory model of credit losses embodying particular assumptions about the underlying drivers of portfolio credit risk, including loss correlations among different asset types.⁶

The IRB approach is broadly similar to the credit VaR approaches used by a number of banks as the basis for their internal assessment of the economic capital necessary to cover credit risk. It is common for a bank's internal credit risk models to consider a one-year loss horizon and to focus on a high loss threshold confidence level. As with the internal credit VaR models used by banks, the output of the risk-based capital formulas in the IRB approach is an estimate of the amount of credit losses above ECL over a one-year horizon that would only be exceeded a small percentage of the time. The agencies believe that a one-year horizon is appropriate because it balances the difficulty of easily or rapidly exiting non-trading positions against the possibility that in many cases a bank can cover credit losses by raising additional capital should the underlying credit problems manifest themselves gradually. The nominal confidence level of the IRB risk-based capital formulas (99.9 percent) means that if all the assumptions in the IRB supervisory model for credit risk were correct for a bank, there would be less than a 0.1 percent probability that credit losses at the bank in any year would exceed the IRB risk-based capital requirement.⁷

⁶ The theoretical underpinnings for the supervisory model of credit risk underlying the IRB approach are provided in a paper by Michael Gordy, "A Risk-Factor Model Foundation for Ratings-Based Bank Capital Rules," *Journal of Financial Intermediation*, July 2003. The IRB formulas are derived as an application of these results to a single-factor CreditMetricsTM-style model. For mathematical details on this model, see Michael Gordy, "A Comparative Anatomy of Credit Risk Models," *Journal of Banking and Finance*, January 2000, or H.U. Koyluoglu and A. Hickman, "Reconcilable Differences," *Risk*, October 1998. For a less technical overview of the IRB formulas, see the BCBS's "An Explanatory Note on the Basel II Risk Weight Functions," July 2005 (BCBS Explanatory Note). The document can be found on the Bank for International Settlements website at www.bis.org.

⁷ Banks' internal economic capital models typically focus on measures of equity capital, whereas the total regulatory capital measure underlying this rule includes not only equity capital, but also certain debt and

As noted above, the supervisory model of credit risk underlying the IRB approach embodies specific assumptions about the economic drivers of portfolio credit risk at banks. As with any modeling approach, these assumptions represent simplifications of very complex real-world phenomena and, at best, are only an approximation of the actual credit risks at any bank. If these assumptions (described in greater detail below) are incorrect or otherwise do not characterize a given bank precisely, the actual confidence level implied by the IRB risk-based capital formulas may exceed or fall short of a true 99.9 percent confidence level.

In combination with other supervisory assumptions and parameters underlying the IRB approach, the approach's 99.9 percent nominal confidence level reflects a judgmental pooling of available information, including supervisory experience. The framework underlying this final rule reflects a desire on the part of the agencies to achieve (i) risk-based capital requirements that are reflective of relative risk across different assets and that are broadly consistent with maintaining at least an investment-grade rating (for example, at least BBB) on the liabilities funding those assets, even in periods of economic adversity; and (ii) for the U.S. banking system as a whole, aggregate minimum regulatory capital requirements that are not a material reduction from the aggregate minimum regulatory capital requirements under the general risk-based capital rules.

A number of important explicit general assumptions and specific parameters are built into the IRB approach to make the framework applicable to a range of banks and to obtain tractable information for calculating risk-based capital requirements. Chief among

hybrid instruments, such as subordinated debt. Thus, the 99.9 percent nominal confidence level embodied in the IRB approach is not directly comparable to the nominal solvency standards underpinning banks' economic capital models.

the assumptions embodied in the IRB approach are: (i) assumptions that a bank's credit portfolio is infinitely granular; (ii) assumptions that loan defaults at a bank are driven by a single, systematic risk factor; (iii) assumptions that systematic and non-systematic risk factors are log-normal random variables; and (iv) assumptions regarding correlations among credit losses on various types of assets.

The specific risk-based capital formulas in this final rule require the bank to estimate certain risk parameters for its wholesale and retail exposures, which the bank may do using a variety of techniques. These risk parameters are PD, LGD, exposure at default (EAD), and, for wholesale exposures, effective remaining maturity (M). The proposed rule included an additional risk parameter, ELGD. As discussed in section III.B.3. of the preamble, the agencies have eliminated the ELGD risk parameter from the final rule. The risk-based capital formulas into which the estimated risk parameters are inserted are simpler than the economic capital methodologies typically employed by banks, which often require complex computer simulations. In particular, an important property of the IRB risk-based capital formulas is portfolio invariance. That is, the risk-based capital requirement for a particular exposure generally does not depend on the other exposures held by the bank. Like the general risk-based capital rules, the total credit risk capital requirement for a bank's wholesale and retail exposures is the sum of the credit risk capital requirements on individual wholesale exposures and segments of retail exposures.

The IRB risk-based capital formulas contain supervisory asset value correlation (AVC) factors, which have a significant impact on the capital requirements generated by the formulas. The AVC assigned to a given portfolio of exposures is an estimate of the

degree to which any unanticipated changes in the financial conditions of the underlying obligors of the exposures are correlated (that is, would likely move up and down together). High correlation of exposures in a period of economic downturn conditions is an area of supervisory concern. For a portfolio of exposures having the same risk parameters, a larger AVC implies less diversification within the portfolio, greater overall systematic risk, and, hence, a higher risk-based capital requirement.⁸ For example, a 15 percent AVC for a portfolio of residential mortgage exposures would result in a lower risk-based capital requirement than a 20 percent AVC and a higher risk-based capital requirement than a 10 percent AVC.

The AVCs that appear in the IRB risk-based capital formulas for wholesale exposures decline with increasing PD; that is, the IRB risk-based capital formulas generally imply that a group of low-PD wholesale exposures are more correlated than a group of high-PD wholesale exposures. Thus, under the rule, a low-PD wholesale exposure would have a higher relative risk-based capital requirement than that implied by its PD were the AVC in the IRB risk-based capital formulas for wholesale exposures fixed rather than a decreasing function of PD. The AVCs included in the IRB risk-based capital formulas for both wholesale and retail exposures reflect a combination of supervisory judgment and empirical evidence.⁹ However, the historical data available for estimating correlations among retail exposures, particularly for non-mortgage retail exposures, was more limited than was the case with wholesale exposures. As a result, supervisory judgment played a greater role. Moreover, the flat 15 percent AVC for

⁸ See BCBS Explanatory Note.

⁹ See BCBS Explanatory Note, section 5.3.

residential mortgage exposures is based largely on supervisory experience with and analysis of traditional long-term, fixed-rate mortgages.

Several commenters stated that the proposed AVCs for wholesale exposures were too high in general, and a few claimed that, in particular, the AVCs for multi-family residential real estate exposures should be lower. Other commenters suggested that the AVCs of wholesale exposures should be a function of obligor size rather than PD. Similarly, several commenters maintained that the proposed AVCs for retail exposures were too high. Some of these commenters suggested that the AVCs for qualifying revolving exposures (QREs), such as credit cards, should be in the range of 1 to 2 percent, not 4 percent as proposed. Similarly, some of those commenters opposed the proposed flat 15 percent AVC for residential mortgage exposures; one commenter suggested that the agencies should consider employing lower AVCs for home equity loans and lines of credit (HELOCs) to take into account their shorter maturity relative to traditional mortgage exposures.

However, most commenters recognized that the proposed AVCs were consistent with those in the New Accord and recommended that the agencies use the AVCs contained in the New Accord to avoid international competitive inequity and unnecessary burden. Several commenters suggested that the agencies should reconsider the AVCs going forward, working with the BCBS.

The agencies agree with the prevailing view of the commenters that using the AVCs in the New Accord alleviates a potential source of international inconsistency and implementation burden. The final rule therefore maintains the proposed AVCs. As the agencies gain more experience with the advanced approaches, they may revisit the AVCs

for wholesale exposures and retail exposures, along with other calibration issues identified during the parallel run and transitional floor periods (as described below) and make changes to the rule as necessary. The agencies would address this issue working with the BCBS and other supervisory and regulatory authorities, as appropriate.

Another important conceptual element of the IRB approach concerns the treatment of ECL. The IRB approach assumes that reserves should cover ECL while capital should cover credit losses exceeding ECL (that is, unexpected credit losses). Accordingly, the final rule, consistent with the proposal and the New Accord, removes ECL from the risk-weighted assets calculation but requires a bank to compare its ECL to its eligible credit reserves (as defined below). If a bank's ECL exceeds its eligible credit reserves, the bank must deduct the excess ECL amount 50 percent from tier 1 capital and 50 percent from tier 2 capital. If a bank's eligible credit reserves exceed its ECL, the bank may include the excess eligible credit reserves amount in tier 2 capital, up to 0.6 percent of the bank's credit risk-weighted assets.¹⁰ This treatment is intended to maintain a capital incentive to reserve prudently and ensure that ECL over a one-year horizon is covered either by reserves or capital. This treatment also recognizes that prudent reserving that considers probable losses over the life of a loan may result in a bank holding reserves in excess of ECL measured with a one-year horizon. The BCBS calibrated the 0.6 percent limit on inclusion of excess reserves in tier 2 capital to be approximately as restrictive as the existing cap on the inclusion of allowance for loan and

¹⁰ In contrast, under the general risk-based capital rules, the allowance for loan and lease losses (ALLL) may be included in tier 2 capital up to 1.25 percent of total risk-weighted assets.

lease losses (ALLL) under the 1988 Accord, based on data obtained in the BCBS's Third Quantitative Impact Study (QIS-3).¹¹

In developing the New Accord, the BCBS sought broadly to maintain the current overall level of minimum risk-based capital requirements within the banking system. Using data from QIS-3, the BCBS conducted an analysis of the risk-based capital requirements that would be generated under the New Accord. Based on this analysis, the BCBS concluded that a "scaling factor" (multiplier) should apply to credit risk-weighted assets. The BCBS, in the New Accord, indicated that the best estimate of the scaling factor was 1.06. In May 2006, the BCBS decided to maintain the 1.06 scaling factor based on the results of a fourth quantitative impact study (QIS-4) conducted in some jurisdictions, including the United States, and a fifth quantitative impact study (QIS-5), not conducted in the United States.¹² The BCBS noted that national supervisory authorities will continue to monitor capital requirements during implementation of the New Accord, and that the BCBS, in turn, will monitor national experiences with the framework.

The agencies generally agree with the BCBS regarding calibration of the New Accord. Therefore, consistent with the New Accord and the proposed rule, the final rule contains a scaling factor of 1.06 for credit-risk-weighted assets. As the agencies gain more experience with the advanced approaches, the agencies will revisit the scaling factor along with other calibration issues identified during the parallel run and transitional floor periods (described below) and will make changes to the rule as necessary, working with the BCBS and other supervisory and regulatory authorities, as appropriate.

¹¹ BCBS, "QIS 3: Third Quantitative Impact Study," May 2003.

¹² BCBS press release, "Basel Committee maintains calibration of Basel II Framework," May 24, 2006.

2. The AMA for operational risk

The final rule also includes the AMA for determining risk-based capital requirements for operational risk. Under the final rule (consistent with the proposed rule), operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people, and systems or from external events. This definition of operational risk includes legal risk – which is the risk of loss (including litigation costs, settlements, and regulatory fines) resulting from the failure of the bank to comply with laws, regulations, prudent ethical standards, and contractual obligations in any aspect of the bank’s business – but excludes strategic and reputational risks.

Under the AMA, a bank must use its internal operational risk management systems and processes to assess its exposure to operational risk. Given the complexities involved in measuring operational risk, the AMA provides banks with substantial flexibility and, therefore, does not require a bank to use specific methodologies or distributional assumptions. Nevertheless, a bank using the AMA must demonstrate to the satisfaction of its primary Federal supervisor that its systems for managing and measuring operational risk meet established standards, including producing an estimate of operational risk exposure that meets a one-year, 99.9th percentile soundness standard. A bank’s estimate of operational risk exposure includes both expected operational loss (EOL) and unexpected operational loss (UOL) and forms the basis of the bank’s risk-based capital requirement for operational risk.

The AMA allows a bank to base its risk-based capital requirement for operational risk on UOL alone if the bank can demonstrate to the satisfaction of its primary Federal supervisor that the bank has eligible operational risk offsets, such as certain operational

risk reserves, that equal or exceed the bank's EOL. To the extent that eligible operational risk offsets are less than EOL, the bank's risk-based capital requirement for operational risk must incorporate the shortfall.

C. Overview of Final Rule

The final rule maintains the general risk-based capital rules' minimum tier 1 risk-based capital ratio of 4.0 percent and total risk-based capital ratio of 8.0 percent. The components of tier 1 and total capital in the final rule are also the same as in the general risk-based capital rules, with a few adjustments described in more detail below. The primary difference between the general risk-based capital rules and the final rule is the methodologies used for calculating risk-weighted assets. Banks applying the final rule generally must use their internal risk measurement systems to calculate the inputs for determining the risk-weighted asset amounts for (i) general credit risk (including wholesale and retail exposures); (ii) securitization exposures; (iii) equity exposures; and (iv) operational risk. In certain cases, however, banks must use external ratings or supervisory risk weights to determine risk-weighted asset amounts. Each of these areas is discussed below.

Banks using the final rule also are subject to supervisory review of their capital adequacy (Pillar 2) and certain public disclosure requirements to foster transparency and market discipline (Pillar 3). In addition, each bank using the advanced approaches remains subject to the tier 1 leverage ratio requirement,¹³ and each DI (as defined in section 3 of the Federal Deposit Insurance Act (12 U.S.C. 1813)) using the advanced

¹³ See 12 CFR part 3.6(b) and (c) (national banks); 12 CFR part 208, appendix B (state member banks); 12 CFR part 225, appendix D (bank holding companies); 12 CFR 325.3 (state nonmember banks); 12 CFR 567.2(a)(2) and 567.8 (savings associations).

approaches remains subject to the prompt corrective action (PCA) thresholds.¹⁴ Banks using the advanced approaches also remain subject to the market risk rule, where applicable.

Under the final rule, a bank must identify whether each of its on- and off-balance sheet exposures is a wholesale, retail, securitization, or equity exposure. Assets that are not defined by any exposure category (and certain immaterial portfolios of exposures) generally are assigned risk-weighted asset amounts equal to their carrying value (for on-balance sheet exposures) or notional amount (for off-balance sheet exposures).

Wholesale exposures under the final rule include most credit exposures to companies, sovereigns, and other governmental entities. For each wholesale exposure, a bank must assign four quantitative risk parameters: PD (which is expressed as a decimal (that is, 0.01 corresponds to 1 percent) and is an estimate of the probability that an obligor will default over a one-year horizon); LGD (which is expressed as a decimal and reflects an estimate of the economic loss rate if a default occurs during economic downturn conditions); EAD (which is measured in dollars and is an estimate of the amount that would be owed to the bank at the time of default); and M (which is measured in years and reflects the effective remaining maturity of the exposure). Banks may factor into their risk parameter estimates the risk mitigating impact of collateral, credit derivatives, and guarantees that meet certain criteria. Banks must input the risk parameters for each wholesale exposure into an IRB risk-based capital formula to determine the risk-based capital requirement for the exposure.

¹⁴ See 12 CFR part 6 (national banks); 12 CFR part 208, subpart D (state member banks); 12 CFR 325.103 (state nonmember banks); 12 CFR part 565 (savings associations). In addition, savings associations remain subject to the tangible capital requirement at 12 CFR 567.2(a)(3) and 567.9.

Retail exposures under the final rule include most credit exposures to individuals and small credit exposures to businesses that are managed as part of a segment of exposures with similar risk characteristics and not managed on an individual-exposure basis. A bank must classify each of its retail exposures into one of three retail subcategories – residential mortgage exposures; QREs, such as credit cards and overdraft lines; and other retail exposures. Within these three subcategories, the bank must group exposures into segments with similar risk characteristics. The bank must then assign the risk parameters PD, LGD, and EAD to each retail segment. The bank may take into account the risk mitigating impact of collateral and guarantees in the segmentation process and in the assignment of risk parameters to retail segments. Like wholesale exposures, the risk parameters for each retail segment are used as inputs into an IRB risk-based capital formula to determine the risk-based capital requirement for the segment.

For securitization exposures, the bank must apply one of three general approaches, subject to various conditions and qualifying criteria: the Ratings-Based Approach (RBA), which uses external ratings to risk-weight exposures; the Internal Assessment Approach (IAA), which uses internal ratings to risk-weight exposures to asset-backed commercial paper programs (ABCP programs); or the Supervisory Formula Approach (SFA), which uses bank inputs that are entered into a supervisory formula to risk-weight exposures. Securitization exposures in the form of gain-on-sale or credit-enhancing interest-only strips (CEIOs)¹⁵ and securitization exposures that do not qualify for the RBA, the IAA, or the SFA must be deducted from regulatory capital.

¹⁵ A CEIO is an on-balance sheet asset that, in form or in substance, (i) represents the contractual right to receive some or all of the interest and no more than a minimal amount of principal due on the underlying exposures of a securitization and (ii) exposes the holder to credit risk directly or indirectly associated with

Banks may use an internal models approach (IMA) for determining risk-based capital requirements for equity exposures, subject to certain qualifying criteria and floors. If a bank does not have a qualifying internal model for equity exposures, or chooses not to use such a model, the bank must apply a simple risk weight approach (SRWA) in which publicly traded equity exposures generally are assigned a 300 percent risk weight and non-publicly traded equity exposures generally are assigned a 400 percent risk weight. Under both the IMA and the SRWA, equity exposures to certain entities or made pursuant to certain statutory authorities (such as community development laws) are subject to a 0 to 100 percent risk weight.

Banks must develop qualifying AMA systems to determine risk-based capital requirements for operational risk. Under the AMA, a bank must use its own methodology to identify operational loss events, measure its exposure to operational risk, and assess a risk-based capital requirement for operational risk.

Under the final rule, a bank must calculate its tier 1 and total risk-based capital ratios by dividing tier 1 capital by total risk-weighted assets and by dividing total qualifying capital by total risk-weighted assets, respectively. To calculate total risk-weighted assets, a bank must first convert the dollar risk-based capital requirements for exposures produced by the IRB risk-based capital approaches and the AMA into risk-weighted asset amounts by multiplying the capital requirements by 12.5 (the inverse of the overall 8.0 percent risk-based capital requirement). After determining the risk-weighted asset amounts for credit risk and operational risk, a bank must sum these

the underlying exposures that exceeds its pro rata claim on the underlying exposures, whether through subordination provisions or other credit-enhancement techniques.

amounts and then subtract any excess eligible credit reserves not included in tier 2 capital to determine total risk-weighted assets.

The final rule contains specific public disclosure requirements to provide important information to market participants on the capital structure, risk exposures, risk assessment processes, and, hence, the capital adequacy of a bank. The public disclosure requirements apply only to the DI or bank holding company representing the top consolidated level of the banking group that is subject to the advanced approaches, unless the entity is a subsidiary of a non-U.S. banking organization that is subject to comparable disclosure requirements in its home jurisdiction. All banks subject to the rule, however, must disclose total and tier 1 risk-based capital ratios and the components of these ratios. The agencies also proposed a package of regulatory reporting templates for the agencies' use in assessing and monitoring the levels and components of bank risk-based capital requirements under the advanced approaches.¹⁶ These templates will be finalized shortly.

The agencies are aware that the fair value option in generally accepted accounting principles as used in the United States (GAAP) raises potential risk-based capital issues not contemplated in the development of the New Accord. The agencies will continue to analyze these issues and may make changes to this rule at a future date as necessary. The agencies would address these issues working with the BCBS and other supervisory and regulatory authorities, as appropriate.

D. Structure of Final Rule

The agencies are implementing a regulatory framework for the advanced approaches in which each agency has an advanced approaches appendix that incorporates (i) definitions of tier 1 and tier 2 capital and associated adjustments to the risk-based

¹⁶ 71 FR 55981 (September 25, 2006).

capital ratio numerators, (ii) the qualification requirements for using the advanced approaches, and (iii) the details of the advanced approaches.¹⁷ The agencies also are incorporating their respective market risk rules, by cross-reference.¹⁸

In this final rule, as in the proposed rule, the agencies are not restating the elements of tier 1 and tier 2 capital, which largely remain the same as under the general risk-based capital rules. Adjustments to the risk-based capital ratio numerators specific to banks applying the final rule are in part II of the rule and explained in greater detail in section IV of this preamble.

The final rule has eight parts. Part I identifies criteria for determining which banks are subject to the rule, provides key definitions, and sets forth the minimum risk-based capital ratios. Part II describes the adjustments to the numerator of the regulatory capital ratios for banks using the advanced approaches. Part III describes the qualification process and provides qualification requirements for obtaining supervisory approval for use of the advanced approaches. This part incorporates critical elements of supervisory oversight of capital adequacy (Pillar 2).

Parts IV through VII address the calculation of risk-weighted assets. Part IV provides the risk-weighted assets calculation methodologies for wholesale and retail exposures; on-balance sheet assets that do not meet the regulatory definition of a wholesale, retail, securitization, or equity exposure; and certain immaterial portfolios of credit exposures. This part also describes the risk-based capital treatment for over-the-

¹⁷ As applicable, certain agencies are also making conforming changes to existing regulations as necessary to incorporate the new appendices.

¹⁸ 12 CFR part 3, Appendix B (for national banks), 12 CFR part 208, Appendix E (for state member banks), 12 CFR part 225, Appendix E (for bank holding companies), and 12 CFR part 325, Appendix C (for state nonmember banks). OTS intends to codify a market risk rule for savings associations at 12 CFR part 567, Appendix D.

counter (OTC) derivative contracts, repo-style transactions, and eligible margin loans. In addition, this part describes the methodologies for reflecting credit risk mitigation in risk-weighted assets for wholesale and retail exposures. Furthermore, this part sets forth the risk-based capital requirements for failed and unsettled securities, commodities, and foreign exchange transactions.

Part V identifies operating criteria for recognizing risk transference in the securitization context and outlines the approaches for calculating risk-weighted assets for securitization exposures. Part VI describes the approaches for calculating risk-weighted assets for equity exposures. Part VII describes the calculation of risk-weighted assets for operational risk. Finally, Part VIII provides public disclosure requirements for banks employing the advanced approaches (Pillar 3).

The structure of the preamble generally follows the structure of the regulatory text. Definitions, however, are discussed in the portions of the preamble where they are most relevant.

E. Overall Capital Objectives

The preamble to the proposed rule described the agencies' intention to avoid a material reduction in overall risk-based capital requirements under the advanced approaches. The agencies also identified other objectives, such as ensuring that differences in capital requirements appropriately reflect differences in risk and ensuring that the U.S. implementation of the New Accord will not be a significant source of competitive inequity among internationally active banks or among domestic banks operating under different risk-based capital rules. The final rule modifies and clarifies the approach the agencies will use to achieve these objectives.

The agencies proposed a series of transitional floors to provide a smooth transition to the advanced approaches and to temporarily limit the amount by which a bank's risk-based capital requirements could decline over a period of at least three years. The transitional floors are described in more detail in section III.A.2. of this preamble. The floors generally prohibit a bank's risk-based capital requirement under the advanced approaches from falling below 95 percent, 90 percent, and 85 percent of what it would be under the general risk-based capital rules during the bank's first, second, and third transitional floor periods, respectively. The proposal stated that banks would be required to receive the approval of their primary Federal supervisor before entering each transitional floor period.

The preamble to the proposal noted that if there was a material reduction in aggregate minimum regulatory capital upon implementation of the advanced approaches, the agencies would propose regulatory changes or adjustments during the transitional floor periods. The preamble further noted that in this context, materiality would depend on a number of factors, including the size, source, and nature of any reduction; the risk profiles of banks authorized to use the advanced approaches; and other considerations relevant to the maintenance of a safe and sound banking system. The agencies also stated that they would view a 10 percent or greater decline in aggregate minimum required risk-based capital (without reference to the effects of the transitional floors), compared to minimum required risk-based capital as determined under the general risk-based capital rules, as a material reduction warranting modification to the supervisory risk functions or other aspects of the framework.

Further, the agencies stated that they were "identifying a numerical benchmark for evaluating and responding to capital outcomes during the parallel run and transitional floor periods that do not comport with the overall capital objectives." The agencies also stated that "[a]t the end of the transitional floor periods, the agencies would reevaluate the consistency of the framework, as (possibly) revised during the transitional floor periods, with the capital goals outlined in the ANPR and with the maintenance of broad competitive parity between banks adopting the framework and other banks, and would be prepared to make further changes to the framework if warranted." The agencies viewed the parallel run and transitional floor periods as "a trial of the new framework under controlled conditions."¹⁹

The agencies sought comment on the appropriateness of using a 10 percent or greater decline in aggregate minimum required risk-based capital as a numerical benchmark for material reductions when determining whether capital objectives were achieved. Many commenters objected to the proposed transitional floors and the 10 percent benchmark on the grounds that both safeguards deviated materially from the New Accord and the rules implemented by foreign supervisory authorities. In particular, commenters expressed concerns that the aggregate 10 percent limit added a degree of uncertainty to their capital planning process, since the limit was beyond the control of any individual bank. They maintained that it might take only a few banks that decided to reallocate funds toward lower-risk activities during the transition period to impose a penalty on all U.S. banks using the advanced approaches. Other commenters stated that the benchmark lacked transparency and would be operationally difficult to apply.

¹⁹ 71 FR 55839-40 (September 25, 2006).

Commenters also criticized the duration, level, and construct of the transitional floors in the proposed rule. Commenters believed it was inappropriate to extend the transitional floors by an additional year (to three years), and raised concerns that the floors were more binding than those proposed in the New Accord. Commenters strongly urged the agencies to adopt the transition periods and floors in the New Accord to limit any competitive inequities that could arise among internationally active banks.

To better balance commenters' concerns and the agencies' capital adequacy objectives, the agencies have decided not to include the 10 percent benchmark language in this preamble. This will alleviate uncertainty and enable each bank to develop capital plans in accordance with its individual risk profile and business model. The agencies have taken a number of steps to address their capital adequacy objectives. Specifically, the agencies are retaining the existing leverage ratio and PCA requirements and are adopting the three transitional floor periods at the proposed numerical levels.

Under the final rule, the agencies will jointly evaluate the effectiveness of the new capital framework. The agencies will issue a series of annual reports during the transition period that will provide timely and relevant information on the implementation of the advanced approaches. In addition, after the end of the second transition year, the agencies will publish a study (interagency study) that will evaluate the advanced approaches to determine if there are any material deficiencies. For any primary Federal supervisor to authorize any bank to exit the third transitional floor period, the study must determine that there are no such material deficiencies that cannot be addressed by then-existing tools, or, if such deficiencies are found, they must be first remedied by changes to regulation. Notwithstanding the preceding sentence, a primary Federal supervisor that

disagrees with the finding of material deficiency may not authorize a bank under its jurisdiction to exit the third transitional floor period unless the supervisor first provides a public report explaining its reasoning.

The agencies intend to establish a transparent and collaborative process for conducting the interagency study, consistent with the recommendations made by the U.S. Government Accountability Office (GAO) in its report on implementation of the New Accord in the United States.²⁰ In conducting the interagency study the agencies would consider, for example, the following:

- The level of minimum required regulatory capital under U.S. advanced approaches compared to the capital required by other international and domestic regulatory capital standards.
- Peer comparisons of minimum regulatory capital requirements, including but not limited to banks' estimates of risk parameters for portfolios of similar risk.
- The processes banks use to develop and assess risk parameters and advanced systems, and supervisory assessments of their accuracy and reliability.
- Potential cyclical implications.
- Changes in portfolio composition or business mix, including those that might result in changes in capital requirements per dollar of credit exposure.
- Comparison of regulatory capital requirements to market-based measures of capital adequacy to assess relative minimum capital requirements across banks and broad asset categories. Market-based measures might include credit default

²⁰ United States Government Accountability Office, "Risk-Based Capital: Bank Regulators Need to Improve Transparency and Overcome Impediments to Finalizing the Proposed Basel II Framework" (GAO-07-253), February 15, 2007.

swap spreads, subordinated debt spreads, external rating agency ratings, and other market measures of risk.

- Examination of the quality and robustness of advanced risk management processes related to assessment of capital adequacy, as in the comprehensive supervisory assessments performed under Pillar 2.
- Additional reviews, including analysis of interest rate and concentration risks that might suggest the need for higher regulatory capital requirements.

F. Competitive Considerations

A fundamental objective of the New Accord is to strengthen the soundness and stability of the international banking system while maintaining sufficient consistency in capital adequacy regulation to ensure that the New Accord will not be a significant source of competitive inequity among internationally active banks. The agencies support this objective and believe that it is important to promote continual advancement of the risk measurement and management practices of large and internationally active banks.

While all banks should work to enhance their risk management practices, the advanced approaches and the systems required to support their use may not be appropriate for many banks from a cost-benefit point of view. For a number of banks, the agencies believe that the general risk-based capital rules continue to provide a reasonable alternative for regulatory risk-based capital measurement purposes. However, the agencies recognize that a bifurcated risk-based capital framework inevitably raises competitive considerations. The agencies have received comments on risk-based capital proposals issued in the past several years²¹ stating that for some portfolios, competitive

²¹ See 68 FR 45900 (Aug. 4, 2003), 70 FR 61068 (Oct. 20, 2005), 71 FR 55830 (Sept. 25, 2006), and 71 FR 77446 (Dec. 26, 2006).

inequities would be worse under a bifurcated framework. These commenters expressed concern that banks operating under the general risk-based capital rules would be at a competitive disadvantage relative to banks applying the advanced approaches because the IRB approach would likely result in lower risk-based capital requirements for certain types of exposures.

The agencies recognize the potential competitive inequities associated with a bifurcated risk-based capital framework. As part of their effort to develop a risk-based capital framework that minimizes competitive inequities and is not disruptive to the banking sector, the agencies issued the Basel IA proposal in December 2006. The Basel IA proposal included modifications to the general risk-based capital rules to improve risk sensitivity and to reduce potential competitive disparities between domestic banks subject to the advanced approaches and domestic banks not subject to the advanced approaches. Recognizing that some banks might prefer not to incur the additional regulatory burden of moving to modified capital rules, the Basel IA proposal retained the existing general risk-based capital rules and permitted banks to opt in to the modified rules. The agencies extended the comment period for the advanced approaches proposal to coincide with the comment period on the Basel IA proposal so that commenters would have an opportunity to analyze the effects of the two proposals concurrently.²²

Seeking to minimize potential competitive inequities and regulatory burden, a number of commenters on both the advanced approaches proposal and the Basel IA proposal urged the agencies to adopt all of the approaches included in the New Accord -- including the foundation IRB and standardized approaches for credit risk and the standardized and basic indicator approaches for operational risk. In response to these

²² See 71 FR 77518 (Dec. 26, 2006).

comments, the agencies have decided to issue a new standardized proposal, which would replace the Basel IA proposal for banks that do not apply the advanced approaches. The standardized proposal would allow banks that are not core banks to implement a standardized approach for credit risk and an approach to operational risk consistent with the New Accord. Like the Basel IA proposal, the standardized proposal will retain the existing general risk-based capital rules for those banks that do not wish to move to the new rules. The agencies expect to issue the standardized proposal in the first quarter of 2008.

A number of commenters expressed concern about competitive inequities among internationally active banks arising from differences in implementation and application of the New Accord by supervisory authorities in different countries. In particular, some commenters asserted that the proposed U.S. implementation would be different from other countries in a number of key areas, such as the definition of default, and that these differences would give rise to substantial implementation cost and burden. Other commenters continued to raise concern about the delayed implementation schedule in the United States.

As discussed in more detail throughout this preamble, the agencies have made a number of changes from the proposal to conform the final rule more closely to the New Accord. These changes should help minimize regulatory burden and mitigate potential competitive inequities across national jurisdictions. In addition, the BCBS has established an Accord Implementation Group, comprised of supervisors from member countries, whose primary objectives are to work through implementation issues, maintain a constructive dialogue about implementation processes, and harmonize approaches as

much as possible within the range of national discretion embedded in the New Accord. The BCBS also has established a Capital Interpretation Group to foster consistency in applying the New Accord on an ongoing basis. The agencies intend to participate fully in these groups to ensure that issues relating to international implementation and competitive effects are addressed. While supervisory judgment will play a critical role in the evaluation of risk measurement and management practices at individual banks, supervisors remain committed to and have made significant progress toward developing protocols and information-sharing arrangements that should minimize burdens on banks operating in multiple countries and ensure that supervisory authorities are implementing the New Accord as consistently as possible.

With regard to implementation timing concerns, the agencies believe that the transitional arrangements described in preamble section III.A.2. below provide a prudent and reasonable framework for moving to the advanced approaches. Where international implementation differences affect an individual bank, the agencies are working with the bank and appropriate national supervisory authorities to ensure that implementation proceeds as efficiently as possible.

II. Scope

The agencies have identified three groups of banks: (i) large or internationally active banks that are required to adopt the advanced approaches (core banks); (ii) banks that voluntarily decide to adopt the advanced approaches (opt-in banks); and (iii) banks that do not adopt the advanced approaches (general banks). Each core and opt-in bank is required to meet certain qualification requirements to the satisfaction of its primary

Federal supervisor, which in turn will consult with other relevant supervisors, before the bank may use the advanced approaches for risk-based capital purposes.

Pillar 1 of the New Accord requires all banks subject to the New Accord to calculate capital requirements for exposure to credit risk and operational risk. The New Accord sets forth three approaches to calculating the credit risk capital requirement and three approaches to calculating the operational risk capital requirement. Outside the United States, countries that are replacing Basel I with the New Accord generally have required all banks to comply with the New Accord, but have provided banks the option of choosing among the New Accord's various approaches for calculating credit risk and operational risk capital requirements.

For banks in the United States, the agencies have taken a different approach. This final rule focuses on the largest and most internationally active banks and requires those banks to comply with the most advanced approaches for calculating credit and operational risk capital requirements (the IRB and the AMA). The final rule allows other U.S. banks to "opt in" to the advanced approaches. The agencies have decided at this time to require large, internationally active U.S. banks to use the most advanced approaches of the New Accord. The less advanced approaches of the New Accord lack the degree of risk sensitivity of the advanced approaches. The agencies have the view that risk-sensitive regulatory capital requirements are integral to ensuring that large, sophisticated banks and the financial system have an adequate capital cushion to absorb financial losses. Also, the advanced approaches provide more substantial incentives for banks to improve their risk measurement and management practices than do the other approaches. The agencies do not believe that competitive equity concerns are sufficiently

compelling to warrant permitting large, internationally active U.S. banks to adopt the standardized approaches in the New Accord.

A. Core and Opt-In Banks

Under section 1(b) of the proposed rule, a DI would be a core bank if it met either of two independent threshold criteria: (i) consolidated total assets of \$250 billion or more, as reported on the most recent year-end regulatory reports; or (ii) consolidated total on-balance sheet foreign exposure of \$10 billion or more at the most recent year end. To determine total on-balance sheet foreign exposure, a bank would sum its adjusted cross-border claims, local country claims, and cross-border revaluation gains calculated in accordance with the Federal Financial Institutions Examination Council (FFIEC) Country Exposure Report (FFIEC 009). Adjusted cross-border claims would equal total cross-border claims less claims with the head office or guarantor located in another country, plus redistributed guaranteed amounts to the country of head office or guarantor. The agencies also proposed that a DI would be a core bank if it is a subsidiary of another DI or BHC that uses the advanced approaches.

Under the proposed rule, a U.S.-chartered BHC²³ would be a core bank if the BHC had: (i) consolidated total assets (excluding assets held by an insurance underwriting subsidiary) of \$250 billion or more, as reported on the most recent year-end regulatory reports; (ii) consolidated total on-balance sheet foreign exposure of \$10 billion or more at the most recent year-end; or (iii) a subsidiary DI that is a core bank or opt-in bank.

²³ OTS does not currently impose any explicit capital requirements on savings and loan holding companies and is not implementing the advanced approaches for these holding companies.

The agencies included a question in the proposal seeking commenters' views on using consolidated total assets (excluding assets held by an insurance underwriting subsidiary) as one criterion to determine whether a BHC would be viewed as a core BHC. Some of the commenters addressing this issue supported the proposed approach, noting it was a reasonable proxy for mandatory applicability of a framework designed to measure capital requirements for consolidated risk exposures of a BHC. Other commenters, particularly foreign banking organizations and their trade associations, contended that the BHC asset size threshold criterion instead should be \$250 billion of assets in U.S. subsidiary DIs. These commenters further suggested that if the Board kept the proposed \$250 billion consolidated total BHC assets criterion, it should limit the scope of this criterion to BHCs with a majority of their assets in U.S. DI subsidiaries. The Board has decided to retain the proposed approach using consolidated total assets (excluding assets held by an insurance underwriting subsidiary) as one threshold criterion for BHCs in this final rule. This approach recognizes that BHCs can hold similar assets within and outside of DIs and reduces potential incentives to structure BHC assets and activities to arbitrage capital regulations. The final rule continues to exclude assets held in an insurance underwriting subsidiary of a BHC from the asset threshold because the advanced approaches were not designed to address insurance underwriting exposures.

The final rule also retains the threshold criterion for core bank/BHC status of consolidated total on-balance sheet foreign exposure of \$10 billion or more at the most recent year-end. The calculation of this exposure amount is unchanged in the final rule.

In the preamble to the proposed rule, the agencies also included a question on potential regulatory burden associated with requiring a bank that applies the advanced

approaches to implement the advanced approaches at each subsidiary DI — even if those subsidiary DIs do not individually meet a threshold criterion. A number of commenters addressed this issue. While they expressed a range of views, most commenters maintained that small DI subsidiaries of core banks should not be required to implement the advanced approaches. Rather, commenters asserted that these DIs should be permitted to use simpler methodologies, such as the New Accord’s standardized approach. Commenters asserted there would be regulatory burden and costs associated with the proposed push-down approach, particularly if a stand-alone AMA is required at each DI.

The agencies have considered comments on this issue and have decided to retain the proposed approach. Thus, under the final rule, each DI subsidiary of a core or opt-in bank is itself a core bank required to apply the advanced approaches. The agencies believe that this approach serves as an important safeguard against regulatory capital arbitrage among affiliated banks that would otherwise be subject to substantially different capital rules. Moreover, to calculate its consolidated IRB risk-based capital requirements, a bank must estimate risk parameters for all credit exposures within the bank except for exposures in portfolios that, in the aggregate, are immaterial to the bank. Because the consolidated bank must already estimate risk parameters for all material portfolios of wholesale and retail exposures in all of its consolidated subsidiaries, the agencies believe that there is limited additional regulatory burden associated with application of the IRB approach at each subsidiary DI. Likewise, to calculate its consolidated AMA risk-based capital requirements, a bank must estimate its operational risk exposure using a unit of measure (defined below) that does not combine business

activities or operational loss events with demonstrably different risk profiles within the same loss distribution. Each subsidiary DI could have a demonstrably different risk profile that would require the generation of separate loss distributions.

However, the agencies recognize there may be situations where application of the advanced approaches at an individual DI subsidiary of an advanced approaches bank may not be appropriate. Therefore, the final rule includes the proposed provision that permits a core or opt-in bank's primary Federal supervisor to determine in writing that application of the advanced approaches is not appropriate for the DI in light of the bank's asset size, level of complexity, risk profile, or scope of operations.

B. U.S. Subsidiaries of Foreign Banks

Under the proposed rule, any U.S.-chartered DI that is a subsidiary of a foreign banking organization would be subject to the U.S. regulatory capital requirements for domestically-owned U.S. DIs. Thus, if the U.S. DI subsidiary of a foreign banking organization met any of the threshold criteria, it would be a core bank and would be subject to the advanced approaches. If it did not meet any of the criteria, the U.S. DI could remain a general bank or could opt in to the advanced approaches, subject to the same qualification process and requirements as a domestically-owned U.S. DI.

The proposed rule also provided that a top-tier U.S. BHC, and its subsidiary DIs, that was owned by a foreign banking organization would be subject to the same threshold levels for core bank determination as a top-tier BHC that is not owned by a foreign banking organization.²⁴ The preamble noted that a U.S. BHC that met the conditions in

²⁴ The Board notes that it generally does not apply regulatory capital requirements to subsidiary BHCs of top-tier U.S. BHCs, regardless of whether the top-tier U.S. BHC is itself a subsidiary of a foreign banking organization.

Federal Reserve SR letter 01-01²⁵ and that was a core bank would not be required to meet the minimum capital ratios in the Board's capital adequacy guidelines, although it would be required to adopt the advanced approaches, compute and report its capital ratios in accordance with the advanced approaches, and make the required public and regulatory disclosures. A DI subsidiary of such a U.S. BHC also would be a core bank and would be required to adopt the advanced approaches and meet the minimum capital ratio requirements.

Under the final rule, consistent with SR 01-01, a foreign-owned U.S. BHC that is a core bank and that also is subject to SR 01-01 will, as a technical matter, be required to adopt the advanced approaches, and compute and report its capital ratios and make other required disclosures. It will not, however, be required to maintain the minimum capital ratios at the U.S. consolidated holding company level unless otherwise required to do so by the Board. In response to the potential burden issues identified by commenters and outlined above, the Board notes that the final rule allows the Board to exempt any BHC from mandatory application of the advanced approaches. The Board will make such a determination in light of the BHC's asset size (including subsidiary DI asset size relative to total BHC asset size), level of complexity, risk profile, or scope of operation. Similarly, the final rule allows a primary Federal supervisor to exempt any DI under its jurisdiction from mandatory application of the advanced approaches. A primary Federal supervisor will consider the same factors in making its determination.

C. Reservation of Authority

²⁵ SR 01-01, "Application of the Board's Capital Adequacy Guidelines to Bank Holding Companies Owned by Foreign Banking Organizations," January 5, 2001.

The proposed rule restated the authority of a bank's primary Federal supervisor to require a bank to hold an overall amount of capital greater than would otherwise be required under the rule if the agency determined that the bank's risk-based capital requirements were not commensurate with the bank's credit, market, operational, or other risks. In addition, the preamble of the proposed rule noted the agencies' expectation that there may be instances when the rule would generate a risk-weighted asset amount for specific exposures that is not commensurate with the risks posed by such exposures. Accordingly, under the proposed rule, the bank's primary Federal supervisor would retain the authority to require the bank to use a different risk-weighted asset amount for the exposures or to use different risk parameters (for wholesale or retail exposures) or model assumptions (for modeled equity or securitization exposures) than those required when calculating the risk-weighted asset amount for those exposures. Similarly, the proposed rule provided explicit authority for a bank's primary Federal supervisor to require the bank to assign a different risk-weighted asset amount for operational risk, to change elements of its operational risk analytical framework (including distributional and dependence assumptions), or to make other changes to the bank's operational risk management processes, data and assessment systems, or quantification systems if the supervisor found that the risk-weighted asset amount for operational risk produced by the bank under the rule was not commensurate with the operational risks of the bank. Any agency that exercised a reservation of authority was expected to notify each of the other agencies of its determination.

Several commenters raised concerns with the scope of the reservation of authority, particularly as it would apply to operational risk. These commenters asserted,

for example, that the agencies should address identified operational risk-related capital deficiencies through Pillar 2, rather than through requiring a bank to adjust input variables or techniques used for the calculation of Pillar 1 operational risk capital requirements. Commenters were concerned that excessive agency Pillar 1 intervention on operational risk might inhibit innovation.

While the agencies agree that innovation is important and that general supervisory oversight likely would be sufficient in many cases to address risk-related capital deficiencies, the agencies also believe that it is important to retain as much supervisory flexibility as possible as they move forward with implementation of the final rule. In general, the proposed reservation of authority represented a reaffirmation of the current authority of a bank's primary Federal supervisor to require the bank to hold an overall amount of regulatory capital or maintain capital ratios greater than would be required under the general risk-based capital rules. There may be cases where requiring a bank to assign a different risk-weighted asset amount for operational risk may not sufficiently address problems associated with underlying quantification practices and may cause an ongoing misalignment between the operational risk of a bank and the risk-weighted asset amount for operational risk generated by the bank's operational risk quantification system. In view of this and the inherent flexibility provided for operational risk measurement under the AMA, the agencies believe it is appropriate to articulate the specific measures a primary Federal supervisor may take if it determines that a bank's risk-weighted asset amount for operational risk is not commensurate with the operational risks of the bank. Therefore, the final rule retains the reservation of authority as proposed. The agencies emphasize that any decision to exercise this authority would be

made judiciously and that a bank bears the primary responsibility for maintaining the integrity, reliability, and accuracy of its risk management and measurement systems.

D. Principle of Conservatism

Several commenters asked whether it would be permissible not to apply an aspect of the rule for cost or regulatory burden reasons, if the result would be a more conservative capital requirement. For example, for purposes of the RBA for securitization exposures, some commenters asked whether a bank could choose not to track the seniority of a securitization exposure and, instead, assume that the exposure is not a senior securitization exposure. Similarly, some commenters asked if risk-based capital requirements for certain exposures could be calculated ignoring the benefits of risk mitigants such as collateral or guarantees.

The agencies believe that in some cases it may be reasonable to allow a bank to implement a simplified capital calculation if the result is more conservative than would result from a comprehensive application of the rule. Under a new section 1(d) of the final rule, a bank may choose not to apply a provision of the rule to one or more exposures provided that (i) the bank can demonstrate on an ongoing basis to the satisfaction of its primary Federal supervisor that not applying the provision would, in all circumstances, unambiguously generate a risk-based capital requirement for each exposure greater than that which would otherwise be required under this final rule, (ii) the bank appropriately manages the risk of those exposures, (iii) the bank provides written notification to its primary Federal supervisor prior to applying this principle to each exposure, and (iv) the exposures to which the bank applies this principle are not, in the aggregate, material to the bank.

The agencies emphasize that a conservative capital requirement for a group of exposures does not reduce the need for appropriate risk management of those exposures. Moreover, the principle of conservatism applies to the determination of capital requirements for specific exposures; it does not apply to the qualification or disclosure requirements in sections 22 and 71 of the final rule. Sections V.A.1., V.A.3., and V.E.2. of this preamble contain examples of the appropriate use of this principle of conservatism.

III. Qualification

A. The Qualification Process

1. In general

Supervisory qualification to use the advanced approaches is an iterative and ongoing process that begins when a bank's board of directors adopts an implementation plan and continues as the bank operates under the advanced approaches. Under the final rule, as under the proposal, a bank must develop and adopt a written implementation plan, establish and maintain a comprehensive and sound planning and governance process to oversee the implementation efforts described in the plan, demonstrate to its primary Federal supervisor that it meets the qualification requirements in section 22 of the final rule, and complete a satisfactory "parallel run" (discussed below) before it may use the advanced approaches for risk-based capital purposes. A bank's primary Federal supervisor is responsible, after consultation with other relevant supervisors, for evaluating the bank's initial and ongoing compliance with the qualification requirements for the advanced approaches.

Under the final rule, as under the proposed rule, a bank preparing to implement the advanced approaches must adopt a written implementation plan, approved by its board of directors, describing in detail how the bank complies, or intends to comply, with the qualification requirements. A core bank must adopt a plan no later than six months after it meets a threshold criterion in section 1(b)(1) of the final rule. If a bank meets a threshold criterion on the effective date of the final rule, the bank would have to adopt a plan within six months of the effective date. Banks that do not meet a threshold criterion, but are nearing any criterion by internal growth or merger, are expected to engage in ongoing dialogue with their primary Federal supervisor regarding implementation strategies to ensure their readiness to adopt the advanced approaches when a threshold criterion is reached. An opt-in bank may adopt an implementation plan at any time. Under the final rule, each core and opt-in bank must submit its implementation plan, together with a copy of the minutes of the board of directors' approval of the plan, to its primary Federal supervisor at least 60 days before the bank proposes to begin its parallel run, unless the bank's primary Federal supervisor waives this prior notice provision. The submission to the primary Federal supervisor should indicate the date that the bank proposes to begin its parallel run.

In developing an implementation plan, a bank must assess its current state of readiness relative to the qualification requirements in this final rule. This assessment must include a gap analysis that identifies where additional work is needed and a remediation or action plan that clearly sets forth how the bank intends to fill the gaps it has identified. The implementation plan must comprehensively address the qualification requirements for the bank and each of its consolidated subsidiaries (U.S. and foreign-

based) with respect to all portfolios and exposures of the bank and each of its consolidated subsidiaries. The implementation plan must justify and support any proposed temporary or permanent exclusion of a business line, portfolio, or exposure from the advanced approaches. The business lines, portfolios, and exposures that the bank proposes to exclude from the advanced approaches must be, in the aggregate, immaterial to the bank. The implementation plan must include objective, measurable milestones (including delivery dates and a date when the bank's implementation of the advanced approaches will be fully operational). For core banks, the implementation plan must include an explicit first transitional floor period start date that is no later than 36 months after the later of the effective date of the rule or the date the bank meets at least one of the threshold criteria.²⁶ Further, the implementation plan must describe the resources that the bank has budgeted and that are available to implement the plan.

The proposed rule allowed a bank to exclude a portfolio of exposures from the advanced approaches if the bank could demonstrate to the satisfaction of its primary Federal supervisor that the portfolio, when combined with all other portfolios of exposures that the bank sought to exclude from the advanced approaches, was not material to the bank. Some commenters asserted that a bank should be permitted to exclude from the advanced approaches any business line, portfolio, or exposure that is immaterial on a stand-alone basis (regardless of whether the excluded exposures in the aggregate are material to the bank). The agencies believe that it is not appropriate for a bank to permanently exclude a material portion of its exposures from the enhanced risk sensitivity and risk measurement and management requirements of the advanced approaches. Accordingly, the final rule retains the requirement that the business lines,

²⁶ The bank's primary Federal supervisor may extend the bank's first transitional floor period start date.

portfolios, and exposures that the bank proposes to exclude from the advanced approaches must be, in the aggregate, immaterial to the bank.

During implementation of the advanced approaches, a bank should work closely with its primary Federal supervisor to ensure that its risk measurement and management systems are functional and reliable and are able to generate risk parameter estimates that can be used to calculate the risk-based capital ratios correctly under the advanced approaches. The implementation plan, including the gap analysis and action plan, will provide a basis for ongoing supervisory dialogue and review during the qualification process. The primary Federal supervisor will assess a bank's progress relative to its implementation plan. To the extent that adjustments to target dates are needed, these adjustments should be made subject to the ongoing supervisory discussion between the bank and its primary Federal supervisor.

2. Parallel run and transitional floor periods

Under the proposed and final rules, once a bank has adopted its implementation plan, it must complete a satisfactory parallel run before it may use the advanced approaches to calculate its risk-based capital requirements. The proposed rule defined a satisfactory parallel run as a period of at least four consecutive calendar quarters during which a bank complied with all of the qualification requirements to the satisfaction of its primary Federal supervisor.

Many commenters objected to the proposed requirement that the bank had to meet all of the qualification requirements before it could begin the parallel run period. The agencies recognize that certain qualification requirements, such as outcomes analysis, become more meaningful as a bank gains experience employing the advanced

approaches. The agencies therefore are modifying the definition of a satisfactory parallel run in the final rule. Under the final rule, a satisfactory parallel run is a period of at least four consecutive calendar quarters during which the bank complies with the qualification requirements to the satisfaction of its primary Federal supervisor. This revised definition, which does not contain the word “all,” recognizes that the qualification of banks for the advanced approaches during the parallel run period will be an iterative and ongoing process. The agencies intend to assess individual advanced approaches methodologies through numerous discussions, reviews, data collection and analysis, and examination activities. The agencies also emphasize the critical importance of ongoing validation of advanced approaches methodologies both before and after initial qualification decisions. A bank’s primary Federal supervisor will review a bank’s validation process and documentation for the advanced approaches on an ongoing basis through the supervisory process. The bank should include in its implementation plan the steps it will take to enhance compliance with the qualification requirements during the parallel run period.

Commenters also requested the flexibility, permitted under the New Accord, to apply the advanced approaches to some portfolios and other approaches (such as the standardized approach in the New Accord) to other portfolios during the transitional floor periods. The agencies believe, however, that banks applying the advanced approaches should move expeditiously to extend the robust risk measurement and management practices required by the advanced approaches to all material exposures. To preserve these positive risk measurement and management incentives for banks and to prevent “cherry picking” of portfolios, the final rule retains the provision in the proposed rule that states that a bank may enter the first transitional floor period only if it fully complies with

the qualification requirements in section 22 of the rule. As described above, the final rule allows a simplified approach for portfolios that are, in the aggregate, immaterial to the bank.

Another concern identified by commenters regarding the parallel run was the asymmetric treatment of mergers and acquisitions consummated before and after the date a bank qualified to use the advanced approaches. Under the proposed rule, a bank qualified to use the advanced approaches that merged with or acquired a company would have up to 24 months following the calendar quarter during which the merger or acquisition was consummated to integrate the merged or acquired company into the bank's advanced approaches capital calculations. In contrast, the proposed rule could be read to provide that a bank that merged with or acquired a company before the bank qualified to use the advanced approaches had to fully implement the advanced approaches for the merged or acquired company before the bank could qualify to use the advanced approaches. The agencies agree that this asymmetric treatment is not appropriate. Accordingly, the final rule applies the merger and acquisition transition provisions both before and after a bank qualifies to use the advanced approaches. The merger and acquisition transition provisions are described in section III.D. of this preamble.

During the parallel run period, a bank continues to be subject to the general risk-based capital rules but simultaneously calculates its risk-based capital ratios under the advanced approaches. During this period, a bank will report its risk-based capital ratios under the general risk-based capital rules and the advanced approaches to its primary

Federal supervisor through the supervisory process on a quarterly basis. The agencies will share this information with each other.

As described above, a bank must provide its board-approved implementation plan to its primary Federal supervisor at least 60 days before the bank proposes to begin its parallel run period. A bank also must receive approval from its primary Federal supervisor before beginning its first transitional floor period. In evaluating whether to grant approval to a bank to begin using the advanced approaches for risk-based capital purposes, the bank's primary Federal supervisor must determine that the bank fully complies with all the qualification requirements, the bank has conducted a satisfactory parallel run, and the bank has an adequate process to ensure ongoing compliance with the qualification requirements.

To provide for a smooth transition to the advanced approaches, the proposed rule imposed temporary limits on the amount by which a bank's risk-based capital requirements could decline over a period of at least three years (that is, at least four consecutive calendar quarters in each of the three transitional floor periods). Based on its assessment of the bank's ongoing compliance with the qualification requirements, a bank's primary Federal supervisor would determine when the bank is ready to move from one transitional floor period to the next period and, after the full transition has been completed, to exit the last transitional floor period and move to stand-alone use of the advanced approaches. Table A sets forth the proposed transitional floor periods for banks moving to the advanced approaches:

Table A – Transitional Floors

Transitional floor period	Transitional floor percentage
First floor period	95 percent

Second floor period	90 percent
Third floor period	85 percent

During the proposed transitional floor periods, a bank would calculate its risk-weighted assets under the general risk-based capital rules. Next, the bank would multiply this risk-weighted assets amount by the appropriate floor percentage in the table above. This product would be the bank’s “floor-adjusted” risk-weighted assets. Third, the bank would calculate its tier 1 and total risk-based capital ratios using the definitions of tier 1 and tier 2 capital (and associated deductions and adjustments) in the general risk-based capital rules for the numerator values and floor-adjusted risk-weighted assets for the denominator values. These ratios would be referred to as the “floor-adjusted risk-based capital ratios.”

The bank also would calculate its tier 1 and total risk-based capital ratios using the advanced approaches definitions and rules. These ratios would be referred to as the “advanced approaches risk-based capital ratios.” In addition, the bank would calculate a tier 1 leverage ratio using tier 1 capital as defined in the proposed rule for the numerator of the ratio.

During a bank’s transitional floor periods, the bank would report all five regulatory capital ratios described above – two floor-adjusted risk-based capital ratios, two advanced approaches risk-based capital ratios, and one leverage ratio. To determine its applicable capital category for PCA purposes and for all other regulatory and supervisory purposes, a bank’s risk-based capital ratios during the transitional floor periods would be set equal to the lower of the respective floor-adjusted risk-based capital ratio and the advanced approaches risk-based capital ratio.

During the proposed transitional floor periods, a bank's tier 1 capital and tier 2 capital for all non-risk-based-capital supervisory and regulatory purposes (for example, lending limits and Regulation W quantitative limits) would be the bank's tier 1 capital and tier 2 capital as calculated under the advanced approaches.

Thus, for example, to be well capitalized under PCA, a bank would have to have a floor-adjusted tier 1 risk-based capital ratio and an advanced approaches tier 1 risk-based capital ratio of 6 percent or greater, a floor-adjusted total risk-based capital ratio and an advanced approaches total risk-based capital ratio of 10 percent or greater, and a tier 1 leverage ratio of 5 percent or greater (with tier 1 capital calculated under the advanced approaches). Although the PCA rules do not apply to BHCs, a BHC would be required to report all five of these regulatory capital ratios and would have to meet applicable supervisory and regulatory requirements using the lower of the respective floor-adjusted risk-based capital ratio and the advanced approaches risk-based capital ratio.²⁷

Under the proposed rule, after a bank completed its transitional floor periods and its primary Federal supervisor determined the bank could begin using the advanced approaches with no further transitional floor, the bank would use its tier 1 and total risk-based capital ratios as calculated under the advanced approaches and its tier 1 leverage ratio calculated using the advanced approaches definition of tier 1 capital for PCA and all other supervisory and regulatory purposes.

Although one commenter supported the proposed transitional provisions, many commenters objected to these transitional provisions. Commenters urged the agencies to conform the transitional provisions to those in the New Accord. Specifically, they

²⁷ The Board notes that, under the applicable leverage ratio rule, a BHC that is rated composite "1" or that has adopted the market risk rule has a minimum leverage ratio requirement of 3 percent. For other BHCs, the minimum leverage ratio requirement is 4 percent.

requested that the three transitional floor periods be reduced to two periods and that the transitional floor percentages be reduced from 95 percent, 90 percent, and 85 percent to 90 percent and 80 percent. Commenters also requested that the transitional floor calculation methodology be conformed to the generally less restrictive methodology of the New Accord. Moreover, they expressed concern about the requirement that a bank obtain supervisory approval to move from one transitional floor period to the next, which could potentially extend each floor period beyond four calendar quarters.

The agencies believe that the prudential transitional safeguards are necessary to address concerns identified in the analysis of the results of QIS-4.²⁸ Specifically, the transitional safeguards will ensure that implementation of the advanced approaches will not result in a precipitous drop in risk-based capital requirements, and will provide a smooth transition process as banks refine their advanced systems. Banks' computation of risk-based capital requirements under both the general risk-based capital rules and the advanced approaches during the parallel run and transitional floor periods will help the agencies assess the impact of the advanced approaches on overall capital requirements, including whether the change in capital requirements relative to the general risk-based capital rules is consistent with the agencies' overall capital objectives. Therefore, the agencies are adopting in this final rule the proposed level, duration, and calculation methodology of the transitional floors, with the revised process for determining when banks may exit the third transitional floor period discussed in section I.E., above.

²⁸ Preliminary analysis of the QIS-4 submissions evidenced material reductions in the aggregate minimum required capital for the QIS-4 participant population and significant dispersion of results across institutions and portfolio types. See Interagency Press Release, Banking "Agencies To Perform Additional Analysis Before Issuing Notice of Proposed Rulemaking Related To Basel II," April 29, 2005.

Under the final rule, as under the proposed rule, banks that meet the threshold criteria in section 1(b)(1) (core banks) as of the effective date of this final rule, and banks that opt in pursuant to section 1(b)(2) at the earliest possible date, must use the general risk-based capital rules both during the parallel run and as a basis for the transitional floor calculations. Should the agencies finalize a standardized risk-based capital rule, the agencies expect that a bank that opts in after the earliest possible date or becomes a core bank after the effective date of the final rule would use the risk-based capital regime (the general risk-based capital rules or the standardized risk-based capital rules) used by the bank immediately before the bank begins its parallel run both during the parallel run and as a basis for the transitional floor calculations. Under the final rule, 2008 is the first possible year for a bank to begin its parallel run and 2009 is the first possible year for a bank to begin its first of three transitional floor periods.

B. Qualification Requirements

Because the advanced approaches use banks' estimates of certain key risk parameters to determine risk-based capital requirements, they introduce greater complexity to the regulatory capital framework and require banks to possess a high level of sophistication in risk measurement and risk management systems. As a result, the final rule requires each core or opt-in bank to meet the qualification requirements described in section 22 of the final rule to the satisfaction of its primary Federal supervisor for a period of at least four consecutive calendar quarters before using the advanced approaches to calculate its minimum risk-based capital requirements (subject to the transitional floor provisions for at least an additional three years). The qualification requirements are written broadly to accommodate the many ways a bank may design and

implement robust internal credit and operational risk measurement and management systems, and to permit industry practice to evolve.

Many of the qualification requirements relate to a bank's advanced IRB systems. A bank's advanced IRB systems must incorporate five interdependent components in a framework for evaluating credit risk and measuring regulatory capital:

(i) A risk rating and segmentation system that assigns ratings to individual wholesale obligors and exposures and assigns individual retail exposures to segments;

(ii) A quantification process that translates the risk characteristics of wholesale obligors and exposures and segments of retail exposures into numerical risk parameters that are used as inputs to the IRB risk-based capital formulas;

(iii) An ongoing process that validates the accuracy of the rating assignments, segmentations, and risk parameters;

(iv) A data management and maintenance system that supports the advanced IRB systems; and

(v) Oversight and control mechanisms that ensure the advanced IRB systems are functioning effectively and producing accurate results.

1. Process and systems requirements

One of the objectives of the advanced approaches framework is to provide appropriate incentives for banks to develop and use better techniques for measuring and managing their risks and to ensure that capital is adequate to support those risks. Section 3 of the final rule requires a bank to hold capital commensurate with the level and nature of all risks to which the bank is exposed. Section 22 of the final rule specifically requires a bank to have a rigorous process for assessing its overall capital adequacy in relation to

its risk profile and a comprehensive strategy for maintaining appropriate capital levels (known as the internal capital adequacy assessment process or ICAAP). Another objective of the advanced approaches framework is to ensure comprehensive supervisory review of capital adequacy.

On February 28, 2007, the agencies issued proposed guidance setting forth supervisory expectations for a bank's ICAAP and addressing the process for a comprehensive supervisory assessment of capital adequacy.²⁹ As set forth in that guidance, and consistent with existing supervisory practice, a bank's primary Federal supervisor will evaluate how well the bank is assessing its capital needs relative to its risks. The supervisor will assess the bank's overall capital adequacy and will take into account a bank's ICAAP, its compliance with the minimum capital requirements set forth in this rule, and all other relevant information. The primary Federal supervisor will require a bank to increase its capital levels or ratios if the supervisor determines that current levels or ratios are deficient or some element of the bank's business practices suggests the need for higher capital levels or ratios. In addition, the primary Federal supervisor may, under its enforcement authority, require a bank to modify or enhance risk management and internal control authority, or reduce risk exposures, or take any other action as deemed necessary to address identified supervisory concerns.

As outlined in the proposed guidance, the agencies expect banks to implement and continually update the fundamental elements of a sound ICAAP – identifying and measuring material risks, setting capital adequacy goals that relate to risk, and ensuring the integrity of internal capital adequacy assessments. A bank is expected to ensure adequate capital is held against all material risks.

²⁹ 72 FR 9189.

In developing its ICAAP, a bank should be particularly mindful of the limitations of regulatory risk-based capital requirements as a measure of its full risk profile – including risks not covered or not adequately quantified in the risk-based capital requirements – as well as specific assumptions embedded in risk-based regulatory capital requirements (such as diversification in credit portfolios). A bank should also be mindful of the capital adequacy effects of concentrations that may arise within each risk type or across risk types. In general, a bank’s ICAAP should reflect an appropriate level of conservatism to account for uncertainty in risk identification, risk mitigation or control, quantitative processes, and any use of modeling. In most cases, this conservatism will result in higher levels of capital or higher capital ratios being regarded as adequate.

As noted above, each core and opt-in bank must apply the advanced approaches for risk-based capital purposes at the consolidated top-tier U.S. legal entity level (either the top-tier U.S. BHC or top-tier DI that is a core or opt-in bank) and at each DI that is a subsidiary of such a top-tier legal entity (unless a primary Federal supervisor provides an exemption under section 1(b)(3) of the final rule). Each bank that applies the advanced approaches must have an appropriate infrastructure with risk measurement and management processes that meet the final rule’s qualification requirements and that are appropriate given the bank’s size and level of complexity. Regardless of whether the systems and models that generate the risk parameters necessary for calculating a bank’s risk-based capital requirements are located at an affiliate of the bank, each legal entity that applies the advanced approaches must ensure that the risk parameters (PD, LGD, EAD, and, for wholesale exposures, M) and reference data used to determine its risk-

based capital requirements are representative of its own credit and operational risk exposures.

The final rule also requires that the systems and processes that an advanced approaches bank uses for risk-based capital purposes must be consistent with the bank's internal risk management processes and management information reporting systems. This means, for example, that data from the latter processes and systems can be used to verify the reasonableness of the inputs the bank uses for calculating risk-based capital ratios.

2. Risk rating and segmentation systems for wholesale and retail exposures

To implement the IRB approach, a bank must have internal risk rating and segmentation systems that accurately and reliably differentiate between degrees of credit risk for wholesale and retail exposures. As described below, wholesale exposures include most credit exposures to companies, sovereigns, and other governmental entities, as well as some exposures to individuals. Retail exposures include most credit exposures to individuals and small credit exposures to businesses that are managed as part of a segment of exposures with homogeneous risk characteristics. Together, wholesale and retail exposures cover most credit exposures of banks.

To differentiate among degrees of credit risk, a bank must be able to make meaningful and consistent distinctions among credit exposures along two dimensions—default risk and loss severity in the event of a default. In addition, a bank must be able to assign wholesale obligors to rating grades that approximately reflect likelihood of default and must be able to assign wholesale exposures to loss severity rating grades (or LGD estimates) that approximately reflect the loss severity expected in the event of default

during economic downturn conditions. As discussed below, the final rule requires banks to treat wholesale exposures differently from retail exposures when differentiating among degrees of credit risk; specifically, risk parameters for retail exposures are assigned at the segment level.

Wholesale exposures

Under the proposed rule, a bank would be required to have an internal risk rating system that indicates the likelihood of default of each individual obligor and would either use an internal risk rating system that indicates the economic loss rate upon default of each individual exposure or directly assign an LGD estimate to each individual exposure. A bank would assign an internal risk rating to each wholesale obligor that reflected the obligor's likelihood of default.

Several commenters objected to the proposed requirement to assign an internal risk rating to each wholesale obligor that reflected the obligor's likelihood of default. Commenters asserted that this requirement was burdensome and unnecessary where a bank underwrote an exposure based solely on the financial strength of a guarantor and used the PD substitution approach (discussed below) to recognize the risk mitigating effects of an eligible guarantee on the exposure. In such cases, commenters maintained that banks should be allowed to assign a PD only to the guarantor and not the underlying obligor.

While the agencies believe that maintaining internal risk ratings of both a protection provider and underlying obligor provides helpful information for risk management purposes and facilitates a greater understanding of so-called double default effects, the agencies appreciate the commenters' concerns about burden in this context.

Accordingly, the final rule does not require a bank to assign an internal risk rating to an underlying obligor to whom the bank extends credit based solely on the financial strength of a guarantor, provided that all of the bank's exposures to that obligor are fully covered by eligible guarantees and the bank applies the PD substitution approach to all of those exposures. A bank in this situation is only required to assign an internal risk rating to the guarantor. However, a bank must immediately assign an internal risk rating to the obligor if a guarantee can no longer be recognized under this final rule.

In determining an obligor rating, a bank should consider key obligor attributes, including both quantitative and qualitative factors that could affect the obligor's default risk. From a quantitative perspective, this could include an assessment of the obligor's historic and projected financial performance, trends in key financial performance ratios, financial contingencies, industry risk, and the obligor's position in the industry. On the qualitative side, this could include an assessment of the quality of the obligor's financial reporting, non-financial contingencies (for example, labor problems and environmental issues), and the quality of the obligor's management based on an evaluation of management's ability to make realistic projections, management's track record in meeting projections, and management's ability to effectively adapt to changes in the economy and the competitive environment.

Under the proposed rule, a bank would assign each legal entity wholesale obligor to a single rating grade. Accordingly, if a single wholesale exposure of the bank to an obligor triggered the proposed rule's definition of default, all of the bank's wholesale exposures to that obligor would be in default for risk-based capital purposes. In addition, under the proposed rule, a bank would not be allowed to consider the value of collateral

pledged to support a particular wholesale exposure (or any other exposure-specific characteristics) when assigning a rating to the obligor of the exposure. A bank would, however, consider all available financial information about the obligor – including, where applicable, the total operating income or cash flows from all of the obligor’s projects or businesses – when assigning an obligor rating.

While a few commenters expressly supported the proposal’s requirement for banks to assign each legal entity wholesale obligor to a single rating grade, a substantial number of commenters expressed reservations about this requirement. These commenters observed that in certain circumstances an exposure’s transaction-specific characteristics affect its likelihood of default. Commenters asserted that the agencies should provide greater flexibility and allow banks to depart from the one-rating-per-obligor requirement based on the economic substance of an exposure. In particular, commenters maintained that income-producing real estate lending should be exempt from the one-rating-per-obligor requirement. The commenters noted that the probability that an obligor will default on any one such facility depends primarily on the cash flows from the individual property securing the facility, not the overall condition of the obligor. Similarly, several commenters asserted that exposures involving transfer risk and non-recourse exposures should be exempted from the one-rating-per-obligor requirement.

In general, the agencies believe that a two-dimensional rating system that strictly separates borrower and exposure-level characteristics is a critical underpinning of the IRB approach. However, the agencies agree that exposures to the same borrower denominated in different currencies may have different default probabilities. For

example, a sovereign government may impose prohibitive exchange restrictions that make it impossible for a borrower to transfer payments in one particular currency.

In addition, the agencies agree that certain income-producing real estate exposures for which the bank, in economic substance, does not have recourse to the borrower beyond the real estate serving as collateral for the exposure, have default probabilities distinct from that of the borrower. Such situations would arise, for example, where real estate collateral is located in a state where a bank, under applicable state law, effectively does not have recourse to the borrower if the bank pursues the real estate collateral in the event of default (for example, in a “one-action” state or a state with a similar law). In one-action states such as Arizona, California, Idaho, Montana, Nevada, and Utah, or in a state with a similar law, such as New York, the applicable foreclosure laws materially limit a bank’s ability to collect against both the collateral and the borrower.

A third instance in which exposures to the same borrower may have significantly different default probabilities is when a borrower enters bankruptcy and the bank extends additional credit to the borrower under the auspices of the bankruptcy proceedings. This so-called debtor in possession (DIP) financing is unique from other exposure types because it typically has priority over existing debt, equity, and other claims on the borrower. The agencies believe that because of this unique priority status, if a bank has an exposure to a borrower that declares bankruptcy and defaults on that exposure, and the bank subsequently provides DIP financing to that obligor, it may not be appropriate to require the bank to treat the DIP financing exposure at inception as an exposure to a defaulted borrower.

To address these circumstances and clarify the application of the one-rating-per-obligor requirement, the agencies added a definition of obligor in the final rule. The final rule defines an obligor as the legal entity or natural person contractually obligated on a wholesale exposure except that a bank may treat three types of exposures to the same legal entity or natural person as having separate obligors. First, exposures to the same legal entity or natural person denominated in different currencies. Second, (i) income-producing real estate exposures for which all or substantially all of the repayment of the exposure is reliant on cash flows of the real estate serving as collateral for the exposure; the bank, in economic substance, does not have recourse to the borrower beyond the real estate serving as collateral for the exposure; and no cross-default or cross-acceleration clauses are in place other than clauses obtained solely in an abundance of caution; and (ii) other credit exposures to the same legal entity or natural person. Third, (i) wholesale exposures authorized under section 364 of the U.S. Bankruptcy Code (11 U.S.C. 364) to a legal entity or natural person who is a debtor-in-possession for purposes of Chapter 11 of the Bankruptcy Code; and (ii) other credit exposures to the same legal entity or natural person. All exposures to a single legal entity or natural person must be treated as exposures to a single obligor unless they qualify for one of these three exceptions in the final rule's definition of obligor.

A bank's obligor rating system must have at least seven discrete (non-overlapping) obligor grades for non-defaulted obligors and at least one obligor grade for defaulted obligors. The agencies believe that because the risk-based capital requirement of a wholesale exposure is directly linked to its obligor rating grade, a bank must have at

least seven non-overlapping obligor grades to differentiate sufficiently the creditworthiness of non-defaulted wholesale obligors.

A bank must capture the estimated loss severity upon default for a wholesale exposure either by directly assigning an LGD estimate to the exposure or by grouping the exposure with other wholesale exposures into loss severity rating grades (reflecting the bank's estimate of the LGD of the exposure). LGD is described in more detail below. Whether a bank chooses to assign LGD values directly or, alternatively, to assign exposures to rating grades and then quantify the LGD for the rating grades, the key requirement is that the bank must identify exposure characteristics that influence LGD. Each of the loss severity rating grades must be associated with an empirically supported LGD estimate. Banks employing loss severity grades must have a sufficiently granular loss severity grading system to avoid grouping together exposures with widely ranging LGDs.

Retail exposures

To implement the advanced approach for retail exposures, a bank must have an internal system that segments its retail exposures to differentiate accurately and reliably among degrees of credit risk. The most significant difference between the treatment of wholesale and retail exposures is that the risk parameters for wholesale exposures are assigned at the individual exposure level, whereas risk parameters for retail exposures are assigned at the segment level. Banks typically manage retail exposures on a segment basis, where each segment contains exposures with similar risk characteristics. Therefore, a key characteristic of the final rule's retail framework is that the risk parameters for retail exposures are assigned to segments of exposures rather than to

individual exposures. Under the retail framework, a bank groups its retail exposures into segments with homogeneous risk characteristics and estimates PD and LGD for each segment.

Some commenters stated that for internal risk management purposes they assign risk parameters at the individual retail exposure level rather than at the segment level. These commenters requested confirmation that this practice would be permissible for risk-based capital purposes under the final rule. The agencies believe that a bank may use its advanced systems, including exposure-level risk parameter estimates, to group exposures into segments with homogeneous risk characteristics. Such exposure-level estimates must be aggregated in order to assign segment-level risk parameters to each segment of retail exposures.

A bank must group its retail exposures into three separate subcategories: (i) residential mortgage exposures; (ii) QREs; and (iii) other retail exposures. The bank must classify the retail exposures in each subcategory into segments to produce a meaningful differentiation of risk. The final rule requires banks to segment separately (i) defaulted retail exposures from non-defaulted retail exposures and (ii) retail eligible margin loans for which the bank adjusts EAD rather than LGD to reflect the risk mitigating effects of financial collateral from other retail eligible margin loans. Otherwise, the agencies do not require that banks consider any particular risk drivers or employ any minimum number of segments in any of the three retail subcategories.

In determining how to segment retail exposures within each subcategory for the purpose of assigning risk parameters, a bank should use a segmentation approach that is consistent with its approach for internal risk assessment purposes and that classifies

exposures according to predominant risk characteristics or drivers. Examples of risk drivers could include loan-to-value ratios, credit scores, loan terms and structure, origination channel, geographical location of the borrower, collateral type, and bank internal estimates of likelihood of default and loss severity given default. Regardless of the risk drivers used, a bank must be able to demonstrate to its primary Federal supervisor that its system assigns accurate and reliable PD and LGD estimates for each retail segment on a consistent basis.

Definition of default

Wholesale default. In the ANPR, the agencies proposed to define default for a wholesale exposure as either or both of the following events: (i) the bank determines that the borrower is unlikely to pay its obligations to the bank in full, without recourse to actions by the bank such as the realization of collateral; or (ii) the borrower is more than 90 days past due on principal or interest on any material obligation to the bank. The ANPR's definition of default was generally consistent with the New Accord.

A number of commenters on the ANPR encouraged the agencies to use a wholesale definition of default that varied from the New Accord but conformed more closely to that used by bank risk managers. Many of these commenters recommended that the agencies define default for wholesale exposures as the entry into non-accrual or charge-off status. In the proposed rule, the agencies amended the ANPR definition of default to respond to these concerns. Under the proposed definition of default, a bank's wholesale obligor would be in default if, for any wholesale exposure of the bank to the obligor, the bank had (i) placed the exposure on non-accrual status consistent with the Consolidated Report of Condition and Income (Call Report) Instructions or the Thrift

Financial Report (TFR) and the TFR Instruction Manual; (ii) taken a full or partial charge-off or write-down on the exposure due to the distressed financial condition of the obligor; or (iii) incurred a credit-related loss of 5 percent or more of the exposure's initial carrying value in connection with the sale of the exposure or the transfer of the exposure to the held-for-sale, available-for-sale, trading account, or other reporting category.

The agencies received extensive comment on the proposed definition of default for wholesale exposures. Commenters observed that the proposed definition of default was different from and more prescriptive than the definition in the New Accord and employed in other major jurisdictions. They asserted that the proposed definition would impose unjustifiable systems burden and expense on banks operating across multiple jurisdictions. Commenters also asserted that many banks' data collection systems are based on the New Accord's definition of default, and therefore historical data relevant to the proposed definition of default are limited. Moreover, commenters expressed concern that risk parameters estimated using the proposed definition of default would differ materially from those estimated using the New Accord's definition of default, resulting in different capital requirements for U.S. banks relative to their foreign peers.

The 5 percent credit-related loss trigger in the proposed definition of default for wholesale obligors was the focus of significant commenter concern. Commenters asserted that the trigger inappropriately imported LGD and maturity-related considerations into the definition of default, could hamper the use of loan sales as a risk management practice, and could cause obligors that are performing on their obligations to be considered defaulted. These commenters also claimed that the 5 percent trigger would

add significant implementation burden by, for example, requiring banks to distinguish between credit-related and non-credit-related losses on sale.

Many commenters requested that the agencies conform the U.S. wholesale definition of default to the New Accord. Other commenters requested that banks be allowed the option to apply either the U.S. or the New Accord definition of default.

The agencies agree that the proposed definition of default for wholesale obligors could have unintended consequences for implementation burden and international consistency. Therefore, the final rule contains a definition of default for wholesale obligors that is similar to the definition proposed in the ANPR and consistent with the New Accord. Specifically, under the final rule, a bank's wholesale obligor is in default if, for any wholesale exposure of the bank to the obligor: (i) the bank considers that the obligor is unlikely to pay its credit obligations to the bank in full, without recourse by the bank to actions such as realizing collateral (if held); or (ii) the obligor is past due more than 90 days on any material credit obligation to the bank. The final rule also clarifies, consistent with the New Accord, that an overdraft is past due once the obligor has breached an advised limit or has been advised of a limit smaller than the current outstanding balance.

Consistent with the New Accord, the following elements may be indications of unlikelihood to pay under this definition:

(i) The bank places the exposure on non-accrual status consistent with the Call Report Instructions or the TFR and the TFR Instruction Manual;

(ii) The bank takes a full or partial charge-off or write-down on the exposure due to the distressed financial condition of the obligor;

(iii) The bank incurs a material credit-related loss in connection with the sale of the exposure or the transfer of the exposure to the held-for-sale, available-for-sale, trading account, or other reporting category;

(iv) The bank consents to a distressed restructuring of the exposure that is likely to result in a diminished financial obligation caused by the material forgiveness or postponement of principal, interest or (where relevant) fees;

(v) The bank has filed as a creditor of the obligor for purposes of the obligor's bankruptcy under the U.S. Bankruptcy Code (or a similar proceeding in a foreign jurisdiction regarding the obligor's credit obligation to the bank); or

(vi) The obligor has sought or has been placed in bankruptcy or similar protection that would avoid or delay repayment of the exposure to the bank.

If a bank carries a wholesale exposure at fair value for accounting purposes, the bank's practices for determining unlikeliness to pay for purposes of the definition of default should be consistent with the bank's practices for determining credit-related declines in the fair value of the exposure.

Like the proposed definition of default for wholesale obligors, the final rule states that a wholesale exposure to an obligor remains in default until the bank has reasonable assurance of repayment and performance for all contractual principal and interest payments on all exposures of the bank to the obligor (other than exposures that have been fully written-down or charged-off). The agencies expect a bank to employ standards for determining whether it has a reasonable assurance of repayment and performance that are similar to those for determining whether to restore a loan from non-accrual to accrual status.

Retail default. In response to comments on the ANPR, the agencies proposed to define default for retail exposures according to the timeframes for loss classification that banks generally use for internal purposes. These timeframes are embodied in the FFIEC's Uniform Retail Credit Classification and Account Management Policy.³⁰ Specifically, revolving retail exposures and residential mortgage exposures would be in default at 180 days past due; other retail exposures would be in default at 120 days past due. In addition, a retail exposure would be in default if the bank had taken a full or partial charge-off or write-down of principal on the exposure for credit-related reasons. Such an exposure would remain in default until the bank had reasonable assurance of repayment and performance for all contractual principal and interest payments on the exposure.

Although some commenters supported the proposed rule's retail definition of default, others urged the agencies to adopt a 90-days-past-due default trigger consistent with the New Accord's definition of default for retail exposures. Other commenters requested that a non-accrual trigger be added to the retail definition of default similar to that in the proposed wholesale definition of default. The commenters viewed this as a practical way to allow a foreign banking organization to harmonize the U.S. retail definition of default to a home country definition of default that has a 90-days-past-due trigger.

The agencies believe that adding a non-accrual trigger to the retail definition of default is not appropriate. Retail non-accrual practices vary considerably among banks, and adding a non-accrual trigger to the retail definition of default would result in greater

³⁰ FFIEC, "Uniform Retail Credit Classification and Account Management Policy," 65 FR 36903, June 12, 2000.

inconsistency among banks in the treatment of retail exposures. Moreover, a bank that considers retail exposures to be defaulted at 90 days past due could have significantly different risk parameter estimates than one that uses 120- and 180-days-past-due thresholds. Such a bank would likely have higher PD estimates and lower LGD estimates due to the established tendency of a nontrivial proportion of U.S. retail exposures to “cure” or return to performing status after becoming 90 days past due and before becoming 120 or 180 days past due. The agencies believe that the 120- and 180-days-past-due thresholds, which are consistent with national discretion provided by the New Accord, reflect a point at which retail exposures in the United States are unlikely to return to performing status. Therefore, the agencies are incorporating the proposed retail definition of default without substantive change in the final rule. (Parallel to the full or partial charge-off or write-down trigger for retail exposures not held at fair value, the agencies added a material negative fair value adjustment of principal for credit-related reasons trigger for retail exposures held at fair value.)

The New Accord provides discretion for national supervisors to set the retail default trigger at up to 180 days past due for different products, as appropriate to local conditions. Accordingly, banks implementing the IRB approach in multiple jurisdictions may be subject to different retail definitions of default in their home and host jurisdictions. The agencies recognize that it could be costly and burdensome for a U.S. bank to track default data and estimate risk parameters based on both the U.S. definition of default and the definitions of default in non-U.S. jurisdictions where subsidiaries of the U.S. bank implement the IRB approach. The agencies are therefore incorporating flexibility into the retail definition of default. Specifically, for a retail exposure held by a

U.S. bank's non-U.S. subsidiary subject to an internal ratings-based approach to capital adequacy consistent with the New Accord in a non-U.S. jurisdiction, the final rule allows the bank to elect to use the definition of default of that jurisdiction, subject to prior approval by the bank's primary Federal supervisor. The primary Federal supervisor will revoke approval for a bank to use this provision if the supervisor finds that the bank uses the provision to arbitrage differences in national definitions of default.

The definition of default for retail exposures differs from the definition for the wholesale portfolio in that the retail default definition applies on an exposure-by-exposure basis rather than on an obligor-by-obligor basis. In other words, default on one retail exposure does not require a bank to treat all other retail obligations of the same borrower to the bank as defaulted. This difference reflects the fact that banks generally manage retail credit risk based on segments of similar exposures rather than through the assignment of ratings to particular borrowers. In addition, it is quite common for retail borrowers that default on some of their obligations to continue payment on others.

Although the retail definition of default does not explicitly include credit-related losses in connection with loan sales and the agencies have replaced the 5 percent credit-related loss threshold for wholesale exposures with a less prescriptive treatment that is consistent with the New Accord, the agencies expect banks to ensure that exposure sales do not bias or otherwise distort the estimated risk parameters assigned by a bank to its wholesale exposures and retail segments.

Rating philosophy

A bank's internal risk rating policy for wholesale exposures must describe the bank's rating philosophy, which is how the bank's wholesale obligor rating assignments

are affected by the bank's choice of the range of economic, business, and industry conditions that are considered in the obligor rating process. The philosophical basis of a bank's rating system is important because, when combined with the credit quality of individual obligors, it will determine the frequency of obligor rating changes in a changing economic environment. Rating systems that rate obligors based on their ability to perform over a wide range of economic, business, and industry conditions, sometimes described as "through-the-cycle" systems, tend to have ratings that migrate more slowly as conditions change. Banks that rate obligors based on a more narrow range of likely expected conditions (primarily on recent conditions), sometimes called "point-in-time" systems, tend to have ratings that migrate more frequently. Many banks will rate obligors using an approach that considers a combination of the current conditions and a wider range of other likely conditions. In any case, the bank must specify the rating philosophy used and establish a policy for the migration of obligors from one rating grade to another in response to economic cycles. A bank should understand the effects of ratings migration on its risk-based capital requirements and ensure that sufficient capital is maintained during all phases of the economic cycle.

Rating and segmentation reviews and updates

Each wholesale obligor rating and (if applicable) wholesale exposure loss severity rating must reflect current information. A bank's internal risk rating system for wholesale exposures must provide for the review and update (as appropriate) of each obligor rating and (if applicable) loss severity rating whenever the bank receives new material information, but no less frequently than annually. Under the proposed rule, a bank's retail exposure segmentation system would provide for the review and update (as

appropriate) of assignments of retail exposures to segments whenever the bank received new material information. The proposed rule specified that the review would be required no less frequently than quarterly.

One commenter noted that quarterly reviews may not be appropriate for high-quality retail portfolios, such as retail exposures associated with a bank's wealth management or private banking businesses. The commenter suggested that banks should have the flexibility to review and update segmentation assignments for such portfolios on a less frequent basis appropriate to the credit quality of the portfolios.

The agencies agree that it may be appropriate for a bank to review and update segmentation assignments for certain high-quality retail exposures on a less frequent basis than quarterly, provided a bank is following sound risk management practices. Therefore, the final rule generally requires a quarterly review and update, as appropriate, of retail exposure segmentation assignments, allowing some flexibility to accommodate sound internal risk management practices.

3. Quantification of risk parameters for wholesale and retail exposures

A bank must have a comprehensive risk parameter quantification process that produces accurate, timely, and reliable estimates of the risk parameters – PD, LGD, EAD, and (for wholesale exposures) M – for its wholesale obligors and exposures and retail exposures. Statistical methods and models used to develop risk parameter estimates, as well as any adjustments to the estimates or empirical data, should be transparent, well supported, and documented. The following sections of the preamble discuss the rule's definitions of the risk parameters for wholesale exposures and retail segments.

Probability of default (PD)

As noted above, under the final rule, a bank must assign each of its wholesale obligors to an internal rating grade and then must associate a PD with each rating grade. PD for a wholesale exposure to a non-defaulted obligor is the bank's empirically based best estimate of the long-run average one-year default rate for the rating grade assigned by the bank to the obligor, capturing the average default experience for obligors in the rating grade over a mix of economic conditions (including economic downturn conditions) sufficient to provide a reasonable estimate of the average one-year default rate over the economic cycle for the rating grade.

In addition, under the final rule, a bank must assign a PD to each segment of retail exposures. Some types of retail exposures typically display a seasoning pattern – that is, the exposures have relatively low default rates in their first year, rising default rates in the next few years, and declining default rates for the remainder of their terms. Because of the one-year IRB horizon, the proposed rule provided two different definitions of PD for a segment of non-defaulted retail exposures based on the materiality of seasoning effects for the segment or for the segment's retail exposure subcategory. Under the proposed rule, PD for a segment of non-defaulted retail exposures for which seasoning effects were not material, or for a segment of non-defaulted retail exposures in a retail exposure subcategory for which seasoning effects were not material, would be the bank's empirically based best estimate of the long-run average of one-year default rates for the exposures in the segment, capturing the average default experience for exposures in the segment over a mix of economic conditions (including economic downturn conditions) sufficient to provide a reasonable estimate of the average one-year default rate over the economic cycle for the segment. PD for a segment of non-defaulted retail exposures for

which seasoning effects were material would be the bank's empirically based best estimate of the annualized cumulative default rate over the expected remaining life of exposures in the segment, capturing the average default experience for exposures in the segment over a mix of economic conditions (including economic downturn conditions) to provide a reasonable estimate of the average performance over the economic cycle for the segment.

Commenters objected to this treatment of retail exposures with material seasoning effects. They asserted that requiring banks to use an annualized cumulative default rate to recognize seasoning effects was too prescriptive and would preclude other reasonable approaches. The agencies believe that commenters have presented reasonable alternative approaches to recognizing the effects of seasoning in PD and are, therefore, providing additional flexibility for recognizing those effects in the final rule.

Based on comments and additional consideration, the agencies also are clarifying that a segment of retail exposures has material seasoning effects if there is a material relationship between the time since origination of exposures within the segment and the bank's best estimate of the long-run average one-year default rate for the exposures in the segment. Moreover, because the agencies believe that the IRB approach must, at a minimum, require banks to hold appropriate amounts of risk-based capital to address credit risks over a one-year horizon, the final rule's incorporation of seasoning effects is explicitly one-directional. Specifically, a bank must increase PDs above the best estimate of the long-run average one-year default rate for segments of unseasoned retail exposures, but may not decrease PD below the best estimate of the long-run average one-

year default rate for a segment of retail exposures that the bank estimates will have lower PDs in future years due to seasoning.

The final rule defines PD for a segment of non-defaulted retail exposures as the bank's empirically based best estimate of the long-run average one-year default rate for the exposures in the segment, capturing the average default experience for exposures in the segment over a mix of economic conditions (including economic downturn conditions) sufficient to provide a reasonable estimate of the average one-year default rate over the economic cycle for the segment and adjusted upward as appropriate for segments for which seasoning effects are material. If a bank does not adjust PD to reflect seasoning effects for a segment of exposures, it should be able to demonstrate to its primary Federal supervisor, using empirical analysis, why seasoning effects are not material or why adjustment is not relevant for the segment.

For wholesale exposures to defaulted obligors and for segments of defaulted retail exposures, PD is 100 percent.

Loss given default (LGD)

Under the proposed rule, a bank would directly estimate an ELGD and LGD risk parameter for each wholesale exposure or would assign each wholesale exposure to an expected loss severity grade and a downturn loss severity grade, estimate an ELGD risk parameter for each expected loss severity grade, and estimate an LGD risk parameter for each downturn loss severity grade. In addition, a bank would estimate an ELGD and LGD risk parameter for each segment of retail exposures.

Expected loss given default (ELGD)

The proposed rule defined the ELGD of a wholesale exposure as the bank's empirically based best estimate of the default-weighted average economic loss per dollar of EAD the bank expected to incur in the event that the obligor of the exposure (or a typical obligor in the loss severity grade assigned by the bank to the exposure) defaulted within a one-year horizon.³¹ The proposed rule defined ELGD for a segment of retail exposures as the bank's empirically based best estimate of the default-weighted average economic loss per dollar of EAD the bank expected to incur on exposures in the segment that default within a one-year horizon. ELGD estimates would incorporate a mix of economic conditions (including economic downturn conditions). ELGD had four functions in the proposed rule—as a component of the calculation of ECL in the numerator of the risk-based capital ratios; in the EL component of the IRB risk-based capital formulas; as a floor on the value of the LGD risk parameter; and as an input into the supervisory mapping function.

Many commenters objected to the proposed rule's requirement for banks to estimate ELGD for each wholesale exposure and retail segment, noting that ELGD estimation is not required under the New Accord. Commenters asserted that requiring ELGD estimation would create a competitive disadvantage by creating additional systems, compliance, calculation, and reporting burden for those banks subject to the U.S. rule, many of which have already substantially developed their systems based on the New Accord. They also maintained that it would decrease the comparability of U.S. banks' capital requirements and public disclosures relative to those of foreign banking organizations applying the advanced approaches. Several commenters also contended that defining ECL in terms of ELGD instead of LGD raised tier 1 risk-based capital

³¹ Under the proposal, ELGD was not the statistical expected value of LGD.

requirements for U.S. banks compared to foreign banks using the New Accord's LGD-based ECL definition.

The agencies have concluded that the regulatory burden and potential competitive inequities identified by commenters outweigh the supervisory benefits of the proposed ELGD risk parameter, and are, therefore, not including it in the final rule. Instead, consistent with the New Accord, a bank must use LGD for the calculation of ECL and the EL component of the IRB risk-based capital formulas. Because the proposed ELGD risk parameter was equal to or less than LGD, this change generally will have the effect of decreasing both the numerator and denominator of the risk-based capital ratios.

Consistent with the New Accord, under the final rule, the LGD of a wholesale exposure or retail segment must not be less than the bank's empirically based best estimate of the long-run default-weighted average economic loss, per dollar of EAD, the bank would expect to incur if the obligor (or a typical obligor in the loss severity grade assigned by the bank to the exposure or segment) were to default within a one-year horizon over a mix of economic conditions, including economic downturn conditions. The final rule also specifies that LGD may not be less than zero. The implications of eliminating the ELGD risk parameter for the supervisory mapping function are discussed below.

Economic loss and post-default extensions of credit

Commenters requested additional clarity regarding the treatment of post-default extensions of credit. LGD is an estimate of the economic loss that would be incurred on an exposure, relative to the exposure's EAD, if the obligor were to default within a one-year horizon during economic downturn conditions. The estimated economic loss

amount must capture all material credit-related losses on the exposure (including accrued but unpaid interest or fees, losses on the sale of repossessed collateral, direct workout costs, and an appropriate allocation of indirect workout costs). Where positive or negative cash flows on a wholesale exposure to a defaulted obligor or on a defaulted retail exposure (including proceeds from the sale of collateral, workout costs, and draw-downs of unused credit lines) are expected to occur after the date of default, the estimated economic loss amount must reflect the net present value of cash flows as of the default date using a discount rate appropriate to the risk of the exposure. The possibility of post-default extensions of credit made to facilitate collection of an exposure would be treated as negative cash flows and reflected in LGD.

For example, assume a loan to a retailer goes into default. The bank determines that the recovery would be enhanced by some additional expenditure to ensure an orderly workout process. One option would be for the bank to hire a third-party to facilitate the collection of the loan. Another option would be for the bank to extend additional credit directly to the defaulted obligor to allow the obligor to make an orderly liquidation of inventory. Both options represent negative cash flows on the original exposure, which must be discounted at a rate that is appropriate to the risk of the exposure.

Economic downturn conditions

The expected loss severities of some exposures may be substantially higher during economic downturn conditions than during other periods, while for other types of exposures they may not. Accordingly, the proposed rule required banks to use an LGD estimate that reflected economic downturn conditions for purposes of calculating the risk-based capital requirements for wholesale exposures and retail segments.

Several commenters objected to the requirement that LGD estimates must reflect economic downturn conditions. Some of these commenters stated that empirical evidence of correlation between economic downturn and LGD is inconclusive, except in certain cases. A few noted that estimates of expected LGD include conservative inputs, such as a conservative estimate of potential loss in the event of default or a conservative discount rate or collateral assumptions. One commenter suggested that if a bank can demonstrate it has been prudent in its LGD estimation and it has no evidence of the cyclical nature of LGDs, it should not be required to calculate downturn LGDs. Other commenters remarked that the requirement to incorporate downturn conditions into LGD estimates should not be used as a surrogate for proper modeling of PD/LGD correlations. Finally, a number of commenters supported a pillar 2 approach for addressing LGD estimation.

Consistent with the New Accord, the final rule maintains the requirement for a bank to use an LGD estimate that reflects economic downturn conditions for purposes of calculating the risk-based capital requirements for wholesale exposures and retail segments. More specifically, banks must produce for each wholesale exposure (or loss severity rating grade) and retail segment an estimate of the economic loss per dollar of EAD that the bank would expect to incur if default were to occur within a one-year horizon during economic downturn conditions.

For the purpose of defining economic downturn conditions, the proposed rule identified two wholesale exposure subcategories – high-volatility commercial real estate (HVCRE) wholesale exposures and non-HVCRE wholesale exposures (that is, all wholesale exposures that are not HVCRE exposures) – and three retail exposure

subcategories – residential mortgage exposures, QREs, and other retail exposures. The proposed rule defined economic downturn conditions with respect to an exposure as those conditions in which the aggregate default rates for the exposure’s entire wholesale or retail subcategory held by the bank (or subdivision of such subcategory selected by the bank) in the exposure’s national jurisdiction (or subdivision of such jurisdiction selected by the bank) were significantly higher than average.

The agencies specifically sought comment on whether to require banks to determine economic downturn conditions at a more granular level than an entire wholesale or retail exposure subcategory in a national jurisdiction. Some commenters stated that the proposed requirement is at a sufficiently granular level. Others asserted that the requirement should be eliminated or made less granular. Those commenters favoring less granularity stated that aggregate default rates for different product subcategories in different countries are unlikely to peak at the same time and that requiring economic downturn analysis at the product subcategory and national jurisdiction level does not recognize potential diversification effects across products and national jurisdictions and is thus overly conservative. Commenters also maintained that the proposed granularity requirement adds complexity and implementation burden relative to the New Accord.

The agencies believe that the proposed definition of economic downturn conditions incorporates an appropriate level of granularity and are incorporating it unchanged in the final rule. The agencies understand that downturns in particular geographical subdivisions of national jurisdictions or in particular industrial sectors may result in significantly increased loss rates in material subdivisions of a bank’s exposures.

The agencies also recognize that diversification across those subdivisions may mitigate risk for the overall organization. However, the agencies believe that the required minimum level of granularity at the subcategory and national jurisdiction level provides a suitable balance between allowing for the benefits of diversification and appropriate conservatism for risk-based capital requirements.

Under the final rule, a bank must consider economic downturn conditions that appropriately reflect its actual exposure profile. For example, a bank with a geographical or industry sector concentration in a subcategory of exposures may find that information relating to a downturn in that geographical region or industry sector may be more relevant for the bank than a general downturn affecting many regions or industries. The final rule (like the proposed rule) allows banks to subdivide exposure subcategories or national jurisdictions as they deem appropriate given the exposures held by the bank. Moreover, the agencies note that the exposure subcategory/national jurisdiction granularity requirement is only a minimum granularity requirement.

Supervisory mapping function

The proposed rule provided banks two methods of generating LGD estimates for wholesale exposures and retail segments. First, a bank could use its own estimates of LGD for a subcategory of exposures if the bank had prior written approval from its primary Federal supervisor to use internal estimates for that subcategory of exposures. In approving a bank's use of internal estimates of LGD, a bank's primary Federal supervisor would consider whether the bank's internal estimates of LGD were reliable and sufficiently reflective of economic downturn conditions. The supervisor would also consider whether the bank has rigorous and well-documented policies and procedures for

identifying economic downturn conditions for the exposure subcategory, identifying material adverse correlations between the relevant drivers of default rates and loss rates given default, and incorporating identified correlations into internal LGD estimates. If a bank had supervisory approval to use its own estimates of LGD for an exposure subcategory, it would use its own estimates of LGD for all exposures within that subcategory.

As an alternative to internal estimates of LGD, the proposed rule provided a supervisory mapping function for converting ELGD into LGD for risk-based capital purposes. A bank that did not qualify to use its own estimates of LGD for a subcategory of exposures would instead compute LGD using the linear supervisory mapping function: $LGD = 0.08 + 0.92 \times ELGD$. A bank would not have to apply the supervisory mapping function to repo-style transactions, eligible margin loans, and OTC derivative contracts (defined below in section V.C. of this preamble). The agencies proposed the supervisory mapping function because of concerns that banks may find it difficult to produce internal estimates of LGD that are sufficient for risk-based capital purposes because LGD data for important portfolios may be sparse, and there is limited industry experience with incorporating downturn conditions into LGD estimates. The supervisory mapping function provided a pragmatic methodology for banks to use while refining their LGD estimation techniques.

In general, commenters viewed the supervisory mapping function as a significant deviation from the New Accord that would add unwarranted prescriptiveness and regulatory burden to the U.S. rule. Commenters requested more flexibility to address problems with LGD estimation, including the ability to apply appropriate margins of

conservatism as contemplated in the New Accord. Commenters expressed concern that U.S. supervisors would employ an unreasonably high standard for allowing own estimates of LGD, forcing banks to use the supervisory mapping function for an extended period of time. Commenters also expressed concern that supervisors would view the output of the supervisory mapping function as a floor on internal estimates of LGD. Commenters asserted that in both cases risk-based capital requirements would be increased at U.S. banks relative to their foreign competitors, particularly for high-quality assets, putting U.S. banks at a competitive disadvantage to foreign banks.

In particular, many commenters viewed the supervisory mapping function as overly punitive for exposure categories with relatively low loss severities, effectively imposing an 8 percent floor on LGD. Commenters also objected to the proposed requirement that a bank use the supervisory mapping function for an entire subcategory of exposures even if it had difficulty estimating LGD only for a small subset of those exposures.

The agencies continue to believe that the supervisory mapping function is a reasonable aid for dealing with problems in LGD estimation. The agencies recognize, however, that there may be several valid methodologies for addressing such problems. For example, a relative scarcity of historical loss data for a particular obligor or exposure type may be addressed by increased reliance on alternative data sources and data-enhancing tools for quantification and alternative techniques for validation. In addition, a bank should reflect in its estimates of risk parameters a margin of conservatism that is related to the likely range of uncertainty. These concepts are discussed below in the quantification principles section of the preamble.

Therefore, the agencies are not including the supervisory mapping function in the final rule. However, the agencies continue to believe that the function (and associated estimation of the long-run default-weighted average economic loss rate given default within a one-year horizon) is one way a bank could address difficulties in estimating LGD. However it chooses to estimate LGD, a bank's estimates of LGD must be reliable and sufficiently reflective of economic downturn conditions, and the bank should have rigorous and well-documented policies and procedures for identifying economic downturn conditions for each exposure subcategory, identifying changes in material adverse relationships between the relevant drivers of default rates and loss rates given default, and incorporating identified relationships into LGD estimates.

Pre-default reductions in exposure

The proposed rule incorporated comments on the ANPR suggesting a need to better accommodate certain credit products, most prominently asset-based lending programs, whose structures typically result in a bank recovering substantial amounts of the exposure prior to the default date – for example, through paydowns of outstanding principal. The agencies believe that actions taken prior to default to mitigate losses are an important component of a bank's overall credit risk management, and that such actions should be reflected in LGD when banks can quantify their effectiveness in a reliable manner. In the proposed rule, this was achieved by measuring LGD relative to the exposure's EAD (defined in the next section) as opposed to the amount actually owed at default.³²

³² To illustrate, suppose that for a particular asset-based lending exposure the EAD equaled \$100 and that for every \$1 owed by the obligor at the time of default the bank's recovery would be \$0.40. Furthermore, suppose that in the event of default within a one-year horizon, pre-default paydowns of \$20 would reduce the exposure amount to \$80 at the time of default. In this case, the bank's economic loss rate measured

Commenters agreed that the IRB approach should allow banks to recognize in their risk parameters the benefits of expected pre-default recoveries and other expected reductions in exposure prior to default. Some commenters suggested, however, that it is more appropriate to reflect pre-default recoveries in EAD rather than LGD. Other commenters supported the proposed rule's approach or asserted that banks should have the option of incorporating pre-default recoveries in either LGD or EAD. Commenters discouraged the agencies from restricting the types of pre-default reductions in exposure that could be recognized, and generally contended that the reductions should be recognized for all exposures for which a pattern of pre-default reductions can be estimated reliably and accurately by the bank.

Consistent with the New Accord, the agencies have decided to maintain the proposed treatment of pre-default reductions in exposure in the final rule. The final rule does not limit the exposure types to which a bank may apply this treatment. However, the agencies have clarified their requirement for quantification of LGD in section 22(c)(4) of the final rule. This section states that where the bank's quantification of LGD directly or indirectly incorporates estimates of the effectiveness of its credit risk management practices in reducing its exposure to troubled obligors prior to default, the bank must support such estimates with empirical analysis showing that the estimates are consistent with its historical experience in dealing with such exposures during economic downturn conditions.

relative to the amount owed at default (60 percent) would exceed the economic loss rate measured relative to EAD (48 percent = $.60 \times (\$100 - \$20) / \$100$), because the former does not reflect fully the impact of the pre-default paydowns.

A bank's methods for reflecting changes in exposure during the period prior to default must be consistent with other aspects of the final rule. For example, a bank must use a default horizon no longer than one year, consistent with the one-year default horizon incorporated in other aspects of the final rule, such as the quantification of PD. In addition, a pre-default reduction in the outstanding amount on one exposure that does not reflect a reduction in the bank's total exposure to the obligor, such as a refinancing, should not be reflected as a pre-default recovery for LGD quantification purposes.

The following simplified example illustrates how a bank could approach incorporating pre-default reductions in exposure in LGD. Assume a bank has a portfolio of asset-based loans fully collateralized by receivables. The bank maintains a database of such loans that have defaulted, which records the exposure at the time of default and the losses incurred at and after the date of default. After careful analysis of its historical data, the bank finds that for every \$100 of exposure on a typical asset-based loan at the time of default, properly discounted average losses are \$80 under economic downturn conditions. Thus, the bank may assign an LGD estimate of 80 percent that is based on such evidence.

However, assume that the bank division responsible for collections reports that the bank's loan workout practices generally result in exposures on the asset-based loans being significantly reduced between the time the loan is identified internally as a problem exposure and the time when the obligor is in default for risk-based capital purposes. The bank studies the pre-default paydown behavior of obligors that default within the next one-year horizon and during economic downturn conditions. In particular, the bank uses its internal historical data to map exposure amounts for asset-based loans at the time of default to exposure amounts for the same loans at various points in time prior to default

and confirms that the pattern of pre-default paydowns corresponds to reductions in the bank's overall exposures to the obligors, as opposed to refinancings.

Robust empirical analysis further indicates that pre-default paydowns for asset-based loans to obligors that default within the next one-year horizon during economic downturn conditions depend on the length of time the loan has been subject to workout. Specifically, the bank finds that the prospects for further pre-default paydowns diminish markedly the longer the bank has managed the loan as a problem credit exposure. For loans that are not in workout or that the bank has placed in workout for fewer than 90 days, the bank's analysis indicates that pre-default paydowns on loans to obligors defaulting within the next year during economic downturn conditions were, on average, 50 percent of the current amount owed by the obligor. In contrast, for asset-based loans that have been in workout for at least 90 days, the bank's analysis indicates that any further pre-default recoveries tend to be immaterial. Thus, provided this analysis is suitable for estimating LGDs according to section 22(c) of the final rule, the bank may appropriately assign an LGD estimate of 40 percent to asset-based loans that are not in workout or that have been in workout for fewer than 90 days. For asset-based loans that have been in workout for at least 90 days, the bank should assign an LGD of 80 percent.

Exposure at default (EAD)

Under the proposed rule, EAD for the on-balance sheet component of a wholesale or retail exposure generally was (i) the bank's carrying value for the exposure (including net accrued but unpaid interest and fees)³³ less any allocated transfer risk reserve for the exposure, if the exposure was classified as held-to-maturity or for trading; or (ii) the

³³ "Net accrued but unpaid interest and fees" are accrued but unpaid interest and fees net of any amount expensed by the bank as uncollectable.

bank's carrying value for the exposure (including net accrued but unpaid interest and fees) less any allocated transfer risk reserve for the exposure and any unrealized gains on the exposure plus any unrealized losses on the exposure, if the exposure was classified as available-for-sale.

One commenter asserted that banks should not be required to include net accrued but unpaid interest and fees in EAD. Rather, this commenter requested the flexibility to incorporate such interest and fees in either EAD or LGD. The agencies believe that net accrued but unpaid interest and fees represent credit exposure to an obligor, similar to the unpaid principal of a loan extended to the obligor, and thus are most appropriately included in EAD. Moreover, requiring all banks to include such interest and fees in EAD rather than LGD promotes consistency and comparability across banks for regulatory reporting and public disclosure purposes.

The agencies are therefore maintaining the substance of the proposed rule's definition of EAD for on-balance sheet exposures in the final rule. The final rule clarifies that, for purposes of EAD, all exposures other than securities classified as available-for sale receive the treatment specified for exposures classified as held-to-maturity or for trading under the proposal. Some exposures held at fair value, such as partially funded loan commitments, may have both on-balance sheet and off-balance sheet components. In such cases, a bank must compute EAD for both the positive on- and off-balance sheet components of the exposure.

For the off-balance sheet component of a wholesale or retail exposure (other than an OTC derivative contract, repo-style transaction, or eligible margin loan) in the form of a loan commitment or line of credit, EAD under the proposed rule was the bank's best

estimate of net additions to the outstanding amount owed the bank, including estimated future additional draws of principal and accrued but unpaid interest and fees, that were likely to occur over the remaining life of the exposure assuming the exposure were to go into default. This estimate of net additions would reflect what would be expected during a period of economic downturn conditions. This treatment is retained in the final rule. Also, consistent with the New Accord, the final rule extends this “own estimates” treatment to trade-related letters of credit and for transaction-related contingencies. Trade-related letters of credit are short-term self-liquidating instruments used to finance the movement of goods and are collateralized by the underlying goods. A transaction-related contingency includes such items as a performance bond or performance-based standby letter of credit.

For the off-balance sheet component of a wholesale or retail exposure other than an OTC derivative contract, repo-style transaction, eligible margin loan, loan commitment, or line of credit issued by a bank, EAD was the notional amount of the exposure. This treatment is retained in the final rule.

One commenter asked the agencies to permit banks to employ the New Accord’s flexibility to reflect additional draws on lines of credit in either LGD or EAD. For the same reasons that the agencies are requiring banks to include net accrued but unpaid interest and fees in EAD, the agencies have decided to continue the requirement in the final rule for banks to reflect estimates of additional draws in EAD, consistent with the proposed rule.

Another commenter noted that the “remaining life of the exposure” concept in the proposed definition of EAD for off-balance sheet exposures is ambiguous and

inconsistent with defining PD over a one-year horizon. To address this commenter's concern, the agencies have modified the definition of EAD. The final rule requires a bank to estimate net additions to the outstanding amount owed the bank in the event of default over a one-year horizon.

Other commenters noted that banks may reduce their exposure to certain sectors in periods of economic downturn, and inquired as to the extent to which such practices may be reflected in EAD estimates. The agencies believe that such practices may be reflected in EAD estimates for loan commitments, lines of credit, trade-related letters of credit, and transaction-related contingencies to the extent that those practices are reflected in the bank's data on defaulted exposures. They may be reflected in EAD estimates for on-balance sheet exposures only at the time the on-balance sheet exposure is actually reduced.

To illustrate the EAD concept, assume a bank has a \$100 unsecured, fully drawn, two-year term loan with \$10 of interest payable at the end of the first year and a balloon payment of \$110 at the end of the term. Suppose it has been six months since the loan's origination, and accrued interest equals \$5. The EAD of this loan would be equal to the outstanding principal amount plus accrued interest, or \$105.

Next, consider the case of an open-end revolving credit line of \$100, on which the borrower had drawn \$70 (the unused portion of the line is \$30). Current accrued but unpaid interest and fees are zero. The bank can document that, on average, during economic downturn conditions, 20 percent of the remaining undrawn amounts are drawn in the year preceding a firm's default. Therefore, the bank's estimate of future draws is \$6 (20% x \$30). Additionally, the bank's analysis indicates that, on average, during

economic downturn conditions, such a facility can be expected to have accrued at the time of default unpaid interest and commitment fees equal to three months of interest against the drawn amount and 0.5 percent against the undrawn amount, which in this example is assumed to equal \$0.25. Thus, the EAD for estimated future accrued but unpaid interest and fees equals \$0.25. In sum, the EAD should be the drawn amount plus estimated future accrued but unpaid fees plus the estimated amount of future draws = \$76.25 ($\$70 + \$0.25 + \6).

Under the proposed rule, EAD for a segment of retail exposures was the sum of the EADs for each individual exposure in the segment. The agencies have changed this provision in the final rule, recognizing that banks typically estimate EAD for a segment of retail exposures rather than on an individual exposure basis.

Under the final and proposed rules, for wholesale or retail exposures in which only the drawn balance has been securitized, the bank must reflect its share of the exposures' undrawn balances in EAD. The undrawn balances of revolving exposures for which the drawn balances have been securitized must be allocated between the seller's and investors' interests on a pro rata basis, based on the proportions of the seller's and investors' shares of the securitized drawn balances. For example, if the EAD of a group of securitized exposures' undrawn balances is \$100, and the bank's share (seller's interest) in the securitized exposures is 25 percent, the bank must reflect \$25 in EAD for the undrawn balances.

The final rule (like the proposed rule) contains a separate treatment of EAD for OTC derivative contracts, which is in section 32 of the rule and discussed in more detail in section V.C. of the preamble. The final rule also clarifies that a bank may use the

treatment of EAD in section 32 of the rule for repo-style transactions and eligible margin loans, or the bank may use the general definition of EAD described in this section for such exposures.

General quantification principles

The final rule, like the proposed rule, requires data used by a bank to estimate risk parameters to be relevant to the bank's actual wholesale and retail exposures and of sufficient quality to support the determination of risk-based capital requirements for the exposures. For wholesale exposures, estimation of the risk parameters must be based on a minimum of five years of default data to estimate PD, seven years of loss severity data to estimate LGD, and seven years of exposure amount data to estimate EAD. For segments of retail exposures, estimation of risk parameters must be based on a minimum of five years of default data to estimate PD, five years of loss severity data to estimate LGD, and five years of exposure amount data to estimate EAD. Default, loss severity, and exposure amount data must include periods of economic downturn conditions or the bank must adjust its estimates of risk parameters to compensate for the lack of data from such periods. Banks must base their estimates of PD, LGD, and EAD on the final rule's definition of default, and must review at least annually and update (as appropriate) their risk parameters and risk parameter quantification process.

In all cases, banks are expected to use the best available data for quantifying the risk parameters. A bank could meet the minimum data requirement by using internal data, external data, or pooled data combining internal data with external data. Internal data refers to any data on exposures held in a bank's existing or historical portfolios, including data elements or information provided by third parties regarding such

exposures. External data refers to information on exposures held outside of the bank's portfolio or aggregate information across an industry. For new lines of business, where a bank lacks sufficient internal data, a bank likely will need to use external data to supplement its internal data.

The agencies recognize that the minimum sample period for reference data provided in the final rule may not provide the best available results. A longer sample period usually captures varying economic conditions better than a shorter sample period. In addition, a longer sample period will include more default observations for LGD and EAD estimation. Banks should consider using a longer-than-minimum sample period when possible. However, the potential increase in precision afforded by a larger sample size should be weighed against the potential for diminished comparability of older data to the existing portfolio.

Portfolios with limited data or limited defaults

Many commenters requested further clarity about the procedures that banks should use to estimate risk parameters for portfolios characterized by a lack of internal data or with very little default experience. In particular, the GAO report recommended that the agencies provide additional clarity on this issue. Several commenters indicated that the agencies should establish criteria for identifying homogeneous portfolios of low-risk exposures and allow banks to apportion expected loss between LGD and PD for those portfolios rather than estimating each risk parameter separately. Other commenters suggested that the agencies consider whether banks should be permitted to use the New Accord's standardized approach for credit risk for such portfolios.

The final rule requires banks to meet the qualification requirements in section 22 for all portfolios of exposures. The agencies expect that banks demonstrating appropriately rigorous processes and sufficient degrees of conservatism for portfolios with limited data or limited defaults will be able to meet the qualification requirements. Section 22(c)(3) of the final rule specifically states that a bank's risk parameter quantification process "must produce appropriately conservative risk parameter estimates where the bank has limited relevant data." The agencies believe that this section provides sufficient flexibility and incentives for banks to develop and document sound practices for applying the IRB approach to portfolios lacking sufficient data.

The section of the preamble below expands upon potential approaches to portfolios with limited data. The BCBS publication "Validation of low-default portfolios in the Basel II Framework"³⁴ also provides a resource for banks facing this issue. The agencies will work with banks through the supervisory and examination processes to address particular situations.

Portfolios with limited data. The final rule, like the proposal, permits the use of external data in quantification of risk parameters. External data should be informative of, and appropriate to, a bank's existing exposures. In some cases, a bank may be able to acquire and use external data from a third party to estimate risk parameters until the bank's internal database meets the requirements of the rule. Alternatively, a bank may be able to identify a set of data-rich internal exposures that could be used to inform the estimation of risk parameters for the portfolio for which it has insufficient data. The key considerations for a bank in determining whether to use alternative data sources will be

³⁴ BCBS, Basel Committee Newsletter No. 6, "Validation of low-default portfolios in the Basel II Framework," September 2005.

whether such data are sufficiently accurate, complete, representative and informative of the bank's existing exposures and whether the bank's quantification of risk parameters is rigorously conducted and well documented.

For instance, consider a bank that has recently extended its credit card operations to include a new market segment for credit card loans and, therefore, has limited internal data on the performance of the exposures in this new market segment. The bank could acquire external data from various vendors that would provide a broad, market-wide picture of default and loss experience in the new market segment. This external data could then be supplemented by the bank's internal data and experience with its existing credit card operations. By comparing the bank's experience with its existing customers to the market data, the bank can refine the risk parameters estimated from the external data on the new market segment and make those parameters more accurate for the bank's new market segment of exposures. Using the combination of these data sources, the bank may be able to estimate appropriately conservative estimates of risk parameters for its new market segment of exposures. If the bank is not able to do so, it must include the new market segment of exposures in its set of aggregate immaterial exposures and apply a 100 percent risk weight.

Portfolios with limited defaults. Commenters indicated that they had experienced very few defaults for some portfolios, most notably margin loans and exposures to some sovereign issuers, which made it difficult to separately estimate PD and LGD. The agencies recognize that some portfolios have experienced very few defaults and have very low loss experiences. The absence of defaults or losses in historical data does not, however, preclude the potential for defaults or large losses to arise in future

circumstances. Moreover, as discussed previously, the ability to separate EL into PD and LGD is a key component of the IRB approach.

As with the cases described above in which internal data are limited in all dimensions, external data from some related portfolios or for similar obligors may be used to estimate risk parameters that are then mapped to the low default portfolio or obligor. For example, banks could consider instances of near default or credit deterioration short of default in these low default portfolios to inform estimates of what might happen if a default were to occur. Similarly, scenario analysis that evaluates the hypothetical impact of severe market disruptions may help inform the bank's parameter estimates for margin loans. For very low-risk wholesale obligors that have publicly traded financial instruments, banks may be able to glean information about the relative values of PD and LGD from different changes in credit spreads on instruments of different maturity or from different moves in credit spreads and equity prices. In all cases, risk parameter estimates should incorporate a degree of conservatism that is appropriate for the overall rigor of the quantification process.

Other quantification process considerations. Both internal and external reference data should not differ systematically from a bank's existing portfolio in ways that seem likely to be related to default risk, loss severity, or exposure at default. Otherwise, the derived PD, LGD, or EAD estimates may not be applicable to the bank's existing portfolio. Accordingly, the bank must conduct a comprehensive review and analysis of reference data at least annually to determine the relevance of reference data to the bank's exposures, the quality of reference data to support PD, LGD, and EAD estimates, and the consistency of reference data to the definition of default in the final rule. Furthermore, a

bank must have adequate internal or external data to estimate the risk parameters PD, LGD, and EAD (each of which incorporates a one-year time horizon) for all wholesale exposure and retail segments, including those originated for sale or that are in the securitization pipeline.

As noted above, periods of economic downturn conditions must be included in the data sample (or adjustments to risk parameters must be made). If the reference data include data from beyond the minimum number of years (to capture a period of economic downturn conditions or for other valid reasons), the reference data need not cover all of the intervening years. However, a bank should justify the exclusion of available data and, in particular, any temporal discontinuities in data used. Including periods of economic downturn conditions increases the size and potentially the breadth of the reference data set. According to some empirical studies, the average loss rate is higher during periods of economic downturn conditions, such that exclusion of such periods would bias LGD or EAD estimates downward and unjustifiably lower risk-based capital requirements.

Risk parameter estimates should take into account the robustness of the quantification process. The assumptions and adjustments embedded in the quantification process should reflect the degree of uncertainty or potential error inherent in the process. In practice, a reasonable estimation approach likely would result in a range of defensible risk parameter estimates. The choices of the particular assumptions and adjustments that determine the final estimate, within the defensible range, should reflect the uncertainty in the quantification process. More uncertainty in the process should be reflected in the assignment of final risk parameter estimates that result in higher risk-based capital

requirements relative to a quantification process with less uncertainty. The degree of conservatism applied to adjust for uncertainty should be related to factors such as the relevance of the reference data to a bank's existing exposures, the robustness of the models, the precision of the statistical estimates, and the amount of judgment used throughout the process. A bank is not required to add a margin of conservatism at each step if doing so would produce an excessively conservative result. Instead, the overall margin of conservatism should adequately account for all uncertainties and weaknesses in the quantification process. Improvements in the quantification process (including use of more complete data and better estimation techniques) may reduce the appropriate degree of conservatism over time.

Judgment will inevitably play a role in the quantification process and may materially affect the estimates of risk parameters. Judgmental adjustments to estimates are often necessary because of limitations on available reference data or because of inherent differences between the reference data and the bank's existing exposures. The bank's risk parameter quantification process must produce appropriately conservative risk parameter estimates when the bank has limited relevant data, and any adjustments that are part of the quantification process must not result in a pattern of bias toward lower risk parameter estimates. This does not prohibit individual adjustments that result in lower estimates of risk parameters, as both upward and downward adjustments are expected. Individual adjustments are less important than broad patterns; consistent signs of judgmental decisions that materially lower risk parameter estimates may be evidence of systematic bias, which is not permitted.

In estimating relevant risk parameters, banks should not rely on the possibility of U.S. government financial assistance, except for the financial assistance that the U.S. government has a legally binding commitment to provide.

4. Optional approaches that require prior supervisory approval

A bank that intends to apply the internal models methodology to counterparty credit risk, the double default treatment for credit risk mitigation, the IAA for securitization exposures to ABCP programs, or the IMA to equity exposures must receive prior written approval from its primary Federal supervisor. The criteria on which approval will be based are described in the respective sections below.

5. Operational risk

A bank must have operational risk management processes, data and assessment systems, and quantification systems that meet the qualification requirements in section 22(h) of the final rule. A bank must have an operational risk management function that is independent of business line management. The operational risk management function is responsible for the design, implementation, and oversight of the bank's operational risk data and assessment systems, operational risk quantification systems, and related processes. The roles and responsibilities of the operational risk management function may vary between banks, but should be clearly documented. The operational risk management function should have an organizational stature commensurate with the bank's operational risk profile. At a minimum, the bank's operational risk management function should ensure the development of policies and procedures for the explicit management of operational risk as a distinct risk to the bank's safety and soundness.

A bank also must establish and document a process to identify, measure, monitor, and control operational risk in bank products, activities, processes, and systems. This process should provide for the consistent and comprehensive collection of the data needed to estimate the bank's exposure to operational risk. This process must capture business environment and internal control factors affecting the bank's operational risk profile. The process must also ensure reporting of operational risk exposures, operational loss events, and other relevant operational risk information to business unit management, senior management, and to the board of directors (or a designated committee of the board).

The final rule defines an operational loss event as an event that results in loss and is associated with any of the seven operational loss event type categories. Under the final rule, the agencies have included definitions of the seven operational loss event type categories, consistent with the descriptions outlined in the New Accord. The seven operational loss event type categories are: (i) internal fraud, which is the operational loss event type category that comprises operational losses resulting from an act involving at least one internal party of a type intended to defraud, misappropriate property or circumvent regulations, the law or company policy, excluding diversity and discrimination-type events; (ii) external fraud, which is the operational loss event type category that comprises operational losses resulting from an act by a third party of a type intended to defraud, misappropriate property or circumvent the law;³⁵ (iii) employment practices and workplace safety, which is the operational loss event type category that comprises operational losses resulting from an act inconsistent with employment, health,

³⁵ Retail credit card losses arising from non-contractual, third-party initiated fraud (for example, identity theft) are external fraud operational losses. All other third-party initiated credit losses are to be treated as credit risk losses.

or safety laws or agreements, payment of personal injury claims, or payment arising from diversity or discrimination events; (iv) clients, products, and business practices, which is the operational loss event type category that comprises operational losses resulting from the nature or design of a product or from an unintentional or negligent failure to meet a professional obligation to specific clients (including fiduciary and suitability requirements); (v) damage to physical assets, which is the operational loss event type category that comprises operational losses resulting from the loss of or damage to physical assets from natural disaster or other events; (vi) business disruption and system failures, which is the operational loss event type category that comprises operational losses resulting from disruption of business or system failures; and (vii) execution, delivery, and process management, which is the operational loss event type category that comprises operational losses resulting from failed transaction processing or process management or losses arising from relations with trade counterparties and vendors.

The final rule does not require a bank to capture internal operational loss event data according to these categories. However, unlike the proposed rule, the final rule requires that a bank must be able to map such data into the seven operational loss event type categories. The agencies believe such mapping will promote reporting consistency and comparability across banks and is consistent with expectations in the New Accord.³⁶

A bank's operational risk management processes should reflect the scope and complexity of its business lines, as well as its corporate organizational structure. Each bank's operational risk profile is unique and should have a tailored risk management approach appropriate for the scale and materiality of the operational risks present in the bank.

³⁶ New Accord, ¶673.

Operational risk data and assessment system

A bank must have an operational risk data and assessment system that incorporates on an ongoing basis the following four elements: internal operational loss event data, external operational loss event data, results of scenario analysis, and assessments of the bank's business environment and internal controls. These four operational risk elements should aid the bank in identifying the level and trend of operational risk, determining the effectiveness of operational risk management and control efforts, highlighting opportunities to better mitigate operational risk, and assessing operational risk on a forward-looking basis. A bank's operational risk data and assessment system must be structured in a manner consistent with the bank's current business activities, risk profile, technological processes, and risk management processes.

The proposed rule defined operational loss as a loss (excluding insurance or tax effects) resulting from an operational loss event. Operational losses included all expenses associated with an operational loss event except for opportunity costs, forgone revenue, and costs related to risk management and control enhancements implemented to prevent future operational losses. The definition of operational loss is an important issue, as it is a critical building block in a bank's calculation of its operational risk capital requirement under the AMA. More specifically, the bank's estimate of operational risk exposure – the basis for determining a bank's risk-weighted asset amount for operational risk – is an estimate of aggregate operational losses generated by the bank's AMA process.

Many commenters supported the agencies' proposed definition of operational loss and viewed it as appropriate and consistent with general use within the banking industry.

Some commenters, however, opposed the inclusion of a specific definition of operational loss and asserted that the proposed treatment of operational loss is too prescriptive. In addition, some commenters maintained that including a definition of operational loss is inconsistent with the New Accord, which does not explicitly define operational loss. In response to a specific question in the proposal, many commenters asserted that the definition of operational loss should relate to its impact on regulatory capital rather than economic capital concepts. One commenter, however, recommended using the replacement cost of any fixed asset affected by an operational loss event to reflect the actual financial impact of the event.

Because operational losses are the building blocks in a bank's calculation of its operational risk capital requirement under the AMA, the agencies continue to believe that it is necessary to define what is meant by operational loss to achieve comparability and foster consistency both across banks and across business lines within a bank. Additionally, the agencies agree with those commenters who asserted that the definition of operational loss should relate to its impact on regulatory capital. Therefore, the agencies have adopted the proposed definition of operational loss unchanged.

In the preamble to the proposed rule, the agencies recognized that there was a potential to double-count all or a portion of the risk-based capital requirement associated with fixed assets. Under the proposed rule, the credit-risk-weighted asset amount for a bank's premises would equal the carrying value of the premises on the financial statements of the bank, determined in accordance with GAAP. A bank's operational risk exposure estimate addressing bank premises generally would be different than, and in addition to, the risk-based capital requirement generated under the proposed rule and

could, at least in part, address the same risk exposure. The majority of commenters on this issue recommended removing the credit risk capital requirement for premises and other fixed assets and preserving only the operational risk capital requirement.

The agencies are maintaining the proposed rule's treatment of fixed assets in the final rule. The New Accord generally provides a risk weight of 100 percent for assets for which an IRB treatment is not specified.³⁷ Consistent with the New Accord, the final rule provides that the risk-weighted asset amount for any on-balance sheet asset that does not meet the definition of a wholesale, retail, securitization, or equity exposure is equal to the carrying value of the asset. Also consistent with the New Accord, the final rule continues to include damage to physical assets among the operational loss event types incorporated into a bank's operational risk exposure estimate.³⁸ The agencies believe that requiring a bank to calculate both a credit risk and operational risk capital requirement for premises and fixed assets is justified in light of the fact that the credit risk capital requirement covers a broader set of risks, whereas the operational risk capital requirement covers potential physical damage to the asset. The agencies view this treatment of premises and other fixed assets as consistent with the New Accord and have confirmed that the approach is consistent with the approaches used by other jurisdictions implementing the New Accord.

A bank must have a systematic process for capturing and using internal operational loss event data in its operational risk data and assessment systems. The final rule defines a bank's internal operational loss event data as its gross operational loss amounts, dates, recoveries, and relevant causal information for operational loss events

³⁷ New Accord, ¶214.

³⁸ New Accord, Annex 9.

occurring at the bank. Under the proposed rule, a bank's operational risk data and assessment system would include a minimum historical observation period of five years of internal operational losses. With approval of its primary Federal supervisor, however, a bank could use a shorter historical observation period to address transitional situations such as integrating a new business line. A bank also could refrain from collecting internal operational loss event data for individual operational losses below established dollar threshold amounts if the bank could demonstrate to the satisfaction of its primary Federal supervisor that the thresholds were reasonable, did not exclude important internal operational loss event data, and permitted the bank to capture substantially all the dollar value of the bank's operational losses.

Several commenters expressed concern over the proposal's five-year minimum historical observation period requirement for internal operational loss event data. These commenters recommended that the agencies align this provision with the New Accord, which allows for a three-year historical observation period upon initial AMA implementation.

While the proposed rule required a bank to include in its operational risk data and assessment systems a historical observation period of at least five years for internal operational loss event data, it also provided for a shorter observation period subject to agency approval to address transitional situations, such as integrating a new business line. The agencies believe that these proposed provisions provide sufficient flexibility to consider other situations, on a case-by-case basis, in which a shorter observation period may be appropriate, such as a bank's initial implementation of an AMA. Therefore, the

final rule retains the five-year historical observation period requirements and the transitional flexibility for internal operational loss event data, as proposed.

In relation to the provision that permits a bank to refrain from collecting internal operational loss event data below established thresholds, a few commenters sought clarification of the proposed requirement that the thresholds must permit the bank to capture “substantially all” of the dollar value of a bank’s operational losses. In particular, they questioned whether a bank must collect all or a very high percentage of operational losses or whether smaller losses could be modeled.

To demonstrate the appropriateness of its threshold for internal operational loss event data collection, a bank might choose to collect all internal operational loss event data, at least for a time, to support a meaningful analysis around the appropriateness of its chosen data collection threshold. Alternatively, a bank might be able to obtain data from systems outside of its operational risk data and assessment system (for example, the bank’s general ledger system) to demonstrate the impact of choosing different thresholds on its operational risk exposure estimates.

With respect to the commenters’ question regarding modeling smaller losses, the agencies would consider permitting such an approach based on whether the approach meets the overall qualification requirements outlined in the final rule. In particular, the agencies would consider whether the bank satisfies those requirements pertaining to a bank’s operational risk quantification system as well as its control, oversight, and validation mechanisms. Such modeling considerations, however, would not eliminate the requirement for a bank to demonstrate the appropriateness of any established internal operational loss event data collection thresholds.

A bank also must establish a systematic process to determine its methodologies for incorporating external operational loss event data into its operational risk data and assessment systems. The proposed and final rules define external operational loss event data for a bank as gross operational loss amounts, dates, recoveries, and relevant causal information for operational loss events occurring at organizations other than the bank. External operational loss event data may serve a number of different purposes in a bank's operational risk data and assessment systems. For example, external operational loss event data may be a particularly useful input in determining a bank's level of exposure to operational risk when internal operational loss event data are limited. In addition, external operational loss event data provide a means for the bank to understand industry experience and, in turn, provide a means for the bank to assess the adequacy of its internal operational loss event data.

While internal and external operational loss event data provide a historical perspective on operational risk, it is also important that a bank incorporate forward-looking elements into its operational risk data and assessment systems. Accordingly, under the final rule, as under the proposed rule, a bank must incorporate business environment and internal control factors into its operational risk data and assessment systems to assess fully its exposure to operational risk. In principle, a bank with strong internal controls in a stable business environment would have less exposure to operational risk than a bank with internal control weaknesses that is growing rapidly or introducing new products. In this regard, a bank should identify and assess the level and trends in operational risk and related control structures at the bank. These assessments should be current and comprehensive across the bank, and they should identify the

operational risks facing the bank. The framework established by a bank to maintain these risk assessments should be sufficiently flexible to accommodate increasing complexity, new activities, changes in internal control systems, and an increasing volume of information. A bank must also periodically compare the results of its prior business environment and internal control factor assessments against the bank's actual operational losses incurred in the intervening period.

A few commenters sought clarification on the agencies' expectations regarding a bank's periodic comparisons of its prior business environment and internal control factor assessments against its actual operational losses. One commenter expressed concern over the difficulty of conducting an empirically robust analysis to fulfill the requirement.

Under the final rule, a bank has flexibility in the approach it uses to conduct its business environment and internal control factor assessments. As such, the methods for conducting comparisons of these assessments against actual operational loss experience may also vary and precise modeling calibration may not be practical. The agencies maintain, however, that it is important for a bank to perform such comparisons to ensure that its assessments are current, reasonable, and appropriately factored into the bank's AMA framework. In addition, the comparisons could highlight the need for potential adjustments to the bank's operational risk management processes.

A bank also must have a systematic process for determining its methodologies for incorporating scenario analysis into its operational risk data and assessment systems. As an input to a bank's operational risk data and assessment systems, scenario analysis is especially relevant for business lines or operational loss event types where internal data,

external data, and assessments of the business environment and internal control factors do not provide a sufficiently robust estimate of the bank's exposure to operational risk.

Similar to business environment and internal control factor assessments, the results of scenario analysis provide a means for a bank to incorporate a forward-looking element into its operational risk data and assessment systems. Under the proposed rule, scenario analysis was defined as a systematic process of obtaining expert opinions from business managers and risk management experts to derive reasoned assessments of the likelihood and loss impact of plausible high-severity operational losses. The agencies have clarified this definition in the final rule to recognize that there are various methods and inputs a bank may use to conduct its scenario analysis. For this reason, the modified definition indicates that scenario analysis may include the well-reasoned evaluation and use of external operational loss event data, adjusted as appropriate to ensure relevance to a bank's operational risk profile and control structure.

A bank's operational risk data and assessment systems must include credible, transparent, systematic, and verifiable processes that incorporate all four operational risk elements (that is, internal operational loss event data, external operational loss event data, scenario analysis, and business environment and internal control factors). The bank should have clear standards for the collection and modification of all elements. The bank should combine these four elements in a manner that most effectively enables it to quantify its exposure to operational risk.

Operational risk quantification system

A bank must have an operational risk quantification system that generates estimates of its operational risk exposure using its operational risk data and assessment

systems. The final rule defines operational risk exposure as the 99.9th percentile of the distribution of potential aggregate operational losses, as generated by the bank's operational risk quantification system over a one-year horizon (and not incorporating eligible operational risk offsets or qualifying operational risk mitigants). The mean of such a total loss distribution is the bank's EOL. The final rule defines EOL as the expected value of the distribution of potential aggregate operational losses, as generated by the bank's operational risk quantification system using a one-year horizon. The bank's UOL is the difference between the bank's operational risk exposure and the bank's EOL.

A few commenters sought clarification on whether the agencies would impose specific requirements around the use and weighting of the four elements of a bank's operational risk data and assessment system, and whether there were any limitations on how external data or scenario analysis could be used as modeling inputs. Another commenter expressed concern that for some U.S.-chartered DIs that were subsidiaries of foreign banking organizations, it might be difficult to ever have enough internal operational loss event data to generate statistically significant operational risk exposure estimates.

The agencies recognize that banks will have different inputs and methodologies for estimating their operational risk exposure given the inherent flexibility of the AMA. It follows that the weights assigned in combining the four required elements of a bank's operational risk data and assessment system (internal operational loss event data, external operational loss event data, scenario analysis, and assessments of the bank's business environment and internal control factors) will also vary across banks. Factors affecting

the weighting include a bank's operational risk profile, operational loss experience, internal control environment, and relative quality and content of the four elements. These factors will influence the emphasis placed on certain elements relative to others. As such, the agencies are not prescribing specific requirements around the weighting of each element, nor are they placing any specific limitations on the use of the elements. In view of this flexibility, however, under the final rule a bank's operational risk quantification systems must include a credible, transparent, systematic, and verifiable approach for weighting the use of the four elements.

As part of its operational risk exposure estimate, a bank must use a unit of measure that is appropriate for the bank's range of business activities and the variety of operational loss events to which it is exposed. The proposed rule defined a unit of measure as the level (for example, organizational unit or operational loss event type) at which the bank's operational risk quantification system generated a separate distribution of potential operational losses. Under the proposed rule, a bank could not combine business activities or operational loss events with different risk profiles within the same loss distribution.

Many commenters expressed concern that the prohibition against combining business activities or operational loss events with different risk profiles within the same loss distribution was an impractical standard because some level of combination was unavoidable. Additionally, commenters noted that data limitations made it difficult to quantify risk profiles at a granular level. Commenters also expressed concern that the proposed rule appeared to preclude the use of "top-down" approaches, given that under a firm-wide approach business activities or operational loss events with different risk

profiles would necessarily be combined within the same loss distribution. One commenter suggested that, because of data limitations and the potential for wide variations in risk profiles within individual business lines and/or types of operational loss events, banks be afforded some latitude in moving from a “top-down” approach to a “bottom-up” approach.

The agencies have retained the proposed definition of unit of measure in the final rule. The agencies recognize, however, that there is a need for flexibility in assessing whether a bank’s chosen unit of measure is appropriate for the bank’s range of business activities and the variety of operational loss events to which it is exposed. In some instances, data limitations may indeed prevent a bank’s operational risk quantification systems from generating a separate distribution of potential operational losses for certain business lines or operational loss event types. Therefore, the agencies have modified the final rule to provide a bank more flexibility in devising an appropriate unit of measure. Specifically, a bank must employ a unit of measure that is appropriate for its range of business activities and the variety of operational loss events to which it is exposed, and that does not combine business activities or operational loss events with demonstrably different risk profiles within the same loss distribution.

The agencies recognize that operational losses across operational loss event types and business lines may be related. Under the final rule, as under the proposed rule, a bank may use its internal estimates of dependence among operational losses within and across business lines and operational loss event types if the bank can demonstrate to the satisfaction of its primary Federal supervisor that its process for estimating dependence is sound, robust to a variety of scenarios, implemented with integrity, and allows for the

uncertainty surrounding the estimates. The agencies expect that a bank's assumptions regarding dependence will be conservative given the uncertainties surrounding dependence modeling for operational risk. If a bank does not satisfy the requirements surrounding dependence, the bank must sum operational risk exposure estimates across units of measure to calculate its total operational risk exposure.

Under the proposed rule, dependence was defined as “a measure of the association among operational losses across and within business lines and operational loss event types.” One commenter recommended that the agencies revise the definition of dependence to “a measure of the association among operational losses across and within units of measure.” The agencies recognize that examples of units of measure include, but are not limited to, business lines and operational loss event types, and that a bank's operational risk quantification system could generate distributions of potential operational losses that are separate from its business lines and operational loss event types. Units of measure can also encompass correlations over time. Therefore, the agencies have amended the final rule to define dependence as a measure of the association among operational losses across and within units of measure.

As noted above, under the proposed rule, a bank that did not satisfy the requirements surrounding dependence would sum operational risk exposure estimates across units of measure to calculate its total operational risk exposure. Several commenters asserted that the New Accord does not require a bank to sum its operational risk exposure estimates across units of measure if the bank cannot demonstrate adequate support of its dependence assumptions. One commenter asked the agencies to remove this requirement from the final rule. Several commenters suggested that if a bank cannot

provide sufficient support for its dependence estimates, a conservative assumption of positive dependence is warranted, but not an assumption of perfect positive dependence as implied by the summation requirement. Another commenter suggested that the dependence assumption should be based upon a conservative statistical analysis of industry data.

The New Accord states that, absent a satisfactory demonstration of a bank's "systems for determining correlations" to its national supervisor, "risk measures for different operational risk estimates must be added for purposes of calculating the regulatory minimum capital requirement."³⁹ The agencies continue to believe that this treatment of operational risk exposure estimates across units of measure is prudent until the relationships among operational losses are better understood. Therefore, the final rule retains the proposed rule's requirement regarding the summation of operational risk exposure estimates.

Several commenters believed that a bank should be permitted to demonstrate the nature of the relationship between the causes of different operational losses based on any available informative empirical evidence. These commenters suggested that such evidence could be statistical or anecdotal, and could be based on information ranging from established statistical techniques to more general mathematical approaches to clear logical arguments about the degree to which risks and losses are related, or the similarity of circumstance between the bank and a peer group for which acceptable estimates of dependency are available.

The agencies recognize that there may be different ways to estimate the relationship among operational losses across and within units of measure. Therefore,

³⁹New Accord, ¶669.

under the final rule, a bank has flexibility to use different methodologies to demonstrate dependence across units of measure. However, the bank must demonstrate to the satisfaction of its primary Federal supervisor that its process for estimating dependence is sound, robust to a variety of scenarios, implemented with integrity, and allows for the uncertainty surrounding the estimates.

A bank's chosen unit of measure affects how it should account for dependence. Explicit assumptions regarding dependence across units of measure are always necessary to estimate operational risk exposure at the bank level. However, explicit assumptions regarding dependence within units of measure are not necessary, and under many circumstances models assume statistical independence within each unit of measure. The use of only a few units of measure increases the need to ensure that dependence within units of measure is suitably reflected in the operational risk exposure estimate.

In addition, the bank's process for estimating dependence should provide for ongoing monitoring, recognizing that dependence estimates can change. The agencies expect that a bank's approach for developing explicit and objective dependence determinations will improve over time. As such, the bank should develop a process for assessing incremental improvements to the approach (for example, through out-of-sample testing).

Under the final rule, as under the proposed rule, a bank must review and update (as appropriate) its operational risk quantification system whenever the bank becomes aware of information that may have a material effect on the bank's estimate of operational risk exposure, but no less frequently than annually.

The agencies recognize that, in limited circumstances, there may not be sufficient data available for a bank to generate a credible estimate of its own operational risk exposure at the 99.9 percent confidence level. In these limited circumstances, under the proposed rule, a bank could use an alternative operational risk quantification system, subject to prior approval by the bank's primary Federal supervisor. The alternative approach was not available at the BHC level.

One commenter asserted that, in line with the New Accord's continuum of operational risk measurement approaches, all banks, including BHCs, should be permitted to adopt an alternative operational risk quantification system, such as the New Accord's standardized approach or allocation approach. The commenter further noted that a bank's use of an allocation approach should not be subject to more stringent terms and conditions than those set forth in the New Accord.

The agencies are maintaining the alternative approach provision in the final rule. The agencies are not prescribing specific estimation methodologies under this approach and expect use of an alternative approach to occur on a very limited basis. A bank proposing to use an alternative operational risk quantification system must submit a proposal to its primary Federal supervisor. In evaluating a bank's proposal, the primary Federal supervisor will review the bank's justification for requesting use of an alternative approach in light of the bank's size, complexity, and risk profile. The bank's primary Federal supervisor will also consider whether the estimate of operational risk under the alternative approach is appropriate (for example, whether the estimate results in capital levels that are commensurate with the bank's operational risk profile and is sensitive to changes in the bank's risk profile) and can be supported empirically. Furthermore, the

agencies expect a bank using an alternative operational risk quantification system to adhere to the rule's qualification requirements, including establishment and use of operational risk management processes and data and assessment systems. As under the proposed rule, the alternative approach is not available at the BHC level.

A bank proposing an alternative approach to operational risk based on an allocation methodology should be aware of certain limitations associated with the use of such an approach. Specifically, the agencies will not permit a DI to accept an allocation of operational risk capital requirements that includes non-DIs. Unlike the cross-guarantee provision of the Federal Deposit Insurance Act, which provides that a DI is liable for any losses incurred by the FDIC in connection with the failure of a commonly-controlled DI, there are no statutory provisions requiring cross-guarantees between a DI and its non-DI affiliates.⁴⁰ Furthermore, depositors and creditors of a DI generally have no legal recourse to capital funds that are not held by the DI or its affiliate DIs.

6. Data management and maintenance

A bank must have data management and maintenance systems that adequately support all aspects of the bank's advanced IRB systems, operational risk management processes, operational risk data and assessment systems, operational risk quantification systems, and, to the extent the bank uses the following systems, the internal models methodology, the double default excessive correlation detection process, the IMA for equity exposures, and the IAA for securitization exposures to ABCP programs (collectively, advanced systems).

The bank's data management and maintenance systems must adequately support the timely and accurate reporting of risk-based capital requirements. Specifically, a bank

⁴⁰ 12 U.S.C. 1815(e).

must retain sufficient data elements related to key risk drivers to permit monitoring, validation, and refinement of the bank's advanced systems. A bank's data management and maintenance systems should generally support the rule's qualification requirements relating to quantification, validation, and control and oversight mechanisms, as well as the bank's broader risk management and reporting needs. The precise data elements to be collected are dictated by the features and methodologies of the risk measurement and management systems employed by the bank. To meet the significant data management challenges presented by the quantification, validation, and control and oversight requirements of the advanced approaches, a bank must retain data in an electronic format that allows timely retrieval for analysis, reporting, and disclosure purposes. The agencies did not receive any material comments on these data management requirements.

7. Control and oversight mechanisms

The consequences of an inaccurate or unreliable advanced system can be significant, particularly regarding the calculation of risk-based capital requirements. Accordingly, bank senior management is responsible for ensuring that all advanced systems function effectively and comply with the qualification requirements.

Under the proposed rule, a bank's board of directors (or a designated committee of the board) would at least annually evaluate the effectiveness of, and approve, the bank's advanced systems. Multiple commenters objected to this requirement. Commenters suggested that a bank's board of directors should have more narrowly defined responsibilities, and that evaluation of a bank's advanced systems would be more effectively and appropriately accomplished by senior management.

The agencies believe that a bank's board of directors has ultimate accountability for the effectiveness of the bank's advanced systems. However, the agencies agree that it is not necessarily the responsibility of a bank's board of directors to conduct an evaluation of the effectiveness of a bank's advanced systems. Evaluation may include transaction testing, validation, and audit activities more appropriately the responsibility of senior management. Accordingly, the final rule requires a bank's board of directors to review the effectiveness of, and approve, the bank's advanced systems at least annually.

To support senior management's and the board of directors' oversight responsibilities, a bank must have an effective system of controls and oversight that ensures ongoing compliance with the qualification requirements; maintains the integrity, reliability, and accuracy of the bank's advanced systems; and includes adequate corporate governance and project management processes. Banks have flexibility to determine how to achieve integrity in their risk management systems. Banks are, however, expected to follow standard control principles in their systems such as checks and balances, separation of duties, appropriateness of incentives, and data integrity assurance, including that of information purchased from third parties. Moreover, the oversight process should be sufficiently independent of the advanced systems' development, implementation, and operation to ensure the integrity of the component systems. The objective of risk management system oversight is to ensure that the various systems used in determining risk-based capital requirements are operating as intended. The oversight process should draw conclusions on the soundness of the components of the risk management system, identify errors and flaws, and recommend corrective action as appropriate.

Validation

A bank must validate its advanced systems on an ongoing basis. Validation is the set of activities designed to give the greatest possible assurances of accuracy of the advanced systems. Validation includes three broad components: (i) evaluation of the conceptual soundness of the advanced systems; (ii) ongoing monitoring that includes process verification and comparison of the bank's internal estimates with relevant internal and external data sources or results from other estimation techniques (benchmarking); and (iii) outcomes analysis that includes back-testing.

Each of these three components of validation must be applied to the bank's risk rating and segmentation systems, risk parameter quantification processes, and internal models that are part of the bank's advanced systems. A sound validation process should take business cycles into account, and any adjustments for stages of the economic cycle should be clearly specified in advance and fully documented as part of the validation policy. Senior management of the bank should be notified of the validation results and should take corrective action where appropriate.

A bank's validation process must be independent of the advanced systems' development, implementation, and operation, or be subject to independent assessment of its adequacy and effectiveness. A bank should ensure that individuals who perform the review are not biased in their assessment due to their involvement in the development, implementation, or operation of the processes or products. For example, reviews of the internal risk rating and segmentation systems should be performed by individuals who were not part of the development, implementation, or maintenance of those systems. In addition, individuals performing the reviews should possess the requisite technical skills and expertise to fulfill their mandate.

The first component of validation is evaluating conceptual soundness, which involves assessing the quality of the design and construction of a risk measurement or management system. This evaluation of conceptual soundness should include documentation and empirical evidence supporting the methods used and the variables selected in the design and quantification of the bank's advanced systems. The documentation should also evidence an understanding of the systems' limitations. The development of internal risk rating and segmentation systems and their quantification processes requires banks to exercise judgment. Validation should ensure that these judgments are well informed and considered, and generally include a body of expert opinion. A bank should review developmental evidence whenever the bank makes material changes in its advanced systems.

The second component of the validation process for a bank's advanced systems is ongoing monitoring to confirm that the systems were implemented appropriately and continue to perform as intended. Such monitoring involves process verification and benchmarking. Process verification includes verifying that internal and external data are accurate and complete, as well as ensuring that: internal risk rating and segmentation systems are being used, monitored, and updated as designed; ratings are assigned to wholesale obligors and exposures as intended; and appropriate remediation is undertaken if deficiencies exist.

Benchmarking means the comparison of a bank's internal estimates with relevant internal and external data or with estimates based on other estimation techniques. Banks are required to use alternative data sources or risk assessment approaches to draw inferences about the validity of their internal risk ratings, segmentations, risk parameter

estimates, and model outputs on an ongoing basis. For credit risk ratings, examples of alternative data sources include independent internal raters (such as loan review), external rating agencies, wholesale and retail credit risk models developed independently, or retail credit bureau models. Because it may take considerable time before outcomes with which to conduct sufficiently robust backtesting are available, benchmarking will be a very important validation device. Benchmarking applies to all quantification processes and internal risk rating and segmentation activities.

Benchmarking allows a bank to compare its estimates with those of other estimation techniques and data sources. Results of benchmarking exercises can be a valuable diagnostic tool in identifying potential weaknesses in a bank's risk quantification system. While benchmarking activities allow for inferences about the appropriateness of the quantification processes and internal risk rating and segmentation systems, they are not the same as backtesting. Differences observed between the bank's risk estimates and the benchmark do not necessarily indicate that the internal risk ratings, segmentation decisions, or risk parameter estimates are in error. The benchmark itself is an alternative prediction, and the difference may be due to different data or methods. As part of the benchmarking exercise, the bank should investigate the source of the differences and whether the extent of the differences is appropriate.

The third component of the validation process is outcomes analysis, which is the comparison of the bank's forecasts of risk parameters and other model outputs with actual outcomes. A bank's outcomes analysis must include backtesting, which is the comparison of the bank's forecasts generated by its internal models with actual outcomes during a sample period not used in model development. In this context, backtesting is

one form of out-of-sample testing. The agencies note that in other contexts backtesting may refer to in-sample fit, but in-sample fit analysis is not what the rule requires a bank to do as part of the advanced approaches validation process.

Actual outcomes should be compared with expected ranges around the estimated values of the risk parameters and model results. Randomness and many other variables will make discrepancies between realized outcomes and the estimated risk parameters inevitable. Therefore the expected ranges should take into account relevant elements of a bank's internal risk rating or segmentation processes. For example, depending on the bank's rating philosophy, year-by-year realized default rates may be expected to differ significantly from the long-run one-year average. Also, changes in economic conditions between the historical data and current period can lead to differences between actual outcomes and estimates.

One commenter asserted that requiring a bank to perform a statistically robust form of backtesting would be an impractically high standard for AMA qualification given the nature of operational risk. The commenter further claimed that validating an operational risk model must rely on the robustness of the logical structure of the model and the appropriateness of the resultant operational risk exposure when benchmarked against other established reference points.

The agencies recognize that it may take considerable time before actual outcomes outside of the sample period used in model development are available that would allow a bank to backtest its operational risk models by comparing its internal estimates with these outcomes. The agencies also acknowledge that a bank may be unable to backtest an operational risk model with the same degree of statistical precision that it is able to

backtest an internal market risk model. When a bank's backtesting process is not sufficiently robust, a bank may need to rely more heavily on benchmarking and other alternative validation devices. The agencies maintain, however, that backtesting provides important feedback on the accuracy of model outputs and that a bank should be able to assess how actual losses compare with estimates previously generated by its model.

Internal audit

A bank must have an internal audit function independent of business-line management that at least annually assesses the effectiveness of the controls supporting the bank's advanced systems. Internal audit should review the validation process, including validation procedures, responsibilities, results, timeliness, and responsiveness to findings. Further, internal audit should evaluate the depth, scope, and quality of the risk management system review process and conduct appropriate testing to ensure that the conclusions of these reviews are well founded. Internal audit must report its findings at least annually to the bank's board of directors (or a committee thereof).

Stress testing

A bank must periodically stress test its advanced systems. Stress testing analysis is a means of understanding how economic cycles, especially downturns as described by stress scenarios, affect risk-based capital requirements, including migration across rating grades or segments and the credit risk mitigation benefits of double default treatment. Stress testing analysis consists of identifying stress scenarios and then assessing the effects of the scenarios on key performance measures, including risk-based capital requirements. Under the rule, changes in borrower credit quality will lead to changes in risk-based capital requirements. Because credit quality changes typically reflect

changing economic conditions, risk-based capital requirements may also vary with the economic cycle. During an economic downturn, risk-based capital requirements will increase if wholesale obligors or retail exposures migrate toward lower credit quality rating grades or segments.

Supervisors expect banks to manage their regulatory capital position so that they remain at least adequately capitalized during all phases of the economic cycle. A bank that credibly estimates regulatory capital levels during a downturn can be more confident of appropriately managing regulatory capital.

Banks should use a range of plausible but severe scenarios and methods when stress testing to manage regulatory capital. Scenarios may be historical, hypothetical, or model-based. Key variables specified in a scenario may include, for example, interest rates, transition matrices (ratings and score-band segments), asset values, credit spreads, market liquidity, economic growth rates, inflation rates, exchange rates, or unemployment rates. A bank may choose to have scenarios apply to an entire portfolio, or it may identify scenarios specific to various sub-portfolios. The severity of the stress scenarios should be consistent with the periodic economic downturns experienced in the bank's market areas. Such scenarios may be less severe than those used for other purposes, such as testing a bank's solvency.

The scope of stress testing analysis should be broad and include all material portfolios. The time horizon of the analysis should be consistent with the specifics of the scenario and should be long enough to measure the material effects of the scenario on key performance measures. For example, if a scenario such as a historical recession has

material income and segment or ratings migration effects over two years, the appropriate time horizon is at least two years.

8. Documentation

A bank must adequately document all material aspects of its advanced systems, including but not limited to the internal risk rating and segmentation systems, risk parameter quantification processes, model design, assumptions, and validation results. The guiding principle governing documentation is that it should support the requirements for the quantification, validation, and control and oversight mechanisms as well as the bank's broader risk management and reporting needs. Documentation is also critical to the supervisory oversight process.

The bank should document the rationale for all material assumptions underpinning its chosen analytical frameworks, including the choice of inputs, distributional assumptions, and weighting of quantitative and qualitative elements. The bank also should document and justify any subsequent changes to these assumptions.

C. Ongoing Qualification

A bank using the advanced approaches must meet the qualification requirements on an ongoing basis. Banks are expected to improve their advanced systems as they improve data gathering capabilities and as industry practice evolves. To facilitate the supervisory oversight of systems changes, a bank must notify its primary Federal supervisor when it makes a change to its advanced systems that results in a material change in the bank's risk-weighted asset amount for an exposure type, or when the bank makes any significant change to its modeling assumptions.

If an agency determines that a bank that uses the advanced approaches to calculate its risk-based capital requirements has fallen out of compliance with one or more of the qualification requirements, the agency will notify the bank of its failure to comply. After receiving such notice, a bank must establish and submit a plan satisfactory to its primary Federal supervisor to return to compliance. If the bank's primary Federal supervisor determines that the bank's risk-based capital requirements are not commensurate with the bank's credit, market, operational, or other risks, it may require the bank to calculate its risk-based capital requirements using the general risk-based capital rules or a modified form of the advanced approaches (for example, with fixed supervisory risk parameters).

Under the proposed rule, a bank that fell out of compliance with the qualification requirements would also be required to disclose publicly its noncompliance with the qualification requirements promptly after receiving notice of noncompliance from its primary Federal supervisor. Commenters objected to this requirement, noting that it is not one of the public disclosure requirements of the New Accord. The agencies have determined that the public disclosure of noncompliance is not always necessary, because the disclosure may not reflect the degree of noncompliance. Therefore, the agencies are not including a general noncompliance disclosure requirement in the final rule. However, the agencies acknowledge that a bank's significant noncompliance with the qualification requirements is an important factor in market participants' assessments of the bank's risk profile and, thus, a primary Federal supervisor may require public disclosure of noncompliance with the qualification requirements if such noncompliance is significant.

D. Merger and Acquisition Transition Provisions

Due to the advanced approaches' rigorous systems requirements, a bank that merges with or acquires another company might not be able to quickly integrate the merged or acquired company's exposures into its risk-based capital calculations. The proposed rule provided transition provisions that would allow the acquiring bank time to integrate the merged or acquired company into its advanced approaches, subject to an implementation plan submitted to the bank's primary Federal supervisor. As proposed, the transition provisions applied only to banks that had already qualified to use the advanced approaches. The agencies recognize, however, that a bank in the process of qualifying to use the advanced approaches may merge with or acquire a company and need time to integrate the company into its advanced approaches on an implementation schedule distinct from its original implementation plan. In the final rule, the agencies are therefore allowing banks to take advantage of the proposed rule's transition provisions for mergers and acquisitions both before and after they qualify to use the advanced approaches.

Under the proposed rule, a bank could use the transition provisions for the merged or acquired company's exposures for up to 24 months following the calendar quarter during which the merger or acquisition consummates. A bank's primary Federal supervisor could extend the transition period for up to an additional 12 months. Commenters generally supported this timeframe and associated supervisory flexibility. Therefore, the final rule adopts the proposed rule's merger and acquisition transition timeframe without change.

To take advantage of the merger and acquisition transition provisions, the acquiring bank must submit to its primary Federal supervisor an implementation plan for

using the advanced approaches for the merged or acquired company. The proposed rule required a bank to submit such a plan within 30 days of consummating the merger or acquisition. Many commenters asserted that the 30-day timeframe for submission of an implementation plan may be too short, particularly given the many integration activities that must take place immediately following the consummation of a merger or acquisition. These commenters generally suggested that banks instead be given 90 or 180 days to submit the implementation plan. The agencies agree with these commenters that the proposed timeframe for submitting an implementation plan may be too short. Accordingly, the final rule requires a bank to submit an implementation plan within 90 days of the consummation of a merger or acquisition.

Under the final rule, if a bank that uses the advanced approaches to calculate risk-based capital requirements merges with or acquires a company that does not calculate risk-based capital requirements using the advanced approaches, the acquiring bank may use the general risk-based capital rules to compute the risk-weighted assets and associated capital for the merged or acquired company's exposures during the merger and acquisition transition timeframe. Any ALLL (net of allocated transfer risk reserves) associated with the acquired company's exposures may be included in the acquiring bank's tier 2 capital up to 1.25 percent of the acquired company's risk-weighted assets.⁴¹ Such ALLL is excluded from the acquiring bank's eligible credit reserves. The risk-weighted assets of the acquired company are not included in the acquiring bank's credit-risk-weighted assets but are included in the acquiring bank's total risk-weighted assets. If the acquiring bank uses the general risk-based capital rules for acquired exposures, it

⁴¹ Any amount of the acquired company's ALLL that was eliminated in accounting for the acquisition is not included in the acquiring bank's regulatory capital.

must disclose publicly the amounts of risk-weighted assets and qualifying capital calculated under the general risk-based capital rules with respect to the acquired company and under this rule for the acquiring bank. The primary Federal supervisor of the bank will monitor the merger or acquisition to determine whether the acquiring bank's application of the general risk-based capital rules for the acquired company produces appropriate risk-based capital requirements for the assets of the acquired company in light of the overall risk profile of the acquiring bank.

Similarly, a core or opt-in bank that merges with or acquires another core or opt-in bank might not be able to apply its systems for the advanced approaches immediately to the acquired bank's exposures. Accordingly, the final rule permits a core or opt-in bank that merges with or acquires another core or opt-in bank to use the acquired bank's advanced approaches to determine the risk-weighted asset amounts for, and deductions from capital associated with, the acquired bank's exposures during the merger and acquisition transition timeframe.

A third potential merger or acquisition scenario is a bank subject to the general risk-based capital rules that merges with or acquires a bank that uses the advanced approaches. If, after the merger or acquisition, the acquiring bank is not a core bank, it could choose to opt in to the advanced approaches or to apply the general risk-based capital rules to the consolidated bank. If the acquiring bank chooses to remain on the general risk-based capital rules, the bank must immediately apply the general risk-based capital rules to all its exposures, including those of the acquired bank.

If the acquiring bank chooses or is required to move to the advanced approaches, however, it could apply the advanced approaches to the acquired exposures (provided

that it continues to meet all of the qualification requirements for those exposures) for up to 24 months (with a potential 12-month extension) while it completes the process of qualifying to use the advanced approaches for the entire bank. If the acquiring bank has not begun implementing the advanced approaches at the time of the merger or acquisition, it may instead use the transition timeframes described in section III.A. of the preamble and section 21 of the final rule. In the latter case, the bank must consult with its primary Federal supervisor regarding the appropriate risk-based capital treatment of the acquired exposures. In no case may a bank permanently apply the advanced approaches only to an acquired bank's exposures and not to the consolidated bank.

Because eligible credit reserves and the ALLL are treated differently under the general risk-based capital rules and the advanced approaches, the final rule specifies how the acquiring bank must treat the general allowances associated with the merged or acquired company's exposures during the period when the general risk-based capital rules apply to the acquiring bank. Specifically, ALLL associated with the exposures of the merged or acquired company may not be directly included in the acquiring bank's tier 2 capital. Rather, any excess eligible credit reserves (that is, eligible credit reserves minus total expected credit losses) associated with the merged or acquired company's exposures may be included in the acquiring bank's tier 2 capital up to 0.6 percent of the credit-risk-weighted assets associated with those exposures.

IV. Calculation of Tier 1 Capital and Total Qualifying Capital

The final rule maintains the minimum risk-based capital ratio requirements of 4.0 percent tier 1 capital to total risk-weighted assets and 8.0 percent total qualifying capital to total risk-weighted assets. A bank's total qualifying capital is the sum of its tier 1

(core) capital elements and tier 2 (supplemental) capital elements, subject to various limits and restrictions, minus certain deductions (adjustments). The agencies are not restating the elements of tier 1 and tier 2 capital in the final rule. Those capital elements generally remain as they are currently in the general risk-based capital rules.⁴² Consistent with the proposed rule, the final rule includes regulatory text for certain adjustments to the capital elements for purposes of the advanced approaches.

Under the final rule, consistent with the proposal, after identifying the elements of tier 1 and tier 2 capital, a bank must make certain adjustments to determine its tier 1 capital and total qualifying capital (the numerator of the total risk-based capital ratio). Some of these adjustments are made only to the tier 1 portion of the capital base. Other adjustments are made 50 percent from tier 1 capital and 50 percent from tier 2 capital.⁴³ A bank must still have at least 50 percent of its total qualifying capital in the form of tier 1 capital.⁴⁴

Under the final rule, as under the proposal, a bank must deduct from tier 1 capital goodwill, other intangible assets, and deferred tax assets to the same extent that those assets are deducted from tier 1 capital under the general risk-based capital rules. Thus, all goodwill is deducted from tier 1 capital. Certain intangible assets – including mortgage servicing assets, non-mortgage servicing assets, and purchased credit card relationships – that meet the conditions and limits in the general risk-based capital rules do not have to be deducted from tier 1 capital. Likewise, deferred tax assets that are

⁴² See 12 CFR part 3, Appendix A, § 2 (national banks); 12 CFR part 208, Appendix A, § II (state member banks); 12 CFR part 225, Appendix A, § II (bank holding companies); 12 CFR part 325, Appendix A, § I (state nonmember banks); and 12 CFR 567.5 (savings associations).

⁴³ If the amount deductible from tier 2 capital exceeds the bank's actual tier 2 capital, however, the bank must deduct the shortfall amount from tier 1 capital.

⁴⁴ Any assets deducted from capital in computing the numerator of the risk-based capital ratios are also not included in risk-weighted assets in the denominator of the ratio.

dependent upon future taxable income and that meet the valuation requirements and limits in the general risk-based capital rules do not have to be deducted from tier 1 capital.⁴⁵

Under the general risk-based capital rules, a bank also must deduct from its tier 1 capital certain percentages of the adjusted carrying value of its nonfinancial equity investments. An advanced approaches bank is not required to make these deductions. Instead, the bank's equity exposures generally are subject to the equity treatment in part VI of the final rule and described in section V.F. of this preamble.⁴⁶

A number of commenters urged the agencies to revisit the existing definitions of tier 1 and tier 2 capital, including some of the deductions. Some offered specific suggestions, such as removing the requirement to deduct goodwill from tier 1 capital or revising the limitations on certain capital instruments that may be included in regulatory capital. Other commenters noted that the definition of regulatory capital and related deductions should be thoroughly debated internationally before changes are made in any one national jurisdiction. The agencies believe that the definition of regulatory capital should be as consistent as possible across national jurisdictions. The BCBS has formed a

⁴⁵ See 12 CFR part 3, Appendix A, § 2 (national banks); 12 CFR part 208, Appendix A, § II (state member banks); 12 CFR part 225, Appendix A, § II (bank holding companies); 12 CFR part 325, Appendix A, § I (state nonmember banks). OTS existing rules are formulated differently, but include similar deductions. Under OTS rules, for example, goodwill is included within the definition of "intangible assets" and is deducted from tier 1 (core) capital along with other intangible assets. See 12 CFR 567.1 and 567.5(a)(2)(i). Similarly, purchased credit card relationships and mortgage and non-mortgage servicing assets are included in capital to the same extent as the other agencies' rules. See 12 CFR 567.5(a)(2)(ii) and 567.12. The deduction of deferred tax assets is discussed in Thrift Bulletin 56.

⁴⁶ By contrast, OTS rules require the deduction of equity investments from total capital. 12 CFR 567.5(c)(2)(ii). "Equity investments" are defined to include (i) investments in equity securities (other than investments in subsidiaries, equity investments that are permissible for national banks, indirect ownership interests in certain pools of assets (for example, mutual funds), Federal Home Loan Bank stock and Federal Reserve Bank stock); and (ii) investments in certain real property. 12 CFR 567.1. Savings associations applying the final rule are not required to deduct investments in equity securities. Instead, such investments are subject to the equity treatment in part VI of the final rule. Equity investments in real estate continue to be deducted to the same extent as under the general risk-based capital rules.

working group that is currently looking at issues related to the definition of regulatory capital. Accordingly, the agencies have not modified the existing definition of regulatory capital and related deductions at this time, other than with respect to implementation of the advanced approaches.

Under the general risk-based capital rules, a bank is allowed to include in tier 2 capital its ALLL up to 1.25 percent of risk-weighted assets (net of certain deductions). Amounts of ALLL in excess of this limit are deducted from the gross amount of risk-weighted assets.

Under the proposed rule, the ALLL was treated differently. The proposed rule included a methodology for adjusting risk-based capital requirements based on a comparison of the bank's eligible credit reserves to its ECL. The proposed rule defined eligible credit reserves as all general allowances, including the ALLL, established through a charge against earnings to absorb credit losses associated with on- or off-balance sheet wholesale and retail exposures. As proposed, eligible credit reserves did not include allocated transfer risk reserves established pursuant to 12 U.S.C. 3904⁴⁷ and other specific reserves created against recognized losses. The final rule maintains the proposed definition of eligible credit reserves.

The proposed rule defined a bank's total ECL as the sum of ECL for all wholesale and retail exposures other than exposures to which the bank applied the double default treatment (described below). The bank's ECL for a wholesale exposure to a non-defaulted obligor or a non-defaulted retail segment was equal to the product of PD, ELGD, and EAD for the exposure or segment. The ECL for non-defaulted exposures

⁴⁷ 12 U.S.C. 3904 does not apply to savings associations regulated by the OTS. As a result, the OTS final rule does not refer to allocated transfer risk reserves.

thus reflected expected economic losses, including the cost of carry and direct and indirect workout expenses. The bank's ECL for a wholesale exposure to a defaulted obligor or a defaulted retail segment was equal to the bank's impairment estimate for allowance purposes for the exposure or segment. The ECL for defaulted exposures thus was based on accounting measures of credit loss incorporated into a bank's charge-off and reserving practices.

In the proposal, the agencies solicited comment on a possible alternative treatment for determining ECL for a defaulted exposure that would be more consistent with the proposed treatment of ECL for non-defaulted exposures. That alternative approach calculated ECL as the bank's current carrying value of the exposure multiplied by the bank's best estimate of the expected economic loss rate associated with the exposure (measured relative to the current carrying value). Commenters on this issue generally supported the proposed treatment and expressed some concern about the added complexity of the alternative treatment.

The agencies believe that, for defaulted exposures, any difference between a bank's best estimate of economic losses and its impairment estimate for ALLL purposes is likely to be small. The agencies also believe that the proposed ALLL impairment approach is less burdensome for banks than the "best estimate of economic loss" approach. As a result, the agencies are retaining this aspect of the proposed definition of ECL for defaulted exposures. The agencies recognize that this treatment requires a bank to specify how much of its ALLL is attributable to defaulted exposures, and emphasize that a bank must capture all material economic losses on defaulted exposures when building its databases for estimating LGDs for non-defaulted exposures.

The agencies also sought comment on the appropriate measure of ECL for assets held at fair value with gains and losses flowing through earnings. Commenters expressed the view that there should be no ECL for such assets because expected losses on such assets already have been removed from regulatory capital. The agencies agree with this position and, therefore, under the final rule, a bank may assign an ECL of zero to assets held at fair value with gains and losses flowing through earnings. The agencies are otherwise maintaining the proposed definition of ECL in the final rule, with the substitution of LGD for ELGD noted above.

Under the final rule, consistent with the proposal, a bank must compare the total dollar amount of its ECL to its eligible credit reserves. If there is a shortfall of eligible credit reserves compared to total ECL, the bank must deduct 50 percent of the shortfall from tier 1 capital and 50 percent from tier 2 capital. If eligible credit reserves exceed total ECL, the excess portion of eligible credit reserves may be included in tier 2 capital up to 0.6 percent of credit-risk-weighted assets.

A number of commenters objected to the 0.6 percent limit on inclusion of excess reserves in tier 2 capital and suggested that there should be a higher or no limit on the amount of excess reserves that may be included in regulatory capital. While the 0.6 percent limit is part of the New Accord, some commenters asserted that this limitation would put U.S. banks at a competitive disadvantage because U.S. accounting practices (as compared to accounting practices in many other countries) lead to higher reserves that are more likely to exceed the limitation. Another commenter asserted that the proposed limitation on excess reserves is more restrictive than the current cap on ALLL in the general risk-based capital rules. Finally, several commenters suggested that because

ALLL is the first buffer against credit losses, it should be included without limit in tier 1 capital.

The agencies believe that the proposed 0.6 percent limit on inclusion of excess reserves in tier 2 capital is roughly equivalent to the 1.25 percent cap in the general risk-based capital rules and serves to maintain general consistency in the treatment of reserves domestically and internationally. Accordingly, the agencies have included the 0.6 percent cap in the final rule.

Under the proposed rule, a bank would deduct from tier 1 capital any after-tax gain-on-sale. Gain-on-sale was defined as an increase in a bank's equity capital that resulted from a securitization, other than an increase in equity capital that resulted from the bank's receipt of cash in connection with the securitization. The agencies designed this deduction to offset accounting treatments that produce an increase in a bank's equity capital and tier 1 capital at the inception of a securitization – for example, a gain attributable to a CEIO that results from Financial Accounting Standard (FAS) 140 accounting treatment for the sale of underlying exposures to a securitization special purpose entity (SPE). Over time, as the bank, from an accounting perspective, realizes the increase in equity capital and tier 1 capital booked at the inception of the securitization through actual receipt of cash flows, the amount of the required deduction would shrink accordingly.

Under the general risk-based capital rules,⁴⁸ a bank must deduct CEIOs, whether purchased or retained, from tier 1 capital to the extent that the CEIOs exceed 25 percent

⁴⁸ See 12 CFR part 3, Appendix A, § 2(c)(4) (national banks); 12 CFR part 208, Appendix A, § I.B.1.c. (state member banks); 12 CFR part 225, Appendix A, § I.B.1.c. (bank holding companies); 12 CFR part 325, Appendix A, § I.B.5. (state nonmember banks); 12 CFR 567.5(a)(2)(iii) and 567.12(d)(2) (savings associations).

of the bank's tier 1 capital. Under the proposed rule, a bank would deduct CEIOs from tier 1 capital to the extent they represent gain-on-sale, and would deduct any remaining CEIOs 50 percent from tier 1 capital and 50 percent from tier 2 capital.

Under the proposed rule, certain other securitization exposures also would be deducted from tier 1 and tier 2 capital. These exposures included, for example, securitization exposures with an applicable external rating (defined below) that is more than one category below investment grade (for example, below BB-) and most subordinated unrated securitization exposures. When a bank deducted a securitization exposure (other than gain-on-sale) from regulatory capital, the bank would take the deduction 50 percent from tier 1 capital and 50 percent from tier 2 capital. Moreover, under the proposal, a bank could calculate any deductions from tier 1 and tier 2 capital with respect to a securitization exposure (including after-tax gain-on-sale) net of any deferred tax liabilities associated with the exposure.

The agencies received a number of comments on the proposed securitization-linked deductions. In particular, some commenters urged the agencies to retain the general risk-based capital rule for deducting only CEIOs that exceed 25 percent of tier 1 capital. Some of these commenters noted that the "harsher" securitization-linked deductions under the advanced approaches could have a significant tier 1 capital impact and, accordingly, could have an unwarranted effect on a bank's tier 1 leverage ratio calculation. A few commenters encouraged the agencies to permit a bank to replace the deduction approach for certain securitization exposures with a 1,250 percent risk weight approach, in part to mitigate potential tier 1 leverage ratio effects.

The agencies are retaining the securitization-related deductions as proposed. The proposed deductions are part of the New Accord's securitization framework. The agencies believe that they should be retained to foster consistency among participants in the international securitization markets.

The proposed rule also required a bank to deduct the bank's exposure on certain unsettled and failed capital markets transactions 50 percent from tier 1 capital and 50 percent from tier 2 capital. The agencies are retaining this deduction as proposed.

The agencies are also retaining, as proposed, the deductions in the general risk-based capital rules for investments in unconsolidated banking and finance subsidiaries and reciprocal holdings of bank capital instruments. Further, the agencies are retaining the current treatment for national and state banks that control or hold an interest in a financial subsidiary. As required by the Gramm-Leach-Bliley Act, assets and liabilities of the financial subsidiary are not consolidated with those of the bank for risk-based capital purposes and the bank must deduct its equity investment (including retained earnings) in the financial subsidiary from regulatory capital – 50 percent from tier 1 capital and 50 percent from tier 2 capital.⁴⁹ A BHC generally does not deconsolidate the assets and liabilities of the financial subsidiaries of the BHC's subsidiary banks and does not deduct from its regulatory capital the equity investments of its subsidiary banks in

⁴⁹ See Public Law 106-102 (November 12, 1999), codified, among other places, at 12 USC 24a. See also 12 CFR 5.39(h)(1) (national banks); 12 CFR 208.73(a) (state member banks); 12 CFR part 325, Appendix A, § I.B.2. (state nonmember banks). Again, OTS rules are formulated differently. For example, OTS rules do not use the terms “unconsolidated banking and finance subsidiary” or “financial subsidiary.” Rather, as required by section 5(t)(5) of the Home Owners' Loan Act (HOLA), equity and debt investments in non-includable subsidiaries (generally subsidiaries that are engaged in activities that are not permissible for a national bank) are deducted from assets and tier 1 (core) capital. 12 CFR 567.5(a)(2)(iv) and (v). As required by HOLA, OTS will continue to deduct non-includable subsidiaries. Reciprocal holdings of bank capital instruments are deducted from a savings association's total capital under 12 CFR 567.5(c)(2).

financial subsidiaries. Rather, a BHC generally fully consolidates the financial subsidiaries of its subsidiary banks. These treatments continue under the final rule.

For BHCs with consolidated insurance underwriting subsidiaries that are functionally regulated by a State insurance regulator (or subject to comparable supervision and regulatory capital requirements in a non-U.S. jurisdiction), the proposed rule set forth the following treatment. The assets and liabilities of the subsidiary would be consolidated for purposes of determining the BHC's risk-weighted assets. However, the BHC would deduct from tier 1 capital an amount equal to the insurance underwriting subsidiary's minimum regulatory capital requirement as determined by its functional (or equivalent) regulator. For U.S. regulated insurance underwriting subsidiaries, this amount generally would be 200 percent of the subsidiary's Authorized Control Level as established by the appropriate state insurance regulator.

The proposal noted that its approach with respect to functionally regulated consolidated insurance underwriting subsidiaries was different from the New Accord, which broadly endorses a deconsolidation and deduction approach for insurance subsidiaries. The proposal acknowledged the Board's concern that a full deconsolidation and deduction approach does not capture the credit risk in insurance underwriting subsidiaries at the consolidated BHC level.

Several commenters objected to the proposed deduction from tier 1 capital and instead supported a deduction 50 percent from tier 1 capital and 50 percent from tier 2 capital. Others supported the full deduction and deconsolidation approach endorsed by the New Accord and maintained that, by contrast, the proposed approach was overly

conservative and resulted in a double-count of capital requirements for insurance regulation and banking regulation.

The Board continues to believe that a consolidated BHC risk-based capital measure should incorporate all credit, market, and operational risks to which the BHC is exposed, regardless of the legal entity subsidiary where a risk exposure resides. The Board also believes that a fully consolidated approach minimizes the potential for regulatory capital arbitrage; it eliminates incentives to book individual exposures at a subsidiary that is deducted from the consolidated entity for capital purposes where a different, potentially more favorable, capital requirement is applied at the subsidiary. Moreover, the Board does not agree that the proposed approach results in a double-count of capital requirements. Rather, the capital requirements imposed by a functional regulator or other supervisory authority at the subsidiary level reflect the capital needs at the particular subsidiary. The consolidated measure of minimum capital requirements should reflect the consolidated organization.

Thus, the Board is retaining the proposed requirement that assets and liabilities of insurance underwriting subsidiaries are consolidated for determining risk-weighted assets. The Board has modified the final rule for BHCs, however, to allow the associated capital deduction to be made 50 percent from tier 1 capital and 50 percent from tier 2 capital.

V. Calculation of Risk-Weighted Assets

Under the final rule, a bank's total risk-weighted assets is the sum of its credit risk-weighted assets and risk-weighted assets for operational risk, minus the sum of its excess eligible credit reserves (eligible credit reserves in excess of its total ECL) not

included in tier 2 capital. Unlike under the proposal, allocated transfer risk reserves are not subtracted from total risk-weighted assets under the final rule. Because the EAD of wholesale exposures and retail segments is calculated net of any allocated transfer risk reserves, a second subtraction of the reserves from risk-weighted assets is not appropriate.

A. Categorization of Exposures

To calculate credit risk-weighted assets, a bank must determine risk-weighted asset amounts for exposures that have been grouped into four general categories: wholesale, retail, securitization, and equity. It must also identify and determine risk-weighted asset amounts for assets not included in an exposure category and any non-material portfolios of exposures to which the bank elects not to apply the IRB approach. To exclude a portfolio from the IRB approach, a bank must demonstrate to the satisfaction of its primary Federal supervisor that the portfolio (when combined with all other portfolios of exposures that the bank seeks to exclude from the IRB approach) is not material to the bank. As described above, credit-risk-weighted assets is defined as 1.06 multiplied by the sum of total wholesale and retail risk-weighted assets, risk-weighted assets for securitization exposures, and risk-weighted assets for equity exposures.

1. Wholesale exposures

Consistent with the proposed rule, the final rule defines a wholesale exposure as a credit exposure to a company, individual, sovereign entity, or other governmental entity

(other than a securitization exposure, retail exposure, or equity exposure).⁵⁰ The term “company” is broadly defined to mean a corporation, partnership, limited liability company, depository institution, business trust, SPE, association, or similar organization. Examples of a wholesale exposure include: (i) a non-tranched guarantee issued by a bank on behalf of a company;⁵¹ (ii) a repo-style transaction entered into by a bank with a company and any other transaction in which a bank posts collateral to a company and faces counterparty credit risk; (iii) an exposure that a bank treats as a covered position under the market risk rule for which there is a counterparty credit risk capital requirement; (iv) a sale of corporate loans by a bank to a third party in which the bank retains full recourse; (v) an OTC derivative contract entered into by a bank with a company; (vi) an exposure to an individual that is not managed by the bank as part of a segment of exposures with homogeneous risk characteristics; and (vii) a commercial lease.

The agencies proposed two subcategories of wholesale exposures – HVCRE exposures and non-HVCRE exposures. Under the proposed rule, HVCRE exposures would be subject to a separate IRB risk-based capital formula that would produce a higher risk-based capital requirement for a given set of risk parameters than the IRB risk-based capital formula for non-HVCRE wholesale exposures. Further, the agencies

⁵⁰ The proposed rule excluded from the definition of a wholesale exposure certain pre-sold one-to-four family residential construction loans and certain multifamily residential loans. The treatment of such loans under the final rule is discussed below in section V.B.5. of the preamble.

⁵¹ As described below, tranched guarantees (like most transactions that involve a tranching of credit risk) generally are securitization exposures under the final rule. The final rule defines a guarantee broadly to include almost any transaction (other than a credit derivative) that involves the transfer of the credit risk of an exposure from one party to another party. This definition of guarantee generally includes, for example, a credit spread option under which a bank has agreed to make payments to its counterparty in the event of an increase in the credit spread associated with a particular reference obligation issued by a company.

proposed that once an exposure was determined to be an HVCRE exposure, it would remain an HVCRE exposure until paid in full, sold, or converted to permanent financing.

The proposed rule defined an HVCRE exposure as a credit facility that finances or has financed the acquisition, development, or construction of real property, excluding facilities that finance (i) one- to four-family residential properties or (ii) commercial real estate projects that meet the following conditions: (A) the exposure's loan-to-value (LTV) ratio is less than or equal to the applicable maximum supervisory LTV ratio in the real estate lending standards of the agencies;⁵² (B) the borrower has contributed capital to the project in the form of cash or unencumbered readily marketable assets (or has paid development expenses out-of-pocket) of at least 15 percent of the real estate's appraised "as completed" value; and (C) the borrower contributed the amount of capital required before the bank advances funds under the credit facility, and the capital contributed by the borrower or internally generated by the project is contractually required to remain in the project throughout the life of the project.

Several commenters raised issues related to the requirement that banks must separate HVCRE exposures from other wholesale exposures. One commenter asserted that a separate risk-weight function for HVCRE exposures is unnecessary because the higher risk associated with such exposures would be reflected in higher PDs and LGDs. Other commenters stated that tracking the exception requirements for acquisition, development, or construction loans would be burdensome and expressed concern that all multifamily loans could be subject to the HVCRE treatment. Yet other commenters requested that the agencies exclude from the definition of HVCRE all multifamily

⁵² 12 CFR part 34, Subpart D (OCC); 12 CFR part 208, Appendix C (Board); 12 CFR part 365, Appendix A (FDIC); and 12 CFR 560.100-560.101 (OTS).

acquisition, development, or construction loans; additional commercial real estate exposures; and other exposures with significant project equity and/or pre-sale commitments. A few commenters supported the proposed approach to HVCRE exposures.

The agencies have determined that the proposed definition of HVCRE exposures strikes an appropriate balance between risk-sensitivity and simplicity. Thus, the final rule retains the definition as proposed. If a bank does not want to track compliance with the definition for burden-related reasons, the bank may choose to apply the HVCRE risk-weight function to all credit facilities that finance the acquisition, construction, or development of multifamily and commercial real property. The agencies believe that this treatment would be an appropriate application of the principle of conservatism discussed in section II.D. of the preamble and set forth in section 1(d) of the final rule.

The New Accord identifies five sub-classes of specialized lending for which the primary source of repayment of the obligation is the income generated by the financed asset(s) rather than the independent capacity of a broader commercial enterprise. The sub-classes are project finance, object finance, commodities finance, income-producing real estate, and HVCRE. The New Accord provides a methodology to accommodate banks that cannot meet the requirements for the estimation of PD for these exposure types. The proposed rule did not include a separate treatment for specialized lending beyond the separate IRB risk-based capital formula for HVCRE exposures specified in the New Accord. The agencies noted in the proposal that sophisticated banks that would be applying the advanced approaches in the United States should be able to estimate risk parameters for specialized lending. The agencies continue to believe that banks using the

advanced approaches in the United States should be able to estimate risk parameters for specialized lending and, therefore, have not adopted a separate treatment for specialized lending in the final rule.

In contrast to the New Accord, the agencies did not propose a separate risk-based capital function for exposures to small- and medium-size enterprises (SMEs). The SME function in the New Accord generates a lower risk-based capital requirement for an exposure to an SME than for an exposure to a larger firm that has the same risk parameter values. The agencies were not aware of compelling evidence that smaller firms are subject to less systematic risk than is already reflected in the wholesale exposure risk-based capital formula, which specifies lower AVCs as PDs increase.

A number of commenters objected to this aspect of the proposal and urged the agencies to include in the final rule the SME risk-based capital function from the New Accord. Several commenters expressed concern about potential competitive disparities in the market for SME lending between U.S. banks and foreign banks subject to rules that include the New Accord's treatment of SME exposures. Others asserted that lower AVCs and risk-based capital requirements were appropriate for SME exposures because the asset values of exposures to smaller firms are more idiosyncratic than those of exposures to larger firms.

While commenters raised important issues related to SME exposures, the agencies have decided not to add a distinct risk-weight function for such exposures to the final rule. The agencies continue to believe that a distinct risk-weight function with a lower AVC for SME exposures is not substantiated by sufficient empirical evidence and may

give rise to a domestic competitive inequity between banks subject to the advanced approaches and banks subject to the general risk-based capital rules.

2. Retail exposures

Under the final rule, as under the proposed rule, retail exposures generally include exposures (other than securitization exposures or equity exposures) to an individual and small exposures to businesses that are managed as part of a segment of similar exposures, not on an individual-exposure basis. There are three subcategories of retail exposure: (i) residential mortgage exposures; (ii) QREs; and (iii) other retail exposures. The final rule retains the proposed definitions of the retail exposure subcategories and, thus, defines residential mortgage exposure as an exposure that is primarily secured by a first or subsequent lien on one- to four-family residential property.⁵³ This includes both term loans and HELOCs. An exposure primarily secured by a first or subsequent lien on residential property that is not one to four family also is included as a residential mortgage exposure as long as the exposure has both an original and current outstanding amount of no more than \$1 million. There is no upper limit on the size of an exposure that is secured by one- to four-family residential properties. To be a residential mortgage exposure, the bank must manage the exposure as part of a segment of exposures with homogeneous risk characteristics. Residential mortgage loans that are managed on an individual basis, rather than managed as part of a segment, are categorized as wholesale exposures.

QREs are defined as exposures to individuals that are (i) revolving, unsecured, and unconditionally cancelable by the bank to the fullest extent permitted by Federal law;

⁵³ The proposed rule excluded from the definition of a residential mortgage exposure certain pre-sold one-to-four family residential construction loans and certain multifamily residential loans. The treatment of such loans under the final rule is discussed below in section V.B.5. of the preamble.

(ii) have a maximum exposure amount (drawn plus undrawn) of up to \$100,000; and

(iii) are managed as part of a segment of exposures with homogeneous risk characteristics. In practice, QREs typically include exposures where customers' outstanding borrowings are permitted to fluctuate based on their decisions to borrow and repay, up to a limit established by the bank. Most credit card exposures to individuals and overdraft lines on individual checking accounts are QREs.

The category of other retail exposures includes two types of exposures. First, all exposures to individuals for non-business purposes (other than residential mortgage exposures and QREs) that are managed as part of a segment of similar exposures are other retail exposures. Such exposures may include personal term loans, margin loans, auto loans and leases, credit card accounts with credit lines above \$100,000, and student loans. There is no upper limit on the size of these types of retail exposures to individuals. Second, exposures to individuals or companies for business purposes (other than residential mortgage exposures and QREs), up to a single-borrower exposure threshold of \$1 million, that are managed as part of a segment of similar exposures are other retail exposures. For the purpose of assessing exposure to a single borrower, the bank must aggregate all business exposures to a particular legal entity and its affiliates that are consolidated under GAAP. If that borrower is a natural person, any consumer loans (for example, personal credit card loans or mortgage loans) to that borrower would not be part of the aggregate. A bank could distinguish a consumer loan from a business loan by the loan department through which the loan is made. Exposures to a borrower for business

purposes primarily secured by residential property count toward the \$1 million single-borrower other retail business exposure threshold.⁵⁴

The residual value portion of a retail lease exposure is excluded from the definition of an other retail exposure. Consistent with the New Accord, a bank must assign the residual value portion of a retail lease exposure a risk-weighted asset amount equal to its residual value as described in section 31 of the final rule.

3. Securitization exposures

The proposed rule defined a securitization exposure as an on-balance sheet or off-balance sheet credit exposure that arises from a traditional or synthetic securitization (including credit-enhancing representations and warranties). A traditional securitization was defined as a transaction in which (i) all or a portion of the credit risk of one or more underlying exposures is transferred to one or more third parties other than through the use of credit derivatives or guarantees; (ii) the credit risk associated with the underlying exposures has been separated into at least two tranches reflecting different levels of seniority; (iii) performance of the securitization exposures depends on the performance of the underlying exposures; and (iv) all or substantially all of the underlying exposures are financial exposures. Examples of financial exposures are loans, commitments, receivables, asset-backed securities, mortgage-backed securities, other debt securities, equity securities, or credit derivatives. The proposed rule also defined mortgage-backed pass-through securities guaranteed by Fannie Mae or Freddie Mac (whether or not issued out of a structure that tranches credit risk) as securitization exposures.

⁵⁴ The proposed rule excluded from the definition of an other retail exposure certain pre-sold one-to-four family residential construction loans and certain multifamily residential loans. The treatment of such loans under the final rule is discussed below in section V.B.5. of the preamble.

A synthetic securitization was defined as a transaction in which (i) all or a portion of the credit risk of one or more underlying exposures is transferred to one or more third parties through the use of one or more credit derivatives or guarantees (other than a guarantee that transfers only the credit risk of an individual retail exposure); (ii) the credit risk associated with the underlying exposures has been separated into at least two tranches reflecting different levels of seniority; (iii) performance of the securitization exposures depends on the performance of the underlying exposures; and (iv) all or substantially all of the underlying exposures are financial exposures. Accordingly, the proposed definition of a securitization exposure included tranching or guarantee arrangements – that is, arrangements in which an entity transfers a portion of the credit risk of an underlying exposure to one or more guarantors or credit derivative providers but also retains a portion of the credit risk, where the risk transferred and the risk retained are of different seniority levels.

The preamble to the proposal noted that, provided there is a tranching of credit risk, securitization exposures could include, among other things, asset-backed and mortgage-backed securities; loans, lines of credit, liquidity facilities, and financial standby letters of credit; credit derivatives and guarantees; loan servicing assets; servicer cash advance facilities; reserve accounts; credit-enhancing representations and warranties; and CEIOs. Securitization exposures also could include assets sold with retained tranching recourse.

As explained in the proposal, if a bank purchases an asset-backed security issued by a securitization SPE and purchases a credit derivative to protect itself from credit losses associated with the asset-backed security, the purchase of the credit derivative by

the investing bank does not turn the traditional securitization into a synthetic securitization. Instead, the investing bank would be viewed as having purchased a traditional securitization exposure and would reflect the CRM benefits of the credit derivative through the securitization CRM rules described later in the preamble and in section 46 of the rule. Moreover, if a bank provides a guarantee or a credit derivative on a securitization exposure, that guarantee or credit derivative would also be a securitization exposure.

Commenters raised several objections to the proposed definitions of traditional and synthetic securitizations. First, several commenters objected to the requirement that all or substantially all of the underlying exposures must be financial exposures. These commenters noted that the securitization market rapidly evolves and expands to cover new asset classes – such as intellectual property rights, project finance revenues, and entertainment royalties – that may or may not be financial assets. Commenters expressed particular concern that the proposed definitions may exclude from the securitization framework leases that include a material lease residual component.

The agencies believe that requiring all or substantially all of the underlying exposures for a securitization to be financial exposures creates an important boundary between the wholesale and retail frameworks, on the one hand, and the securitization framework, on the other hand. Accordingly, the agencies are maintaining this requirement in the final rule. The securitization framework was designed to address the tranching of the credit risk of financial exposures and was not designed, for example, to apply to tranching of credit exposures to commercial or industrial companies or nonfinancial assets. Accordingly, under the final rule, a specialized loan to finance the construction or

acquisition of large-scale projects (for example, airports and power plants), objects (for example, ships, aircraft, or satellites), or commodities (for example, reserves, inventories, precious metals, oil, or natural gas) generally is not a securitization exposure because the assets backing the loan typically are nonfinancial assets (the facility, object, or commodity being financed). In addition, although some structured transactions involving income-producing real estate or HVCRE can resemble securitizations, these transactions generally would not be securitizations because the underlying exposure would be real estate. Consequently, exposures resulting from the tranching of the risks of nonfinancial assets are not subject to the final rule's securitization framework, but generally are subject to the rules for wholesale exposures.

Based on their cash flow characteristics, for purposes of the final rule, the agencies would consider many of the asset classes identified by commenters — including lease residuals and entertainment royalties — to be financial assets. Both the designation of exposures as securitization exposures and the calculation of risk-based capital requirements for securitization exposures will be guided by the economic substance of a transaction rather than its legal form.⁵⁵

Some commenters asserted that the proposal generally to define as securitization exposures all exposures involving credit risk tranching of underlying financial assets was too broad. The proposed definition captured many exposures these commenters did not consider to be securitization exposures, including tranching exposures to a single underlying financial exposure and exposures to many hedge funds and private equity

⁵⁵ Several commenters asked the agencies to confirm that the typical syndicated credit facility would not be a securitization exposure. The agencies confirm that a syndicated credit facility is not a securitization exposure so long as less than substantially all of the borrower's assets are financial exposures.

funds. Commenters requested flexibility to apply the wholesale or equity framework (depending on the exposure) rather than the securitization framework to these exposures.

The agencies believe that a single, unified approach to dealing with the tranching of credit risk is important to create a level playing field across the securitization, credit derivative, and other financial markets, and therefore have decided to maintain the proposed treatment of tranching exposures to a single underlying financial asset in the final rule. The agencies believe that basing the applicability of the securitization framework on the presence of some minimum number of underlying exposures would complicate the rule and would create a divergence from the New Accord, without any material improvement in risk sensitivity. The securitization framework is designed specifically to deal with tranching exposures to credit risk. Moreover, the principal risk-based capital approaches of the securitization framework take into account the effective number of underlying exposures.

The agencies agree with commenters that the proposed definition for securitization exposures was quite broad and captured some exposures that would more appropriately be treated under the wholesale or equity frameworks. To limit the scope of the IRB securitization framework, the agencies have modified the definition of traditional securitization in the final rule to make clear that operating companies are not traditional securitizations (even if all or substantially all of their assets are financial exposures). For purposes of the final rule's definition of traditional securitization, operating companies generally are companies that produce goods or provide services beyond the business of investing, reinvesting, holding, or trading in financial assets. Examples of operating companies are depository institutions, bank holding companies, securities brokers and

dealers, insurance companies, and non-bank mortgage lenders. Accordingly, an equity investment in an operating company, such as a bank, generally would be an equity exposure under the final rule; a debt investment in an operating company, such as a bank, generally would be a wholesale exposure under the final rule.

Investment firms, which generally do not produce goods or provide services beyond the business of investing, reinvesting, holding, or trading in financial assets, are not operating companies for purposes of the final rule and would not qualify for this general exclusion from the definition of traditional securitization. Examples of investment firms would include companies that are exempted from the definition of an investment company under section 3(a) of the Investment Company Act of 1940 (15 U.S.C. 80a-3(a)) by either section 3(c)(1) (15 U.S.C. 80a-3(c)(1)) or section 3(c)(7) (15 U.S.C. 80a-3(c)(7)) of the Act.

The final definition of a traditional securitization also provides the primary Federal supervisor of a bank with discretion to exclude from the definition of traditional securitization investment firms that exercise substantially unfettered control over the size and composition of their assets, liabilities, and off-balance sheet transactions. The agencies will consider a number of factors in the exercise of this discretion, including an assessment of the investment firm's leverage, risk profile, and economic substance. This supervisory exclusion is intended to provide discretion to a bank's primary Federal supervisor to distinguish structured finance transactions, to which the securitization framework was designed to apply, from more flexible investment firms such as many hedge funds and private equity funds. Only investment firms that can easily change the size and composition of their capital structure, as well as the size and composition of their

assets and off-balance sheet exposures, would be eligible for this exclusion from the definition of traditional securitization under this new provision. The agencies do not consider managed collateralized debt obligation vehicles, structured investment vehicles, and similar structures, which allow considerable management discretion regarding asset composition but are subject to substantial restrictions regarding capital structure, to have substantially unfettered control. Thus, such transactions meet the final rule's definition of traditional securitization.

The agencies also have added two additional exclusions to the definition of traditional securitization for small business investment companies (SBICs) and community development investment vehicles. As a result, a bank's equity investments in SBICs and community development equity investments generally are treated as equity exposures under the final rule.

The agencies remain concerned that the line between securitization exposures and non-securitization exposures may be difficult to draw in some circumstances. In addition to the supervisory exclusion from the definition of traditional securitization described above, the agencies have added a new component to the definition of traditional securitization to specifically permit a primary Federal supervisor to scope certain transactions into the securitization framework if justified by the economics of the transaction. Similar to the analysis for excluding an investment firm from treatment as a traditional securitization, the agencies will consider the economic substance, leverage, and risk profile of transactions to ensure that the appropriate IRB classification is made. The agencies will consider a number of factors when assessing the economic substance of a transaction including, for example, the amount of equity in the structure, overall

leverage (whether on- or off-balance sheet), whether redemption rights attach to the equity investor, and the ability of the junior tranches to absorb losses without interrupting contractual payments to more senior tranches.

One commenter asked whether a bank could ignore the credit protection provided by a tranching guarantee for risk-based capital purposes and instead calculate the risk-based capital requirement for the guaranteed exposure as if the guarantee did not exist. The agencies believe that this treatment would be an appropriate application of the principle of conservatism discussed in section II.D. of this preamble and set forth in section 1(d) of the final rule.

As noted above, the proposed rule defined mortgage-backed pass-through securities guaranteed by Fannie Mae or Freddie Mac (whether or not issued out of a structure that tranches credit risk) as securitization exposures. The agencies have reconsidered this proposal and have concluded that a special treatment for these securities is inconsistent with the New Accord and would violate the fundamental credit-tranching-based nature of the definition of securitization exposures. The final rule therefore does not define all mortgage-backed pass-through securities guaranteed by Fannie Mae or Freddie Mac to be securitization exposures. As a result, those mortgage-backed securities that involve tranching of credit risk will be securitization exposures; those mortgage-backed securities that do not involve tranching of credit risk will not be securitization exposures.⁵⁶

⁵⁶ Several commenters asked the agencies to clarify whether a special purpose entity that issues multiple classes of securities that have equal priority in the capital structure of the issuer but different maturities would be considered a securitization SPE. The agencies do not believe that maturity differentials alone constitute credit risk tranching for purposes of the definitions of traditional securitization and synthetic securitization.

A few commenters asserted that OTC derivatives with a securitization SPE as the counterparty should be excluded from the definition of securitization exposure and treated as wholesale exposures. The agencies believe that the securitization framework is the most appropriate way to assess the counterparty credit risk of such exposures because this risk is a tranching exposure to the credit risk of the underlying financial assets of the securitization SPE. The agencies are addressing specific commenter concerns about the burden of applying the securitization framework to these exposures in preamble section V.E. below and section 42(a)(5) of the final rule.

4. Equity exposures

The proposed rule defined an equity exposure to mean:

(i) A security or instrument whether voting or non-voting that represents a direct or indirect ownership interest in, and a residual claim on, the assets and income of a company, unless: (A) the issuing company is consolidated with the bank under GAAP; (B) the bank is required to deduct the ownership interest from tier 1 or tier 2 capital; (C) the ownership interest is redeemable; (D) the ownership interest incorporates a payment or other similar obligation on the part of the issuing company (such as an obligation to pay periodic interest); or (E) the ownership interest is a securitization exposure.

(ii) A security or instrument that is mandatorily convertible into a security or instrument described in (i).

(iii) An option or warrant that is exercisable for a security or instrument described in (i).

(iv) Any other security or instrument (other than a securitization exposure) to the extent the return on the security or instrument is based on the performance of a security

or instrument described in (i). For example, a short position in an equity security or a total return equity swap would be characterized as an equity exposure.

The proposal noted that nonconvertible term or perpetual preferred stock generally would be considered wholesale exposures rather than equity exposures. Financial instruments that are convertible into an equity exposure only at the option of the holder or issuer also generally would be considered wholesale exposures rather than equity exposures provided that the conversion terms do not expose the bank to the risk of losses arising from price movements in that equity exposure. Upon conversion, the instrument would be treated as an equity exposure. In addition, the agencies note that unfunded equity commitments, which are commitments to make equity investments at a future date, meet the definition of an equity exposure.

Many commenters expressed support for the proposed definition of equity exposure, except for the proposed exclusion of equity investments in hedge funds and other leveraged investment vehicles, as discussed above. The agencies are adopting the proposed definition for equity exposures with one exception. They have eliminated in the final rule the exclusion of a redeemable ownership interest from the definition of equity exposure. The agencies believe that redeemable ownership interests, such as those in mutual funds and private equity funds, are most appropriately treated as equity exposures.

The agencies anticipate that, as a general matter, each of a bank's exposures will fit in one and only one exposure category. One exception to this principle is that equity derivatives generally will meet the definition of an equity exposure (because of the bank's exposure to the underlying equity security) and the definition of a wholesale exposure (because of the bank's credit risk exposure to the counterparty). In such cases,

as discussed in more detail below, the bank's risk-based capital requirement for the equity derivative generally is the sum of its risk-based capital requirement for the derivative counterparty credit risk and for the underlying exposure.

5. Boundary between operational risk and other risks

With the introduction of an explicit risk-based capital requirement for operational risk, issues arise about the proper treatment of operational losses that also could be attributed to either credit risk or market risk. The agencies recognize that these boundary issues are important and have significant implications for how banks must compile loss data sets and compute risk-based capital requirements under the final rule. Consistent with the treatment in the New Accord and the proposed rule, banks must treat operational losses that are related to market risk as operational losses for purposes of calculating risk-based capital requirements under this final rule. For example, losses incurred from a failure of bank personnel to properly execute a stop loss order, from trading fraud, or from a bank selling a security when a purchase was intended, must be treated as operational losses.

Under the proposed rule, banks would treat losses that are related to both operational risk and credit risk as credit losses for purposes of calculating risk-based capital requirements. For example, where a loan defaults (credit risk) and the bank discovers that the collateral for the loan was not properly secured (operational risk), the bank's resulting loss would be attributed to credit risk (not operational risk). This general separation between credit and operational risk is supported by current U.S. accounting standards for the treatment of credit risk.

To be consistent with prevailing practice in the credit card industry, the proposed rule included an exception to this standard for retail credit card fraud losses. Specifically, retail credit card losses arising from non-contractual, third party-initiated fraud (for example, identity theft) would be treated as external fraud operational losses under the proposed rule. All other third party-initiated losses would be treated as credit losses.

Generally, commenters urged the agencies not to be prescriptive on risk boundary issues and to give banks discretion to categorize risk as they deem appropriate, subject to supervisory review. Other commenters noted that boundary issues are so significant that the agencies should not contemplate any additional exceptions to treating losses related to both credit and operational risk as credit losses unless the exceptions are agreed to by the BCBS. Several commenters objected to specific aspects of the agencies' proposal and suggested that additional types of losses related to credit risk and operational risk, including losses related to check fraud, overdraft fraud, and small business loan fraud, should be treated as operational losses for purposes of calculating risk-based capital requirements. One commenter expressly noted its support for the agencies' proposal, which effectively requires banks to treat losses on HELOCs related to both credit risk and operational risk as credit losses for purposes of calculating risk-based capital requirements.

Because of the substantial potential impact boundary issues have on risk-based capital requirements under the advanced approaches, there should be consistency across U.S. banks in how they categorize losses that relate to both credit risk and operational risk. Moreover, the agencies believe that international consistency on this issue is an important objective. Therefore, the final rule maintains the proposed boundaries for

losses that relate to both credit risk and operational risk and does not incorporate any additional exemptions beyond that in the proposal.

6. Boundary between the final rule and the market risk rule

For banks subject to the market risk rule, the existing market risk rule applies to all positions classified as trading positions in regulatory reports. The New Accord establishes additional criteria for positions to be eligible for application of the market risk rule. The agencies are incorporating these additional criteria into the market risk rule through a separate rulemaking that is expected to be finalized soon and published in the Federal Register. Under this final rule, as under the proposal, core and opt-in banks subject to the market risk rule must use the market risk rule for exposures that are covered positions under the market risk rule. Core and opt-in banks not subject to the market risk rule must use this final rule for all of their exposures.

B. Risk-Weighted Assets for General Credit Risk (Wholesale Exposures, Retail Exposures, On-Balance Sheet Assets that Are Not Defined by Exposure Category, and Immaterial Credit Portfolios)

Under the proposed rule, the wholesale and retail risk-weighted assets calculation consisted of four phases: (1) categorization of exposures; (2) assignment of wholesale exposures to rating grades and segmentation of retail exposures; (3) assignment of risk parameters to wholesale obligors and exposures and segments of retail exposures; and (4) calculation of risk-weighted asset amounts. The agencies did not receive any negative comments on the four phases for calculating wholesale and retail risk-weighted assets and, thus, are adopting the four-phase concept as proposed. Where applicable, the agencies have clarified particular issues within the four-phase process.

1. Phase 1 – Categorization of exposures

In phase 1, a bank must determine which of its exposures fall into each of the four principal IRB exposure categories – wholesale exposures, retail exposures, securitization exposures, and equity exposures. In addition, a bank must identify within the wholesale exposure category certain exposures that receive a special treatment under the wholesale framework. These exposures include HVCRE exposures, sovereign exposures, eligible purchased wholesale exposures, eligible margin loans, repo-style transactions, OTC derivative contracts, unsettled transactions, and eligible guarantees and eligible credit derivatives that are used as credit risk mitigants.

The treatment of HVCRE exposures and eligible purchased wholesale receivables is discussed below in this section. The treatment of eligible margin loans, repo-style transactions, OTC derivative contracts, and eligible guarantees and eligible credit derivatives that are credit risk mitigants is discussed in section V.C. of the preamble. In addition, sovereign exposures and exposures to or directly and unconditionally guaranteed by the Bank for International Settlements, the International Monetary Fund, the European Commission, the European Central Bank, and multilateral development banks are exempt from the 0.03 percent floor on PD discussed in the next section.

The proposed rule recognized as multilateral development banks only those multilateral lending institutions or regional development banks in which the U.S. government is a shareholder or contributing member. The final rule adopts a slightly expanded definition of multilateral development bank. Specifically, under the final rule, multilateral development bank is defined to include the International Bank for Reconstruction and Development, the International Finance Corporation, the Inter-

American Development Bank, the Asian Development Bank, the African Development Bank, the European Bank for Reconstruction and Development, the European Investment Bank, the European Investment Fund, the Nordic Investment Bank, the Caribbean Development Bank, the Islamic Development Bank, the Council of Europe Development Bank; any multilateral lending institution or regional development bank in which the U.S. government is a shareholder or contributing member; and any multilateral lending institution that a bank's primary Federal supervisor determines poses comparable credit risk.

In phase 1, a bank also must subcategorize its retail exposures as residential mortgage exposures, QREs, or other retail exposures. In addition, a bank must identify any on-balance sheet asset that does not meet the definition of a wholesale, retail, securitization, or equity exposure, as well as any non-material portfolio of exposures to which it chooses, subject to supervisory review, not to apply the IRB risk-based capital formulas.

2. Phase 2 – Assignment of wholesale obligors and exposures to rating grades and retail exposures to segments

In phase 2, a bank must assign each wholesale obligor to a single rating grade (for purposes of assigning an estimated PD) and may assign each wholesale exposure to loss severity rating grades (for purposes of assigning an estimated LGD). A bank that elects not to use a loss severity rating grade system for a wholesale exposure must directly assign an estimated LGD to the wholesale exposure in phase 3. As a part of the process of assigning wholesale obligors to rating grades, a bank must identify which of its wholesale obligors are in default. In addition, a bank must group its retail exposures

within each retail subcategory into segments that have homogeneous risk characteristics.⁵⁷

Segmentation is the grouping of exposures within each subcategory according to the predominant risk characteristics of the borrower (for example, credit score, debt-to-income ratio, and delinquency) and the exposure (for example, product type and LTV ratio). In general, retail segments should not cross national jurisdictions. A bank has substantial flexibility to use the retail portfolio segmentation it believes is most appropriate for its activities, subject to the following broad principles:

- Differentiation of risk – Segmentation should provide meaningful differentiation of risk. Accordingly, in developing its risk segmentation system, a bank should consider the chosen risk drivers’ ability to separate risk consistently over time and the overall robustness of the bank’s approach to segmentation.
- Reliable risk characteristics – Segmentation should use borrower-related risk characteristics and exposure-related risk characteristics that reliably and consistently over time differentiate a segment’s risk from that of other segments.
- Consistency – Risk drivers for segmentation should be consistent with the predominant risk characteristics used by the bank for internal credit risk measurement and management.
- Accuracy – The segmentation system should generate segments that separate exposures by realized performance and should be designed so that actual long-run outcomes closely approximate the retail risk parameters estimated by the bank.

⁵⁷ If the bank determines the EAD for eligible margin loans using the approach in section 32(b) of the rule, it must segment retail eligible margin loans for which the bank uses this approach separately from other retail exposures.

A bank might choose to segment exposures by common risk drivers that are relevant and material in determining the loss characteristics of a particular retail product. For example, a bank may segment mortgage loans by LTV band, age from origination, geography, origination channel, and credit score. Statistical modeling, expert judgment, or some combination of the two may determine the most relevant risk drivers. Alternatively, a bank might segment by grouping exposures with similar loss characteristics, such as loss rates or default rates, as determined by historical performance of segments with similar risk characteristics.

A bank must segment defaulted retail exposures separately from non-defaulted retail exposures and should base the segmentation of defaulted retail exposures on characteristics that are most predictive of current loss and recovery rates. This segmentation should provide meaningful differentiation so that individual exposures within each defaulted segment do not have material differences in their expected loss severity.

Banks commonly obtain tranching credit protection, for example first-loss or second-loss guarantees, on certain retail exposures such as residential mortgages. The proposal recognized that the securitization framework, which applies to tranching wholesale exposures, is not appropriate for individual retail exposures. Therefore, the agencies proposed to exclude tranching guarantees that apply only to an individual retail exposure from the securitization framework. The preamble to the proposal noted that an important result of this exclusion is that, in contrast to the treatment of wholesale exposures, a bank may recognize recoveries from both a borrower and a guarantor for purposes of estimating LGD for certain retail exposures.

Most commenters who addressed the agencies' proposed treatment for tranching retail guarantees supported the proposed approach. One commenter urged the agencies to extend the treatment of tranching guarantees of retail exposures to wholesale exposures. Another commenter asserted that the proposed treatment was inconsistent with the New Accord.

The agencies have determined that while the securitization framework is the most appropriate risk-based capital treatment for most tranching guarantees, the regulatory burden associated with applying it to tranching guarantees of individual retail exposures exceeds the supervisory benefit. The agencies are therefore adopting the proposed treatment in the final rule and excluding tranching guarantees of individual retail exposures from the securitization framework.

Some banks expressed concern about the treatment of eligible margin loans under the New Accord. Due to the highly collateralized nature and low loss frequency of margin loans, banks typically collect little customer-specific information that they could use to differentiate margin loans into segments. The agencies believe that a bank could appropriately segment its margin loan portfolio using only product-specific risk drivers, such as product type and origination channel. A bank could then use the definition of default to associate a PD and LGD with each segment. As described in section 32 of the rule, a bank may adjust the EAD of eligible margin loans to reflect the risk-mitigating effect of financial collateral. If a bank elects this option to adjust the EAD of eligible margin loans, it must associate an LGD with the segment that does not reflect the presence of collateral.

Under the proposal, if a bank was not able to estimate PD and LGD for an eligible margin loan, the bank could apply a 300 percent risk weight to the EAD of the loan. Commenters generally objected to this approach. As discussed in section III.B.3. of the preamble, several commenters asserted that the agencies should permit banks to treat margin loans and other portfolios that exhibit low loss frequency or for which a bank has limited data on a portfolio basis, by apportioning EL between PD and LGD for portfolios rather than estimating each risk parameter separately. Other commenters suggested that banks should be expected to develop sound practices for applying the IRB approach to such exposures and adopt an appropriate degree of conservatism to address the level of uncertainty in the estimation process. Several commenters added that if a bank simply is unable to estimate PD and LGD for eligible margin loans, they would support the agencies' proposal to apply a flat risk weight to the EAD of eligible margin loans. However, they asserted that the risk weight should not exceed 100 percent given the low levels of loss associated with these types of exposures.

As discussed in section III.B.3. of the preamble, the final rule provides flexibility and incentives for banks to develop and document sound practices for applying the IRB approach to portfolios with limited data or default history, which may include eligible margin loans. However, the agencies believe that for banks facing particular challenges with respect to estimating PD and LGD for eligible margin loans, the proposed application of a 300 percent risk weight to the EAD of an eligible margin loan is a reasonable alternative. The option balances pragmatism with the provision of appropriate incentives for banks to develop processes to apply the IRB approach to such exposures. Accordingly, the final rule continues to provide banks with the option of applying a 300

percent risk weight to the EAD of an eligible margin loan for which it cannot estimate PD and LGD.

Purchased wholesale exposures

A bank may also elect to use a top-down approach, similar to the treatment of retail exposures, for eligible purchased wholesale exposures. Under the final rule, as under the proposal, this approach may be used for exposures purchased directly by the bank. In addition, the final rule clarifies that this approach also may be used for exposures purchased by a securitization SPE in which the bank has invested and for which the bank calculates the capital requirement on the underlying exposures (K_{IRB}) for purposes of the SFA (as defined in section V.E.4. of the preamble). Under this approach, in phase 2, a bank would group its eligible purchased wholesale exposures into segments that have homogeneous risk characteristics. To be an eligible purchased wholesale exposure, several criteria must be met:

- The purchased wholesale exposure must be purchased from an unaffiliated seller and must not have been directly or indirectly originated by the purchasing bank or securitization SPE;
- The purchased wholesale exposure must be generated on an arm's-length basis between the seller and the obligor (intercompany accounts receivable and receivables subject to contra-accounts between firms that buy and sell to each other would not satisfy this criterion);
- The purchasing bank must have a claim on all proceeds from the exposure or a pro rata interest in the proceeds;

- The purchased wholesale exposure must have an effective remaining maturity of less than one year; and
- The purchased wholesale exposure must, when consolidated by obligor, not represent a concentrated exposure relative to the portfolio of purchased wholesale exposures.

Wholesale lease residuals

The agencies proposed a treatment for wholesale lease residuals that differs from the New Accord. A wholesale lease residual typically exposes a bank to the risk of a decline in value of the leased asset and to the credit risk of the lessee. Although the New Accord provides for a flat 100 percent risk weight for wholesale lease residuals, the preamble to the proposal noted that the agencies believed this treatment was excessively punitive for leases to highly creditworthy lessees. Accordingly, the proposed rule required a bank to treat its net investment in a wholesale lease as a single exposure to the lessee. As proposed, there would not be a separate capital calculation for the wholesale lease residual. Commenters on this issue broadly supported the agencies' proposed approach. The agencies believe the proposed approach appropriately reflects current bank risk management practice and are adopting the proposed approach in the final rule.

Commenters also requested this treatment for retail lease residuals. However, the agencies have determined that the proposal to apply a flat 100 percent risk weight for retail lease residuals, consistent with the New Accord, appropriately balances risk sensitivity and complexity and are maintaining this treatment in the final rule.

3. Phase 3 – Assignment of risk parameters to wholesale obligors and exposures and retail segments

In phase 3, a bank associates a PD with each wholesale obligor rating grade; associates an LGD with each wholesale loss severity rating grade or assigns an LGD to each wholesale exposure; assigns an EAD and M to each wholesale exposure; and assigns a PD, LGD, and EAD to each segment of retail exposures. In some cases it may be reasonable to assign the same PD, LGD, or EAD to multiple segments of retail exposures. The quantification phase for PD, LGD, and EAD can generally be divided into four steps—obtaining historical reference data, estimating the risk parameters for the reference data, mapping the historical reference data to the bank’s current exposures, and determining the risk parameters for the bank’s current exposures. As discussed in more detail below, quantification of M is accomplished through direct computation based on the contractual characteristics of the exposure.

A bank should base its estimation of the values assigned to PD, LGD, and EAD⁵⁸ on historical reference data that are a reasonable proxy for the bank’s current exposures and that provide meaningful predictions of the performance of such exposures. A “reference data set” consists of a set of exposures to defaulted wholesale obligors and defaulted retail exposures (in the case of LGD and EAD estimation) or to both defaulted and non-defaulted wholesale obligors and retail exposures (in the case of PD estimation).

The reference data set should be described using a set of observed characteristics. Relevant characteristics might include debt ratings, financial measures, geographic regions, the economic environment and industry/sector trends during the time period of the reference data, borrower and loan characteristics related to the risk parameters (such as loan terms, LTV ratio, credit score, income, debt-to-income ratio, or performance

⁵⁸ EAD for repo-style transactions and eligible margin loans may be calculated as described in section 32 of the final rule. EAD for OTC derivatives must be calculated as described in section 32 of the final rule.

history), or other factors that are related in some way to the risk parameters. Banks may use more than one reference data set to improve the robustness or accuracy of the parameter estimates.

A bank should then apply statistical techniques to the reference data to determine a relationship between risk characteristics and the estimated risk parameter. The result of this step is a model that ties descriptive characteristics to the risk parameter estimates. In this context, the term ‘model’ is used in the most general sense; a model may use simple concepts, such as the calculation of averages, or more complex ones, such as an approach based on rigorous regression techniques. This step may include adjustments for differences between this final rule’s definition of default and the default definition in the reference data set, or adjustments for data limitations. This step includes adjustments for seasoning effects related to retail exposures, if material.

A bank may use more than one estimation technique to generate estimates of the risk parameters, especially if there are multiple sets of reference data or multiple sample periods. If multiple estimates are generated, the bank should have a clear and consistent policy on reconciling and combining the different estimates.

Once a bank estimates PD, LGD, and EAD for its reference data sets, it should create a link between its portfolio data and the reference data based on corresponding characteristics. Variables or characteristics that are available for the existing portfolio should be mapped or linked to the variables used in the default, loss-severity, or exposure amount model. In order to effectively map the data, reference data characteristics need to allow for the construction of rating and segmentation criteria that are consistent with

those used on the bank's portfolio. An important element of mapping is making adjustments for differences between reference data sets and the bank's exposures.

Finally, a bank must apply the risk parameters estimated for the reference data to the bank's actual portfolio data. As noted above, the bank must attribute a PD to each wholesale obligor risk grade, an LGD to each wholesale loss severity grade or wholesale exposure, an EAD and M to each wholesale exposure, and a PD, LGD, and EAD to each segment of retail exposures. If multiple data sets or estimation methods are used, the bank must adopt a means of combining the various estimates at this stage.

The final rule, as noted above, permits a bank to elect to segment its eligible purchased wholesale exposures like retail exposures. A bank that chooses to apply this treatment must directly assign a PD, LGD, EAD, and M to each such segment. If a bank can estimate ECL (but not PD or LGD) for a segment of eligible purchased wholesale exposures, the bank must assume that the LGD of the segment equals 100 percent and that the PD of the segment equals ECL divided by EAD. The bank must estimate ECL for the eligible purchased wholesale exposures without regard to any assumption of recourse or guarantees from the seller or other parties. The bank must then use the wholesale exposure formula in section 31(e) of the final rule to determine the risk-based capital requirement for each segment of eligible purchased wholesale exposures.

A bank may recognize the credit risk mitigation benefits of collateral that secures a wholesale exposure by adjusting its estimate of the LGD of the exposure and may recognize the credit risk mitigation benefits of collateral that secures retail exposures by adjusting its estimate of the PD and LGD of the segment of retail exposures. In certain cases, however, a bank may take financial collateral into account in estimating the EAD

of repo-style transactions, eligible margin loans, and OTC derivative contracts (as provided in section 32 of the final rule).

Consistent with the proposed rule, the final rule also provides that a bank may use an EAD of zero for (i) derivative contracts that are publicly traded on an exchange that requires the daily receipt and payment of cash-variation margin; (ii) derivative contracts and repo-style transactions that are outstanding with a qualifying central counterparty (defined below), but not for those transactions that the qualifying central counterparty has rejected; and (iii) credit risk exposures to a qualifying central counterparty that arise from derivative contracts and repo-style transactions in the form of clearing deposits and posted collateral. The final rule, like the proposed rule, defines a qualifying central counterparty as a counterparty (for example, a clearing house) that: (i) facilitates trades between counterparties in one or more financial markets by either guaranteeing trades or novating contracts; (ii) requires all participants in its arrangements to be fully collateralized on a daily basis; and (iii) the bank demonstrates to the satisfaction of its primary Federal supervisor is in sound financial condition and is subject to effective oversight by a national supervisory authority.

Some repo-style transactions and OTC derivative contracts giving rise to counterparty credit risk may result, from an accounting point of view, in both on- and off-balance sheet exposures. A bank that uses an EAD approach to measure the exposure amount of such transactions is not required to apply separately a risk-based capital requirement to an on-balance sheet receivable from the counterparty recorded in connection with that transaction. Because any exposure arising from the on-balance sheet receivable is captured in the risk-based capital requirement determined under the

EAD approach, a separate capital requirement would double count the exposure for regulatory capital purposes.

A bank may take into account the risk reducing effects of eligible guarantees and eligible credit derivatives in support of a wholesale exposure by applying the PD substitution approach or the LGD adjustment approach to the exposure as provided in section 33 of the final rule or, if applicable, applying the double default treatment to the exposure as provided in section 34 of the final rule. A bank may decide separately for each wholesale exposure that qualifies for the double default treatment whether to apply the PD substitution approach, the LGD adjustment approach, or the double default treatment. A bank may take into account the risk-reducing effects of guarantees and credit derivatives in support of retail exposures in a segment when quantifying the PD and LGD of the segment.

The proposed rule imposed several supervisory limitations on risk parameters assigned to wholesale obligors and exposures and segments of retail exposures. First, the PD for each wholesale obligor or segment of retail exposures could not be less than 0.03 percent, except for exposures to or directly and unconditionally guaranteed by a sovereign entity, the Bank for International Settlements, the International Monetary Fund, the European Commission, the European Central Bank, or a multilateral development bank, to which the bank assigns a rating grade associated with a PD of less than 0.03 percent.

Second, the LGD of a segment of residential mortgage exposures (other than segments of residential mortgage exposures for which all or substantially all of the principal of the exposures is directly and unconditionally guaranteed by the full faith and

credit of a sovereign entity) could not be less than 10 percent. These supervisory floors on PD and LGD applied regardless of whether the bank recognized an eligible guarantee or eligible credit derivative as provided in sections 33 and 34 of the proposed rule.

Commenters did not object to the floor on PD, and the agencies are including it in the final rule. A number of commenters, however, objected to the 10 percent floor on LGD for segments of residential mortgage exposures. These commenters asserted that the floor would penalize low-risk mortgage lending and would provide a disincentive for obtaining high-quality collateral. The agencies continue to believe that the LGD floor is appropriate at least until banks and the agencies gain more experience with the advanced approaches. Accordingly, the agencies are maintaining the floor in the final rule. As the agencies gain more experience with the advanced approaches they will reconsider the need for the floor together with other calibration issues identified during the parallel run and transitional floor periods. The agencies also intend to address this issue and other calibration issues with the BCBS and other supervisory and regulatory authorities, as appropriate.

The 10 percent LGD floor for residential mortgage exposures applies at the segment level. The agencies will not allow a bank to artificially group exposures into segments to avoid the LGD floor for mortgage products. A bank should use consistent risk drivers to determine its retail exposure segmentations and not artificially segment low LGD loans with higher LGD loans to avoid the floor.

A bank also must calculate M for each wholesale exposure. Under the proposed rule, for wholesale exposures other than repo-style transactions, eligible margin loans, and OTC derivative contracts subject to a qualifying master netting agreement (defined in

section V.C.2. of this preamble), M was defined as the weighted-average remaining maturity (measured in whole or fractional years) of the expected contractual cash flows from the exposure, using the undiscounted amounts of the cash flows as weights. A bank could use its best estimate of future interest rates to compute expected contractual interest payments on a floating-rate exposure, but it could not consider expected but noncontractually required returns of principal, when estimating M. A bank could, at its option, use the nominal remaining maturity (measured in whole or fractional years) of the exposure. The M for repo-style transactions, eligible margin loans, and OTC derivative contracts subject to a qualifying master netting agreement was the weighted-average remaining maturity (measured in whole or fractional years) of the individual transactions subject to the qualifying master netting agreement, with the weight of each individual transaction set equal to the notional amount of the transaction. The M for netting sets for which the bank used the internal models methodology was calculated as described in section 32(c) of the proposed rule.

Many commenters requested more flexibility in the definition of M, including the ability to estimate noncontractually required prepayments and the ability to use either discounted or undiscounted cash flows. However, the agencies believe that the proposed definition of M, which is consistent with the New Accord, is appropriately conservative and provides for a consistent definition of M across internationally active banks. The final rule therefore maintains the proposed definition of M.

Under the final rule, as under the proposal, for most exposures M may be no greater than five years and no less than one year. For exposures that have an original maturity of less than one year and are not part of a bank's ongoing financing of the

obligor, however, a bank may set M as low as one day, consistent with the New Accord. An exposure is not part of a bank's ongoing financing of the obligor if the bank (i) has a legal and practical ability not to renew or roll over the exposure in the event of credit deterioration of the obligor; (ii) makes an independent credit decision at the inception of the exposure and at every renewal or rollover; and (iii) has no substantial commercial incentive to continue its credit relationship with the obligor in the event of credit deterioration of the obligor. Examples of transactions that may qualify for the exemption from the one-year maturity floor include amounts due from other banks, including deposits in other banks; bankers' acceptances; sovereign exposures; short-term self-liquidating trade finance exposures; repo-style transactions; eligible margin loans; unsettled trades and other exposures resulting from payment and settlement processes; and collateralized OTC derivative contracts subject to daily remargining.

4. Phase 4 – Calculation of risk-weighted assets

After a bank assigns risk parameters to each of its wholesale obligors and exposures and retail segments, the bank must calculate the dollar risk-based capital requirement for each wholesale exposure to a non-defaulted obligor and each segment of non-defaulted retail exposures (except eligible guarantees and eligible credit derivatives that hedge another wholesale exposure). Other than for exposures to which the bank applies the double default treatment in section 34 of the final rule, a bank makes this calculation by inserting the risk parameters for the wholesale obligor and exposure or retail segment into the appropriate IRB risk-based capital formula specified in Table B, and multiplying the output of the formula (K) by the EAD of the exposure or segment.⁵⁹

⁵⁹ Alternatively, as noted above, a bank may apply a 300 percent risk weight to the EAD of an eligible margin loan if the bank is not able to assign a rating grade to the obligor of the loan.

Section 34 contains a separate double default risk-based capital requirement formula. Eligible guarantees and eligible credit derivatives that are hedges of a wholesale exposure are reflected in the risk-weighted assets amount of the hedged exposure (i) through adjustments made to the risk parameters of the hedged exposure under the PD substitution or LGD adjustment approach in section 33 of the final rule or (ii) through a separate double default risk-based capital requirement formula in section 34 of the final rule.

Table B – IRB Risk-Based Capital Formulas for Wholesale Exposures to Non-Defaulted Obligors and Segments of Non-Defaulted Retail Exposures¹

Retail	Capital Requirement (K) Non-Defaulted Exposures	$K = \left[LGD \times N \left(\frac{N^{-1}(PD) + \sqrt{R} \times N^{-1}(0.999)}{\sqrt{1-R}} \right) - (LGD \times PD) \right]$
	Correlation Factor (R)	For residential mortgage exposures: $R = 0.15$
		For qualifying revolving exposures: $R = 0.04$
	For other retail exposures: $R = 0.03 + 0.13 \times e^{-35 \times PD}$	
Wholesale	Capital Requirement (K) Non-Defaulted Exposures	$K = \left[LGD \times N \left(\frac{N^{-1}(PD) + \sqrt{R} \times N^{-1}(0.999)}{\sqrt{1-R}} \right) - (LGD \times PD) \right] \times \left(\frac{1 + (M - 2.5) \times b}{1 - 1.5 \times b} \right)$
	Correlation Factor (R)	For HVCRE exposures: $R = 0.12 + 0.18 \times e^{-50 \times PD}$
		For wholesale exposures other than HVCRE exposures: $R = 0.12 + 0.12 \times e^{-50 \times PD}$
Maturity Adjustment (b)	$b = (0.11852 - 0.05478 \times \ln(PD))^2$	

¹ N(.) means the cumulative distribution function for a standard normal random variable. N⁻¹(.) means the inverse cumulative distribution function for a standard normal random variable. The symbol e refers to the base of the natural logarithms, and the function ln(.) refers to the natural logarithm of the expression within parentheses. The formulas apply when PD is greater than zero. If the PD equals zero, the capital requirement K is equal to zero.

The sum of the dollar risk-based capital requirements for wholesale exposures to non-defaulted obligors (including exposures subject to the double default treatment described below) and segments of non-defaulted retail exposures equals the total dollar

risk-based capital requirement for those exposures and segments. The total dollar risk-based capital requirement multiplied by 12.5 equals the risk-weighted asset amount.

Under the proposed rule, to compute the risk-weighted asset amount for a wholesale exposure to a defaulted obligor, a bank would first have to compare two amounts: (i) the sum of 0.08 multiplied by the EAD of the wholesale exposure plus the amount of any charge-offs or write-downs on the exposure; and (ii) K for the wholesale exposure (as determined in Table B immediately before the obligor became defaulted), multiplied by the EAD of the exposure immediately before the exposure became defaulted. If the amount calculated in (i) were equal to or greater than the amount calculated in (ii), the dollar risk-based capital requirement for the exposure would be 0.08 multiplied by the EAD of the exposure. If the amount calculated in (i) were less than the amount calculated in (ii), the dollar risk-based capital requirement for the exposure would be K for the exposure (as determined in Table B immediately before the obligor became defaulted), multiplied by the EAD of the exposure. The reason for this comparison was to ensure that a bank did not receive a regulatory capital benefit as a result of the exposure moving from non-defaulted to defaulted status.

The proposed rule provided a simpler approach for segments of defaulted retail exposures. The dollar risk-based capital requirement for a segment of defaulted retail exposures was 0.08 multiplied by the EAD of the segment.

Some commenters objected to the proposed risk-based capital treatment of defaulted wholesale exposures, which differs from the approach in the New Accord. These commenters contended that it would be burdensome to track the pre-default risk-based capital requirements for purposes of the proposed comparison. These commenters

also claimed that the cost and burden of the proposed treatment of defaulted wholesale exposures would subject banks to a competitive disadvantage relative to international counterparts subject to an approach similar to that in the New Accord.

In view of commenters' concerns about cost and regulatory burden, the final rule treats defaulted wholesale exposures the same as defaulted retail exposures. The dollar risk-based capital requirement of a wholesale exposure to a defaulted obligor equals 0.08 multiplied by the EAD of the exposure. The agencies will review banks' practices to ensure that banks are not moving exposures from non-defaulted to defaulted status for the primary purpose of obtaining a reduction in risk-based capital requirements.

To convert the dollar risk-based capital requirements for defaulted exposures into a risk-weighted asset amount, the bank must sum the dollar risk-based capital requirements for all wholesale exposures to defaulted obligors and segments of defaulted retail exposures and multiply the sum by 12.5.

A bank may assign a risk-weighted asset amount of zero to cash owned and held in all offices of the bank or in transit, and for gold bullion held in the bank's own vaults or held in another bank's vaults on an allocated basis, to the extent the gold bullion assets are offset by gold bullion liabilities. The risk-weighted asset amount for an on-balance sheet asset that does not meet the definition of a wholesale, retail, securitization, or equity exposure – for example, property, plant, and equipment and mortgage servicing rights – is its carrying value. The risk-weighted asset amount for a portfolio of exposures that the bank has demonstrated to its primary Federal supervisor's satisfaction is, when combined with all other portfolios of exposures that the bank seeks to treat as immaterial for risk-based capital purposes, not material to the bank generally is its carrying value (for on-

balance sheet exposures) or notional amount (for off-balance sheet exposures). For this purpose, the notional amount of an OTC derivative contract that is not a credit derivative is the EAD of the derivative as calculated in section 32 of the final rule. If an OTC derivative contract is a credit derivative, the notional amount is the notional amount of the credit derivative.

Total wholesale and retail risk-weighted assets are defined as the sum of risk-weighted assets for wholesale exposures to non-defaulted obligors and segments of non-defaulted retail exposures, wholesale exposures to defaulted obligors and segments of defaulted retail exposures, assets not included in an exposure category, non-material portfolios of exposures (as calculated under section 31 of the final rule), and unsettled transactions (as calculated under section 35 of the final rule and described in section V.D. of the preamble) minus the amounts deducted from capital pursuant to the general risk-based capital rules (excluding those deductions reversed in section 12 of the final rule).

5. Statutory provisions on the regulatory capital treatment of certain mortgage loans

The general risk-based capital rules assign 50 percent and 100 percent risk weights to certain one- to four-family residential pre-sold construction loans and multifamily residential loans.⁶⁰ The agencies adopted these provisions as a result of the Resolution Trust Corporation Refinancing, Restructuring, and Improvement Act of 1991 (RTCRI Act).⁶¹ The RTCRI Act mandates that each agency provide in its capital

⁶⁰ See 12 CFR part 3, Appendix A, section 3(a)(3)(iii) (national banks); 12 CFR part 208, Appendix A, section III.C.3. (state member banks); 12 CFR part 225, Appendix A, section III.C.3. (bank holding companies); 12 CFR part 325, Appendix A, section II.C. (state nonmember banks); 12 CFR 567.6(a)(1)(iii) and (iv) (savings associations).

⁶¹ See §§ 618(a) and (b) of the RTCRI Act, Pub. L. 102-233. The first class includes loans for the construction of a residence consisting of 1-to-4 family dwelling units that have been pre-sold under firm contracts to purchasers who have obtained firm commitments for permanent qualifying mortgages and have made substantial earnest money deposits. The second class includes loans that are secured by a first lien on

regulations (i) a 50 percent risk weight for certain one- to four-family residential pre-sold construction loans and multifamily residential loans that meet specific statutory criteria in the RTCRRI Act and any other underwriting criteria imposed by the agencies; and (ii) a 100 percent risk weight for one- to four-family residential pre-sold construction loans for residences for which the purchase contract is cancelled.⁶²

When Congress enacted the RTCRRI Act in 1991, the agencies' risk-based capital rules reflected the Basel I framework. Consequently, the risk weight treatment for certain categories of mortgage loans in the RTCRRI Act assumes a risk weight bucketing approach, instead of the more risk-sensitive IRB approach in the advanced approaches.

In the proposed rule, the agencies identified three types of residential mortgage loans addressed by the RTCRRI Act that would continue to receive the risk weights provided in the Act. Consistent with the general risk-based capital rules, the proposed rule would apply the following risk weights (instead of the risk weights that would otherwise be produced under the IRB risk-based capital formulas): (i) a 50 percent risk weight for one- to four-family residential construction loans if the residences have been pre-sold under firm contracts to purchasers who have obtained firm commitments for permanent qualifying mortgages and have made substantial earnest money deposits, and the loans meet the other underwriting characteristics established by the agencies in the general risk-based capital rules;⁶³ (ii) a 50 percent risk weight for multifamily residential loans that meet certain statutory loan-to-value, debt-to-income, amortization, and performance requirements, and meet the other underwriting characteristics established by

a residence consisting of more than 4 dwelling units if the loan meets certain criteria outlined in the RTCRRI Act.

⁶² See §§ 618(a) and (b) of the RTCRRI Act.

⁶³ See § 618(a)(1)(B) of the RTCRRI Act.

the agencies in the general risk-based capital rules;⁶⁴ and (iii) a 100 percent risk weight for one- to four-family residential pre-sold construction loans for a residence for which the purchase contract is cancelled.⁶⁵ Under the proposal, mortgage loans that did not meet the relevant criteria would not qualify for the statutory risk weights and would be risk-weighted according to the IRB risk-based capital formulas.

Commenters generally opposed the proposed assignment of a 50 percent risk weight to multifamily and pre-sold single family residential construction exposures. Commenters maintained that the RTCRRI Act capital requirements do not align with risk, are contrary to the intent of the New Accord and to its implementation in other jurisdictions, and would impose additional compliance burdens on banks without any associated benefit.

The agencies agree with these concerns and have decided to adopt in the final rule an alternative described in the preamble to the proposed rule. The proposed rule's preamble noted the tension between the statutory risk weights provided by the RTCRRI Act and the more risk-sensitive IRB approaches to risk-based capital requirements. The preamble observed that the RTCRRI Act permits the agencies to prescribe additional underwriting characteristics for identifying loans that are subject to the 50 percent statutory risk weights, provided these underwriting characteristics are "consistent with the purposes of the minimum acceptable capital requirements to maintain the safety and soundness of financial institutions." The agencies asked whether they should impose the following additional underwriting criteria as additional requirements for a core or opt-in bank to qualify for the statutory 50 percent risk weight for a particular mortgage loan: (i)

⁶⁴ See § 618(b)(1)(B) of the RTCRRI Act.

⁶⁵ See § 618(a)(2) of the RTCRRI Act.

that the bank has an IRB risk measurement and management system in place that assesses the PD and LGD of prospective residential mortgage exposures; and (ii) that the bank's IRB system generates a 50 percent risk weight for the loan under the IRB risk-based capital formula. If the bank's IRB system does not generate a 50 percent risk weight for a particular loan, the loan would not qualify for the statutory risk weight and would receive the risk weight generated by the IRB system.

A few commenters opposed this alternative approach and indicated that the additional underwriting criteria would increase operational burden. Other commenters, however, observed that compliance with the additional underwriting criteria would not be burdensome.

After careful consideration of the comments and further analysis of the text, spirit and legislative history of the RTCRRI Act, the agencies have concluded that they should impose the additional underwriting criteria described in the preamble to the proposed rule as minimum requirements for a core or opt-in bank to use the statutory 50 percent risk weight for particular loans. The agencies believe that the imposition of these criteria is consistent with the plain language of the RTCRRI Act, which allows a bank to use the 50 percent risk weight only if it meets the additional underwriting characteristics established by the agencies. The agencies have concluded that the additional underwriting characteristics imposed in the final rule are "consistent with the purposes of the minimum acceptable capital requirements to maintain the safety and soundness of financial institution," because the criteria will make the risk-based capital requirement for these loans a function of each bank's historical loss experience for the loans and will therefore more accurately reflect the performance and risk of loss for these loans. The additional

underwriting characteristics are also consistent with the purposes and legislative history of RTCRRI Act, which was designed to reflect the true level of risk associated with these types of mortgage loans and to do so in accordance with the Basel Accord.⁶⁶

A capital-related provision of the Federal Deposit Insurance Corporation Improvement Act of 1991 (“FDICIA”), enacted by Congress just four days after its adoption of the RTCRRI Act, also supports the addition of the new underwriting characteristics. Section 305(b)(1)(B) of FDICIA⁶⁷ directs each agency to revise its risk-based capital standards for insured depository institutions to ensure that those standards “reflect the actual performance and expected risk of loss of multifamily mortgages.” Although this addresses only multifamily mortgage loans (and not one- to four-family residential pre-sold construction loans), it provides the agencies with a Congressional mandate – equal in force and power to section 618 of the RTCRRI Act – to enhance the risk sensitivity of the regulatory capital treatment of multifamily mortgage loans. Crucially, the IRB approach required of core and opt-in banks will produce capital requirements that more accurately reflect both performance and risk of loss for multifamily mortgage loans than either the Basel I risk weight or the RTCRRI Act risk weight.

As noted above, section 618(a)(2) of the RTCRRI Act mandates that each agency amend its capital regulations to provide a 100 percent risk weight to any single-family residential construction loan for which the purchase contract is cancelled. Because the statute does not authorize the agencies to establish additional underwriting characteristics for this small category of loans, the final rule, like the proposed rule, provides a

⁶⁶ See, e.g., Floor debate for the Resolution Trust Corporation Refinancing, Restructuring, and Improvement Act of 1991, p. H11853, House of Representatives, Nov. 26, 1991 (Rep. Wylie)

⁶⁷ 12 U.S.C. § 1828.

100 percent risk weight for single-family residential construction loans for which the purchase contract is cancelled.

C. Credit Risk Mitigation (CRM) Techniques

Banks use a number of techniques to mitigate credit risk. This section of the preamble describes how the final rule recognizes the risk-mitigating effects of both financial collateral (defined below) and nonfinancial collateral, as well as guarantees and credit derivatives, for risk-based capital purposes. To recognize credit risk mitigants for risk-based capital purposes, a bank should have in place operational procedures and risk management processes that ensure that all documentation used in collateralizing or guaranteeing a transaction is legal, valid, binding, and enforceable under applicable law in the relevant jurisdictions. The bank should have conducted sufficient legal review to reach a well-founded conclusion that the documentation meets this standard and should reconduct such a review as necessary to ensure continuing enforceability.

Although the use of CRM techniques may reduce or transfer credit risk, it simultaneously may increase other risks, including operational, liquidity, and market risks. Accordingly, it is imperative that banks employ robust procedures and processes to control risks, including roll-off risk and concentration of risks, arising from the bank's use of CRM techniques and to monitor the implications of using CRM techniques for the bank's overall credit risk profile.

1. Collateral

Under the final rule, a bank generally recognizes collateral that secures a wholesale exposure as part of the LGD estimation process and generally recognizes collateral that secures a retail exposure as part of the PD and LGD estimation process, as

described above in section V.B.3. of the preamble. However, in certain limited circumstances described in the next section, a bank may adjust EAD to reflect the risk mitigating effect of financial collateral.

Although the final rule does not contain specific regulatory requirements about how a bank incorporates collateral into PD or LGD estimates, a bank should, when reflecting the credit risk mitigation benefits of collateral in its estimation of the risk parameters of a wholesale or retail exposure:

(i) Conduct sufficient legal review to ensure, at inception and on an ongoing basis, that all documentation used in the collateralized transaction is binding on all parties and legally enforceable in all relevant jurisdictions;

(ii) Consider the correlation between obligor risk and collateral risk in the transaction;

(iii) Consider any currency and/or maturity mismatch between the hedged exposure and the collateral;

(iv) Ground its risk parameter estimates for the transaction in historical data, using historical recovery rates where available; and

(v) Fully take into account the time and cost needed to realize the liquidation proceeds and the potential for a decline in collateral value over this time period.

The bank also should ensure that:

(i) The legal mechanism under which the collateral is pledged or transferred ensures that the bank has the right to liquidate or take legal possession of the collateral in a timely manner in the event of the default, insolvency, or bankruptcy (or other defined credit event) of the obligor and, where applicable, the custodian holding the collateral;

(ii) The bank has taken all steps necessary to fulfill legal requirements to secure its interest in the collateral so that it has and maintains an enforceable security interest;

(iii) The bank has clear and robust procedures to ensure observation of any legal conditions required for declaring the default of the borrower and prompt liquidation of the collateral in the event of default;

(iv) The bank has established procedures and practices for (A) conservatively estimating, on a regular ongoing basis, the market value of the collateral, taking into account factors that could affect that value (for example, the liquidity of the market for the collateral and obsolescence or deterioration of the collateral), and (B) where applicable, periodically verifying the collateral (for example, through physical inspection of collateral such as inventory and equipment); and

(v) The bank has in place systems for promptly requesting and receiving additional collateral for transactions whose terms require maintenance of collateral values at specified thresholds.

2. Counterparty credit risk of repo-style transactions, eligible margin loans, and OTC derivative contracts

This section describes two EAD-based methodologies — a collateral haircut approach and an internal models methodology — that a bank may use instead of an LGD estimation methodology to recognize the benefits of financial collateral in mitigating the counterparty credit risk associated with repo-style transactions, eligible margin loans, collateralized OTC derivative contracts, and single product groups of such transactions with a single counterparty subject to a qualifying master netting agreement (netting

sets).⁶⁸ A third methodology, the simple VaR methodology, is also available to recognize financial collateral mitigating the counterparty credit risk of single product netting sets of repo-style transactions and eligible margin loans. These methodologies are substantially the same as those in the proposal, except for a few differences identified below.

One difference from the proposal is that, consistent with the New Accord, under the final rule these three methodologies may also be used to recognize the benefits of any collateral (not only financial collateral) mitigating the counterparty credit risk of repo-style transactions that are included in a bank's VaR-based measure under the market risk rule. In response to comments requesting broader application of the EAD-based methodologies for recognizing the risk-mitigating effect of collateral, the agencies added this flexibility to the final rule to enhance international consistency and reduce regulatory burden.

A bank may use any combination of the three methodologies for collateral recognition; however, it must use the same methodology for similar exposures. This means that, as a general matter, the agencies expect a bank to use one of the three methodologies for all its repo-style transactions, one of the three methodologies for all its eligible margin loans, and one of the three methodologies for all its OTC derivative contracts. A bank may, however, apply a different methodology to subsets of repo-style transactions, eligible margin loans, or OTC derivatives by product type or geographical location if its application of different methodologies is designed to separate transactions that do not have similar risk profiles and is not designed to arbitrage the rule. For

⁶⁸ For purposes of the internal models methodology in section 32(d) of the rule, discussed below in section V.C.4. of this preamble, netting set also means a group of transactions with a single counterparty that are subject to a qualifying cross-product master netting agreement.

example, a bank may choose to use one methodology for agency securities lending transactions – that is, repo-style transactions in which the bank, acting as agent for a customer, lends the customer’s securities and indemnifies the customer against loss – and another methodology for all other repo-style transactions.

This section also describes the methodology for calculating EAD for an OTC derivative contract or set of OTC derivative contracts subject to a qualifying master netting agreement. Table C illustrates which EAD estimation methodologies may be applied to particular types of exposure.

Table C

	Current exposure methodology	Collateral haircut approach	Models approach	
			Simple VaR ⁶⁹ methodology	Internal models methodology
OTC derivative	X			X
Recognition of collateral for OTC derivatives		X ⁷⁰		X
Repo-style transaction		X	X	X
Eligible margin loan		X	X	X
Cross-product netting set				X

Qualifying master netting agreement

Under the final rule, consistent with the proposal, a qualifying master netting agreement is defined to mean any written, legally enforceable bilateral agreement, provided that:

⁶⁹ Only repo-style transactions and eligible margin loans subject to a single-product qualifying master netting agreement are eligible for the simple VaR methodology.

⁷⁰ In conjunction with the current exposure methodology.

(i) The agreement creates a single legal obligation for all individual transactions covered by the agreement upon an event of default, including bankruptcy, insolvency, or similar proceeding, of the counterparty;

(ii) The agreement provides the bank the right to accelerate, terminate, and close-out on a net basis all transactions under the agreement and to liquidate or set off collateral promptly upon an event of default, including upon an event of bankruptcy, insolvency, or similar proceeding, of the counterparty, provided that, in any such case, any exercise of rights under the agreement will not be stayed or avoided under applicable law in the relevant jurisdictions;

(iii) The bank has conducted sufficient legal review to conclude with a well-founded basis (and has maintained sufficient written documentation of that legal review) that the agreement meets the requirements of paragraph (ii) of this definition and that in the event of a legal challenge (including one resulting from default or from bankruptcy, insolvency, or similar proceeding) the relevant court and administrative authorities would find the agreement to be legal, valid, binding, and enforceable under the law of the relevant jurisdictions;

(iv) The bank establishes and maintains procedures to monitor possible changes in relevant law and to ensure that the agreement continues to satisfy the requirements of this definition; and

(v) The agreement does not contain a walkaway clause (that is, a provision that permits a non-defaulting counterparty to make lower payments than it would make otherwise under the agreement, or no payment at all, to a defaulter or the estate of a

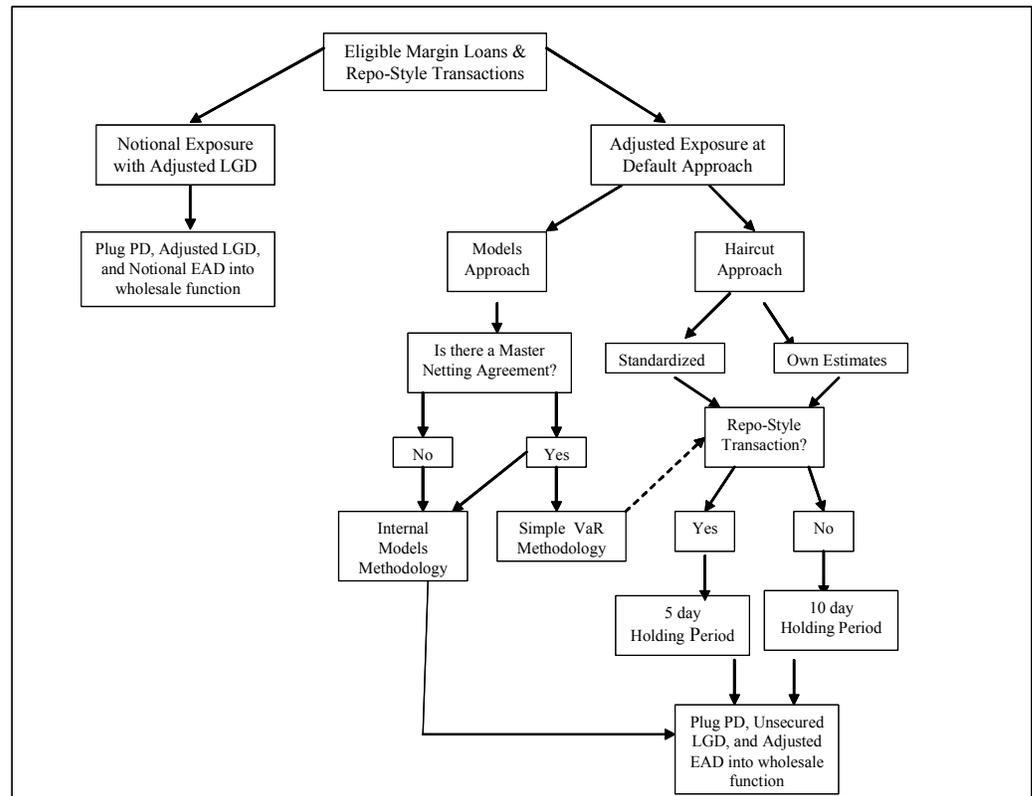
defaulter, even if the defaulter or the estate of the defaulter is a net creditor under the agreement).

The agencies consider the following jurisdictions to be relevant for a qualifying master netting agreement: the jurisdiction in which each counterparty is chartered or the equivalent location in the case of non-corporate entities, and if a branch of a counterparty is involved, then also the jurisdiction in which the branch is located; the jurisdiction that governs the individual transactions covered by the agreement; and the jurisdiction that governs the agreement.

EAD for repo-style transactions and eligible margin loans

Under the final rule, a bank may recognize the risk-mitigating effect of financial collateral that secures a repo-style transaction, eligible margin loan, or single-product netting set of such transactions and the risk-mitigating effect of any collateral that secures a repo-style transaction that is included in a bank's VaR-based measure under the market risk rule through an adjustment to EAD rather than LGD. The bank may use a collateral haircut approach or one of two models approaches: a simple VaR methodology (for single-product netting sets of repo-style transactions or eligible margin loans) or an internal models methodology. Figure 2 illustrates the methodologies available for calculating EAD and LGD for eligible margin loans and repo-style transactions.

Figure 2 – EAD and LGD for Eligible Margin Loans and Repo-Style Transactions



The proposed rule defined a repo-style transaction as a repurchase or reverse repurchase transaction, or a securities borrowing or securities lending transaction (including a transaction in which the bank acts as agent for a customer and indemnifies the customer against loss), provided that:

(i) The transaction is based solely on liquid and readily marketable securities or cash;

(ii) The transaction is marked to market daily and subject to daily margin maintenance requirements;

(iii) The transaction is executed under an agreement that provides the bank the right to accelerate, terminate, and close-out the transaction on a net basis and to liquidate

or set off collateral promptly upon an event of default (including upon an event of bankruptcy, insolvency, or similar proceeding) of the counterparty, provided that, in any such case, any exercise of rights under the agreement will not be stayed or avoided under applicable law in the relevant jurisdictions;⁷¹ and

(iv) The bank has conducted and documented sufficient legal review to conclude with a well-founded basis that the agreement meets the requirements of paragraph (iii) of this definition and is legal, valid, binding, and enforceable under applicable law in the relevant jurisdictions.

In the proposal, the agencies recognized that criterion (iii) above may pose challenges for certain transactions that would not be eligible for certain exemptions from bankruptcy or receivership laws because the counterparty – for example, a sovereign entity or a pension fund – is not subject to such laws. The agencies sought comment on ways this criterion could be crafted to accommodate such transactions when justified on prudential grounds, while ensuring that the requirements in criterion (iii) are met for transactions that are eligible for those exemptions.

Several commenters responded to this question by urging the agencies to modify the third component of the repo-style transaction definition in accordance with the 2006 interagency securities borrowing rule.⁷² Under the securities borrowing rule, the agencies accorded preferential risk-based capital treatment for cash-collateralized securities borrowing transactions that either met a bankruptcy standard such as the

⁷¹ This requirement is met where all transactions under the agreement are (i) executed under U.S. law and (ii) constitute “securities contracts” or “repurchase agreements” under section 555 or 559, respectively, of the Bankruptcy Code (11 U.S.C. 555 or 559), qualified financial contracts under section 11(e)(8) of the Federal Deposit Insurance Act (12 U.S.C. 1821(e)(8)), or netting contracts between or among financial institutions under sections 401-407 of the Federal Deposit Insurance Corporation Improvement Act of 1991 (12 U.S.C. 4401-4407) or the Federal Reserve Board’s Regulation EE (12 CFR part 231).

⁷² 71 FR 8932, February 22, 2006.

standard in criterion (iii) above or were overnight or unconditionally cancelable at any time by the bank. Commenters maintained that banks are able to terminate promptly a repo-style transaction with a counterparty whose financial condition is deteriorating so long as the transaction is done on an overnight basis or is unconditionally cancelable by the bank. As a result, these commenters contended that events of default and losses on such transactions are very rare.

The agencies have decided to modify the definition of repo-style transaction consistent with this suggestion by commenters and consistent with the 2006 securities borrowing rule. The agencies believe that this modification will resolve, in a manner that preserves safety and soundness, technical difficulties that banks would have had in meeting the proposed rule's definition for a material proportion of their repo-style transactions. Consistent with the 2006 securities borrowing rule, a reasonably short notice period, typically no more than the standard settlement period associated with the securities underlying the repo-style transaction, would not detract from the unconditionality of the bank's termination rights. With regard to overnight transactions, the counterparty generally should have no expectation, either explicit or implicit, that the bank will automatically roll over the transaction. The agencies are maintaining in substance all the other components of the proposed definition of repo-style transaction.

The proposed rule defined an eligible margin loan as an extension of credit where:

(i) The credit extension is collateralized exclusively by debt or equity securities that are liquid and readily marketable;

(ii) The collateral is marked to market daily and the transaction is subject to daily margin maintenance requirements;

(iii) The extension of credit is conducted under an agreement that provides the bank the right to accelerate and terminate the extension of credit and to liquidate or set off collateral promptly upon an event of default (including upon an event of bankruptcy, insolvency, or similar proceeding) of the counterparty, provided that, in any such case, any exercise of rights under the agreement will not be stayed or avoided under applicable law in the relevant jurisdictions;⁷³ and

(iv) The bank has conducted and documented sufficient legal review to conclude with a well-founded basis that the agreement meets the requirements of paragraph (iii) of this definition and is legal, valid, binding, and enforceable under applicable law in the relevant jurisdictions.

Commenters generally supported this definition, but some objected to the prescriptiveness of criterion (iii). Criterion (iii) is necessary to ensure that a bank is quickly able to realize the value of its collateral in the event of obligor default. Collateral stayed by bankruptcy and not liquidated until a date far in the future is more appropriately reflected as a discounted positive cash flow in LGD estimation. Criterion (iii) is satisfied when the bank has conducted sufficient legal review to conclude with a well-founded basis (and has maintained sufficient written documentation of that legal review) that a margin loan would be exempt from the bankruptcy auto-stay. The agencies are therefore maintaining substantially the same definition of eligible margin loan in the final rule.

⁷³ This requirement is met under the circumstances described in footnote 73. Under the U.S. Bankruptcy Code, “margin loans” are a type of securities contract, but the term “margin loan” does not encompass all loans that happen to be secured by securities collateral. Rather, Congress intended the term “margin loan” to include only those loans commonly known in the industry as margin loans, such as credit permitted in an account under the Board’s Regulation T or where a financial intermediary extends credit for the purchase, sale, carrying, or trading of securities. See H.R. Rep. No. 109-131, at 119, 130 (2005).

With the exception of repo-style transactions that are included in a bank's VaR-based measure under the market risk rule (as discussed above), for purposes of determining EAD for repo-style transactions, eligible margin loans, and OTC derivatives, and recognizing collateral mitigating the counterparty credit risk of such exposures, the final rule (consistent with the proposed rule) allows banks to take into account only financial collateral. The proposed rule defined financial collateral as collateral in the form of any of the following instruments in which the bank has a perfected, first priority security interest or the legal equivalent thereof: (i) cash on deposit with the bank (including cash held for the bank by a third-party custodian or trustee); (ii) gold bullion; (iii) long-term debt securities that have an applicable external rating of one category below investment grade or higher (for example, at least BB-); (iv) short-term debt instruments that have an applicable external rating of at least investment grade (for example, at least A-3); (v) equity securities that are publicly traded; (vi) convertible bonds that are publicly traded; and (vii) mutual fund shares and money market mutual fund shares if a price for the shares is publicly quoted daily.

In connection with this definition, the agencies asked for comment on the appropriateness of requiring that a bank have a perfected, first priority security interest, or the legal equivalent thereof, in the definition of financial collateral. A couple of commenters supported this requirement, but several other commenters objected. The objecting commenters acknowledged that the requirement would generally be consistent with current U.S. collateral practices for repo-style transactions, eligible margin loans, and OTC derivatives, but they criticized the requirement on the grounds that:

- (i) obtaining a perfected, first priority security interest may not be the current market

practice outside the United States; (ii) U.S. practices may evolve in such a fashion as to not meet this requirement; and (iii) the requirement is not explicit in the New Accord. Other commenters asked the agencies to clarify that the requirement would be met for all or certain forms of collateral if the bank had possession and control of the collateral and a reasonable basis to believe it could promptly liquidate the collateral.

The agencies believe that in order to use the EAD adjustment approaches for exposures within the United States, a bank must have a perfected, first priority security interest in collateral, with the exception of cash on deposit with the bank and certain custodial arrangements. The agencies have modified the proposed requirement to address a concern raised by several commenters that a bank could fail to satisfy the first priority security interest requirement because of the senior security interest of a third-party custodian involved as an intermediary in the transaction. Under the final rule, a bank meets the security interest requirement so long as the bank has a perfected, first priority security interest in the collateral notwithstanding the prior security interest of any custodial agent. Outside of the United States, the definition of financial collateral can be satisfied as long as the bank has the legal equivalent of a perfected, first priority security interest. For example, cash on deposit with the bank is an example of the legal equivalent of a perfected, first priority security interest. The agencies intend to apply this “legal equivalent” standard flexibly to deal with non-U.S. collateral access regimes.

The agencies also invited comment on the extent to which assets that do not meet the definition of financial collateral are the basis of repo-style transactions engaged in by banks or are taken by banks as collateral for eligible margin loans or OTC derivatives.

The agencies also inquired as to whether the definition of financial collateral should be expanded to reflect any other asset types.

A substantial number of commenters asked the agencies to add asset types to the list of financial collateral. The principal recommended additions included: (i) non-investment-grade externally rated bonds; (ii) bonds that are not externally rated; (iii) all financial instruments; (iv) letters of credit; (v) mortgages loans; and (vi) certificates of deposit. Some commenters that advocated inclusion of a wider range of bonds admitted that it may be reasonable to impose some sort of liquidity requirement on the additional bonds and to impose a 25-50 percent standard supervisory haircut for such additional bonds. Some of the commenters that advocated inclusion of a broader range of bonds and mortgages asserted that such inclusion would be warranted by the exemption from bankruptcy auto-stay accorded to repo-style transactions involving such assets by the U.S. Bankruptcy Code.⁷⁴

As described above, to enhance international consistency and conform the final rule more closely to the New Accord, the agencies have decided to permit a bank to use the EAD approach for all repo-style transactions that are included in a bank's VaR-based measure under the market risk rule, regardless of the underlying collateral type. The agencies are satisfied that such repo-style transactions would be based on collateral that is sufficiently liquid to justify applying the EAD approach.

The agencies have included conforming residential mortgages in the definition of financial collateral and as acceptable underlying instruments in the definitions of repo-style transaction and eligible margin loan based on the liquidity of such mortgages and their widespread use as collateral in repo-style transactions. However, because this

⁷⁴ 11 U.S.C. 559.

inclusion goes beyond the New Accord's recognition of financial collateral, the agencies decided to take a conservative approach and require banks to use the standard supervisory haircut approach, with a 25 percent haircut and minimum ten-business-day holding period, in order to recognize conforming residential mortgage collateral in EAD (other than for repo-style transactions that are included in a bank's VaR-based measure under the market risk rule). Use of the standard supervisory haircut approach for repo-style transactions, eligible margin loans, and OTC derivatives collateralized by conforming mortgages does not preclude a bank's use of the other EAD adjustment approaches for exposures collateralized by other types of financial collateral. Due to concerns about both competitive equity and the liquidity and price availability of other types of collateral, the agencies are not otherwise expanding the proposed definition of financial collateral in the final rule.

Collateral haircut approach

Under the collateral haircut approach of the final rule, similar to the proposed rule, a bank must set EAD equal to the sum of three quantities: (i) the value of the exposure less the value of the collateral; (ii) the absolute value of the net position in a given instrument or in gold (where the net position in a given instrument or in gold equals the sum of the current market values of the instrument or gold the bank has lent, sold subject to repurchase, or posted as collateral to the counterparty minus the sum of the current market values of that same instrument or gold the bank has borrowed, purchased subject to resale, or taken as collateral from the counterparty) multiplied by the market price volatility haircut appropriate to that security; and (iii) the sum of the absolute values of the net position of any cash or instruments in each currency that is different from the

settlement currency multiplied by the haircut appropriate to each currency mismatch. To determine the appropriate haircuts, a bank may choose to use standard supervisory haircuts or, with prior written approval from its primary Federal supervisor, its own estimates of haircuts.

In the preamble to the proposed rule, for purposes of the collateral haircut approach, the agencies clarified that a given security would include, for example, all securities with a single Committee on Uniform Securities Identification Procedures (CUSIP) number and would not include securities with different CUSIP numbers, even if issued by the same issuer with the same maturity date. The agencies sought comment on alternative approaches for determining a given security for purposes of the collateral haircut approach. A few commenters expressed support for the proposed CUSIP approach to defining a given security, but one commenter asked the agencies to permit each bank the flexibility to define given security. The collateral haircut approach in the final rule is based on a bank's net position in a "given instrument or gold" rather than in a "given security" to more precisely capture the positions to which a bank must apply the haircuts. To enhance safety and soundness and comparability across banks, the agencies believe that it is important to preserve the relatively clear CUSIP approach to defining a given instrument for purposes of the collateral haircut approach. Accordingly, the agencies are maintaining the CUSIP approach as appropriate for determining a given instrument for instruments that are securities.

Standard supervisory haircuts. Under the final rule, as under the proposed rule, if a bank chooses to use standard supervisory haircuts, it must use an 8 percent haircut for each currency mismatch and the haircut appropriate to each security in Table D below.

These haircuts are based on the ten-business-day holding period for eligible margin loans and must be multiplied by the square root of $\frac{1}{2}$ to convert the standard supervisory haircuts to the five-business-day minimum holding period for repo-style transactions. A bank must adjust the standard supervisory haircuts upward on the basis of a holding period longer than ten business days for eligible margin loans or five business days for repo-style transactions where and as appropriate to take into account the illiquidity of an instrument.

Table D – Standard Supervisory Market Price Volatility Haircuts

Applicable external rating grade category for debt securities	Residual maturity for debt securities	Issuers exempt from the 3 b.p. floor	Other issuers
Two highest investment-grade rating categories for long-term ratings/highest investment-grade rating category for short-term ratings	≤ 1 year	.005	.01
	>1 year, ≤ 5 years	.02	.04
	> 5 years	.04	.08
Two lowest investment-grade rating categories for both short- and long-term ratings	≤ 1 year	.01	.02
	>1 year, ≤ 5 years	.03	.06
	> 5 years	.06	.12
One rating category below investment grade	All	.15	.25
Main index equities ⁷⁵ (including convertible bonds) and gold		.15	
Other publicly traded equities (including convertible bonds), conforming residential mortgages, and nonfinancial collateral		.25	
Mutual funds		Highest haircut applicable to any security in which the fund can invest	
Cash on deposit with the bank (including a certificate of deposit issued by the bank)		0	

As an example, assume a bank that uses standard supervisory haircuts has extended an eligible margin loan of \$100 that is collateralized by five-year U.S. Treasury notes with a market value of \$100. The value of the exposure less the value of the collateral would be zero, and the net position in the security (\$100) times the supervisory haircut (.02) would be \$2. There is no currency mismatch. Therefore, the EAD of the exposure would be $\$0 + \$2 = \$2$.

⁷⁵ The proposed and final rules define a “main index” as the S&P 500 Index, the FTSE All-World Index, and any other index for which the bank demonstrates to the satisfaction of its primary Federal supervisor that the equities represented in the index have comparable liquidity, depth of market, and size of bid-ask spreads as equities in the S&P 500 Index and the FTSE All-World Index.

Own estimates of haircuts. Under the final rule, as under the proposal, with the prior written approval of the bank's primary Federal supervisor, a bank may calculate security type and currency mismatch haircuts using its own internal estimates of market price volatility and foreign exchange volatility. The bank's primary Federal supervisor would base approval to use internally estimated haircuts on the satisfaction of certain minimum qualitative and quantitative standards. These standards include: (i) the bank must use a 99th percentile one-tailed confidence interval and a minimum five-business-day holding period for repo-style transactions and a minimum ten-business-day holding period for all other transactions; (ii) the bank must adjust holding periods upward where and as appropriate to take into account the illiquidity of an instrument; (iii) the bank must select a historical observation period for calculating haircuts of at least one year; and (iv) the bank must update its data sets and recompute haircuts no less frequently than quarterly and reassess data sets and haircuts whenever market prices change materially. A bank must estimate individually the volatilities of the exposure, the collateral, and foreign exchange rates, and may not take into account the correlations between them.

Under the final rule, as under the proposal, a bank that uses internally estimated haircuts must adhere to the following rules. The bank may calculate internally estimated haircuts for categories of debt securities that have an applicable external rating of at least investment grade. The haircut for a category of securities must be representative of the internal volatility estimates for securities in that category that the bank has lent, sold subject to repurchase, posted as collateral, borrowed, purchased subject to resale, or taken as collateral. In determining relevant categories, the bank must at a minimum take into account (i) the type of issuer of the security; (ii) the applicable external rating of the

security; (iii) the maturity of the security; and (iv) the interest rate sensitivity of the security. A bank must calculate a separate internally estimated haircut for each individual debt security that has an applicable external rating below investment grade and for each individual equity security. In addition, a bank must internally estimate a separate currency mismatch haircut for each individual mismatch between each net position in a currency that is different from the settlement currency.

One commenter recommended that the agencies permit banks to use category-based internal estimate haircuts for non-investment-grade bonds and equity securities. The agencies have decided to adopt the proposed rule's provisions on category-based haircuts because they are consistent with the New Accord and because the volatilities of non-investment-grade bonds and of equity securities are more dependent on idiosyncratic, issuer-specific events than the volatility of investment-grade bonds.

Under the final rule, as under the proposal, when a bank calculates an internally estimated haircut on a T_N -day holding period, which is different from the minimum holding period for the transaction type, the bank must calculate the applicable haircut (H_M) using the following square root of time formula:

$$H_M = H_N \sqrt{\frac{T_M}{T_N}},$$

where

- (i) T_M = five for repo-style transactions and ten for eligible margin loans;
- (ii) T_N = holding period used by the bank to derive H_N ; and
- (iii) H_N = haircut based on the holding period T_N .

Simple VaR methodology

As noted above, under the final rule, as under the proposal, a bank may use one of two internal models approaches to recognize the risk mitigating effects of financial collateral that secures a repo-style transaction or eligible margin loan. This section of the preamble describes the simple VaR methodology; a later section of the preamble describes the internal models methodology (which also may be used to determine the EAD for OTC derivative contracts). The agencies received no material comments on the simple VaR methodology and are adopting the methodology without change from the proposal.

With the prior written approval of its primary Federal supervisor, a bank may estimate EAD for repo-style transactions and eligible margin loans subject to a single product qualifying master netting agreement using a VaR model. Under the simple VaR methodology, a bank's EAD for the transactions subject to such a netting agreement is equal to the value of the exposures minus the value of the collateral plus a VaR-based estimate of potential future exposure (PFE). The value of the exposures is the sum of the current market values of all securities and cash the bank has lent, sold subject to repurchase, or posted as collateral to a counterparty under the netting set. The value of the collateral is the sum of the current market values of all securities and cash the bank has borrowed, purchased subject to resale, or taken as collateral from a counterparty under the netting set. The VaR-based estimate of PFE is an estimate of the bank's maximum exposure on the netting set over a fixed time horizon with a high level of confidence.

Specifically, the VaR model must estimate the bank's 99th percentile, one-tailed confidence interval for an increase in the value of the exposures minus the value of the

collateral ($\sum E - \sum C$) over a five-business-day holding period for repo-style transactions or over a ten-business-day holding period for eligible margin loans using a minimum one-year historical observation period of price data representing the instruments that the bank has lent, sold subject to repurchase, posted as collateral, borrowed, purchased subject to resale, or taken as collateral.

The qualification requirements for the use of a VaR model are less stringent than the qualification requirements for the internal models methodology described below. The main ongoing qualification requirement for using a VaR model is that the bank must validate its VaR model by establishing and maintaining a rigorous and regular backtesting regime.

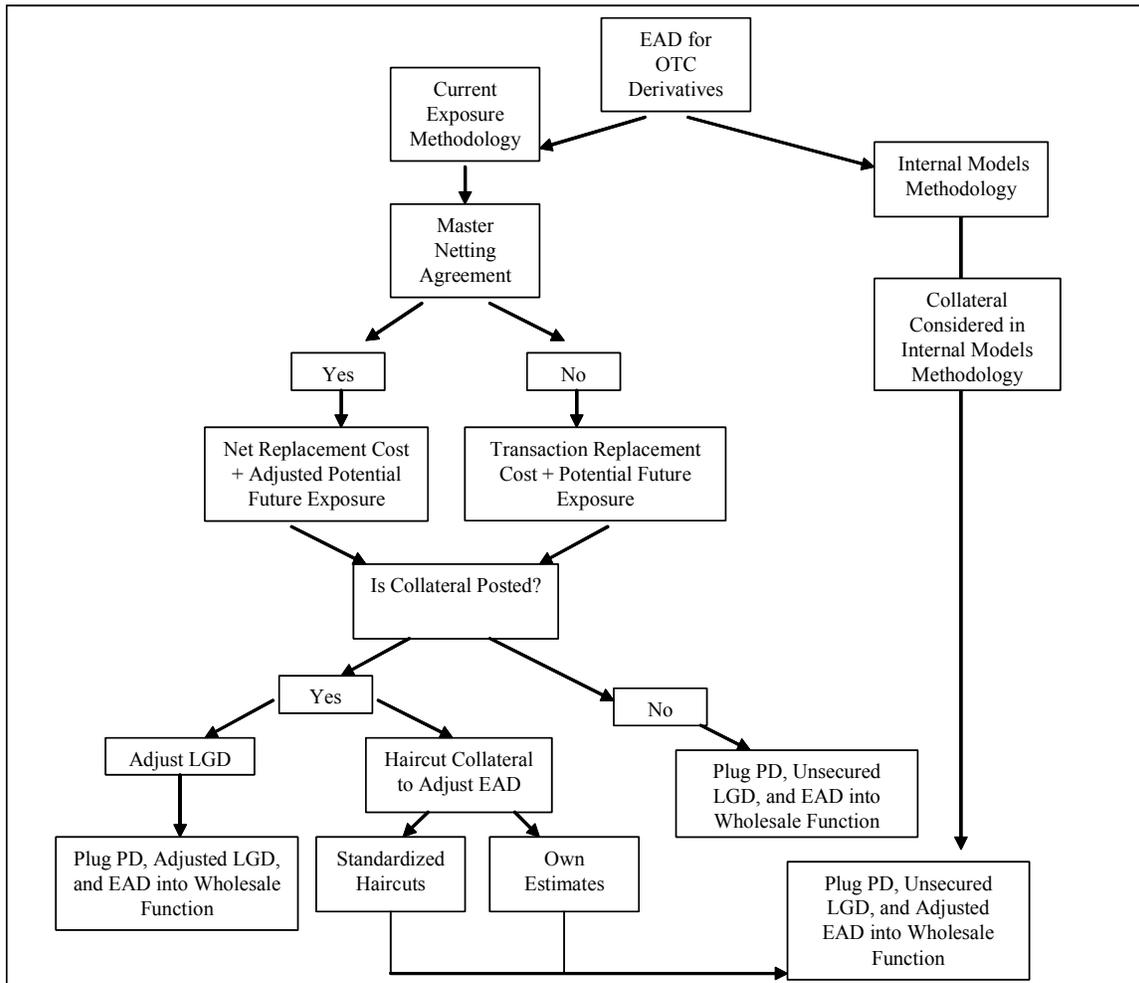
3. EAD for OTC derivative contracts

Under the final rule, as under the proposed rule, a bank may use either the current exposure methodology or the internal models methodology to determine the EAD for OTC derivative contracts. An OTC derivative contract is defined as a derivative contract that is not traded on an exchange that requires the daily receipt and payment of cash-variation margin. A derivative contract is defined to include interest rate derivative contracts, exchange rate derivative contracts, equity derivative contracts, commodity derivative contracts, credit derivatives, and any other instrument that poses similar counterparty credit risks. The rule also defines derivative contracts to include unsettled securities, commodities, and foreign exchange trades with a contractual settlement or delivery lag that is longer than the normal settlement period (which the rule defines as the lesser of the market standard for the particular instrument or five business days). This

includes, for example, agency mortgage-backed securities transactions conducted in the To-Be-Announced market.

Figure 3 illustrates the treatment of OTC derivative contracts.

Figure 3—EAD and LGD for OTC Derivative Contracts



Current exposure methodology

The final rule's current exposure methodology for determining EAD for single OTC derivative contracts is similar to the methodology in the general risk-based capital rules and is the same as the current exposure methodology in the proposal. Under the current exposure methodology, the EAD for an OTC derivative contract is equal to the sum of the bank's current credit exposure and PFE on the derivative contract. The current credit exposure for a single OTC derivative contract is the greater of the mark-to-market value of the derivative contract or zero.

The final rule's current exposure methodology for OTC derivative contracts subject to qualifying master netting agreements is also similar to the treatment in the agencies' general risk-based capital rules and, with one exception discussed below, is the same as the treatment in the proposal. Under the general risk-based capital rules and under the proposed rule, a bank could not recognize netting agreements for OTC derivative contracts for risk-based capital purposes unless it obtained a written and reasoned legal opinion representing that, in the event of a legal challenge, the bank's exposure would be found to be the net amount in the relevant jurisdictions.⁷⁶ The agencies asked for comment on methods banks would use to ensure enforceability of single product OTC derivative netting agreements in the absence of an explicit written legal opinion requirement.

Although one commenter supported the proposed rule's written legal opinion requirement, many other commenters asked the agencies to remove this requirement. These commenters maintained that, provided a transaction is conducted in a jurisdiction and with a counterparty type that is covered by a commissioned legal opinion, use of industry-developed standardized contracts for certain OTC derivative products and

⁷⁶ This requirement was found in footnote 8 of the proposed rule text (in section 32(b)(2)).

reliance on commissioned legal opinions as to the enforceability of these contracts should be a sufficient guarantor of enforceability. These commenters added that reliance on such commissioned legal opinions is standard market practice.

The agencies continue to believe that the legal enforceability of netting agreements is a necessary condition for a bank to recognize netting effects in its capital calculation. However, the agencies have conducted additional analysis and agree that a unique, written legal opinion is not necessary in all cases to ensure the enforceability of an OTC derivative netting agreement. Accordingly, the agencies have removed the requirement that a bank obtain a written and well reasoned legal opinion for each of its qualifying master netting agreements that cover OTC derivatives. As a result, under the final rule, to obtain netting treatment for multiple OTC derivative contracts subject to a qualifying master netting agreement, a bank must conduct sufficient legal review to conclude with a well-founded basis (and maintain sufficient written documentation of that legal review) that the agreement would provide termination netting benefits and is legal, valid, binding, and enforceable. In some cases, this requirement could be met by reasoned reliance on a commissioned legal opinion or an in-house counsel analysis. In other cases, however – for example, involving certain new derivative transactions or derivative counterparties in unusual jurisdictions – the bank would need to obtain an explicit written legal opinion from external or internal legal counsel addressing the particular situation.

The proposed rule's conversion factor (CF) matrix used to compute PFE was based on the matrices in the general risk-based capital rules, with two exceptions. First, under the proposed rule, the CF for credit derivatives that are not used to hedge the credit

risk of exposures subject to an IRB credit risk capital requirement was specified to be 5.0 percent for contracts with investment-grade reference obligors and 10.0 percent for contracts with non-investment-grade reference obligors.⁷⁷ The CF for a credit derivative contract did not depend on the remaining maturity of the contract. The second change was that floating/floating basis swaps were no longer exempted from the CF for interest rate derivative contracts. The exemption was put into place when such swaps were very simple, and the agencies believed it was no longer appropriate given the evolution of the product. The computation of the PFE of multiple OTC derivative contracts subject to a qualifying master netting agreement did not change from the general risk-based capital rules. The agencies received no material comment on these provisions of the proposed rule and have adopted them as proposed.

Under the final rule, as under the proposed rule, if an OTC derivative contract is collateralized by financial collateral and a bank uses the current exposure methodology to determine EAD for the exposure, the bank must first determine an unsecured EAD as described above and in section 32(c) of the rule. To take into account the risk-reducing effects of the financial collateral, the bank may either adjust the LGD of the contract or, if the transaction is subject to daily marking-to-market and remargining, adjust the EAD of the contract using the collateral haircut approach for repo-style transactions and eligible margin loans described above and in section 32(b) of the rule.

Under part VI of the final rule, and of the proposed rule, a bank must treat an equity derivative contract as an equity exposure and compute a risk-weighted asset amount for that exposure. If the bank is using the internal models approach for its equity

⁷⁷ The counterparty credit risk of a credit derivative that is used to hedge the credit risk of an exposure subject to an IRB credit risk capital requirement is captured in the IRB treatment of the hedged exposure, as detailed in sections 33 and 34 of the proposed rule.

exposures, it also must compute a risk-weighted asset amount for its counterparty credit risk exposure on the equity derivative contract. However, if the bank is using the simple risk weight approach for its equity exposures, it may choose not to hold risk-based capital against the counterparty credit risk of the equity derivative contract. Likewise, a bank that purchases a credit derivative that is recognized under section 33 or 34 of the rule as a credit risk mitigant for an exposure that is not a covered position under the market risk rule does not have to compute a separate counterparty credit risk capital requirement for the credit derivative.⁷⁸ If a bank chooses not to hold risk-based capital against the counterparty credit risk of such equity or credit derivative contracts, it must do so consistently for all such equity derivative contracts or for all such credit derivative contracts. Further, where the contracts are subject to a qualifying master netting agreement, the bank must either include them all or exclude them all from any measure used to determine counterparty credit risk exposure to all relevant counterparties for risk-based capital purposes.

In addition, where a bank provides protection through a credit derivative that is not treated as a covered position under the market risk rule, it must treat the credit derivative as a wholesale exposure to the reference obligor and compute a risk-weighted asset amount for the credit derivative under section 31 of the rule. The bank need not compute a counterparty credit risk capital requirement for the credit derivative, so long as it does so consistently for all such credit derivatives and either includes all or excludes all

⁷⁸ The agencies recognize that there are reasons why a bank's credit portfolio might contain purchased credit protection on a reference name in a notional principal amount that exceeds the bank's currently measured EAD to that obligor. If the protection amount of the credit derivative is materially greater than the EAD of the exposure being hedged, however, the bank generally must treat the credit derivative as two separate exposures and calculate a counterparty credit risk capital requirement for the exposure that is not providing credit protection to the hedged exposure.

such credit derivatives that are subject to a qualifying master netting agreement from any measure used to determine counterparty credit risk exposure to all relevant counterparties for risk-based capital purposes. Where the bank provides protection through a credit derivative treated as a covered position under the market risk rule, it must compute a counterparty credit risk capital requirement for the credit derivative under section 31 of the rule.

4. Internal models methodology

The final rule, like the proposed rule, includes an internal models methodology for the calculation of EAD for the counterparty credit exposure of OTC derivatives, eligible margin loans, and repo-style transactions. The internal models methodology requires a risk model that estimates EAD at the level of a netting set. A transaction not subject to a qualifying master netting agreement is considered to be its own netting set and a bank must calculate EAD for each such transaction individually.

A bank may use the internal models methodology for OTC derivatives (collateralized or uncollateralized) and single-product netting sets thereof, for eligible margin loans and single-product netting sets thereof, or for repo-style transactions and single-product netting sets thereof. A bank that uses the internal models methodology for a particular transaction type (that is, OTC derivative contracts, eligible margin loans, or repo-style transactions) must use the internal models methodology for all transactions of that transaction type. However, a bank may choose whether or not to use the internal models methodology for each transaction type.

A bank also may use the internal models methodology for OTC derivatives, eligible margin loans, and repo-style transactions subject to a qualifying cross-product

master netting agreement if (i) the bank effectively integrates the risk mitigating effects of cross-product netting into its risk management and other information technology systems; and (ii) the bank obtains the prior written approval of its primary Federal supervisor.

The final rule tracks the proposed rule by defining a qualifying cross-product master netting agreement as a qualifying master netting agreement that provides for termination and close-out netting across multiple types of financial transactions or qualifying master netting agreements in the event of a counterparty's default, provided that:

(i) The underlying financial transactions are OTC derivative contracts, eligible margin loans, or repo-style transactions; and

(ii) The bank obtains a written legal opinion verifying the validity and enforceability of the netting agreement under applicable law of the relevant jurisdictions if the counterparty fails to perform upon an event of default, including upon an event of bankruptcy, insolvency, or similar proceeding.

As discussed in the proposal, banks use several measures to manage their exposure to the counterparty credit risk of repo-style transactions, eligible margin loans, and OTC derivatives, including PFE, expected exposure (EE), and expected positive exposure (EPE). PFE is the maximum exposure estimated to occur over a future horizon at a high level of statistical confidence. Banks often use PFE when measuring counterparty credit risk exposure against counterparty credit limits. EE is the expected value of the probability distribution of non-negative credit risk exposures to a counterparty at any specified future date, whereas EPE is the time-weighted average of

individual expected exposures estimated for a given forecasting horizon (one year in the proposed rule). The final rule clarifies that, when estimating EE, a bank must set any negative market values in the probability distribution of market values to a counterparty at a specified future date to zero to convert the probability distribution of market values to the probability distribution of credit risk exposures. Banks typically compute EPE, EE, and PFE using a common stochastic model.

A paper published by the BCBS in July 2005 titled “The Application of Basel II to Trading Activities and the Treatment of Double Default Effects” notes that EPE is an appropriate EAD measure for determining risk-based capital requirements for counterparty credit risk because transactions with counterparty credit risk “are given the same standing as loans with the goal of reducing the capital treatment’s influence on a firm’s decision to extend an on-balance sheet loan rather than engage in an economically equivalent transaction that involves exposure to counterparty credit risk.”⁷⁹ An adjustment to EPE, called “effective EPE” and described below, is used in the calculation of EAD under the internal models methodology. EAD is calculated as a multiple of effective EPE.

To address the concern that EE and EPE may not capture risk arising from the replacement of existing short-term positions over the one-year horizon used for capital requirements (rollover risk) or may underestimate the exposures of eligible margin loans, repo-style transactions, and OTC derivatives with short maturities, the final rule, like the proposed rule, uses a netting set’s effective EPE as the basis for calculating EAD for counterparty credit risk. Consistent with the use of a one-year PD horizon, effective EPE

⁷⁹ BCBS, “The Application of Basel II to Trading Activities and the Treatment of Double Default Effects,” July 2005, ¶ 15.

is the time-weighted average of effective EE over one year where the weights are the proportion that an individual effective EE represents in a one-year time interval. If all contracts in a netting set mature before one year, effective EPE is the average of effective EE until all contracts in the netting set mature. For example, if the longest maturity contract in the netting set matures in six months, effective EPE would be the average of effective EE over six months.

Effective EE is defined as:

$$\text{Effective EE}_{t_k} = \max(\text{Effective EE}_{t_{k-1}}, \text{EE}_{t_k})$$

where exposure is measured at future dates t_1, t_2, t_3, \dots and effective EE_{t_0} equals current exposure. Alternatively, a bank may use a measure that is more conservative than effective EPE for every counterparty (that is, a measure based on peak exposure) with prior approval of its primary Federal supervisor.

The final rule clarifies that if a bank hedges some or all of the counterparty credit risk associated with a netting set using an eligible credit derivative, the bank may take the reduction in exposure to the counterparty into account when estimating EE. If the bank recognizes this reduction in exposure to the counterparty in its estimate of EE, it must also use its internal model to estimate a separate EAD for the bank's exposure to the protection provider of the credit derivative.

The EAD for instruments with counterparty credit risk must be determined assuming economic downturn conditions. To accomplish this determination in a prudent manner, the internal models methodology sets EAD equal to EPE multiplied by a scaling factor termed "alpha." Alpha is set at 1.4; a bank's primary Federal supervisor has the flexibility to raise this value based on the bank's specific characteristics of counterparty

credit risk. In addition, with supervisory approval, a bank may use its own estimate of alpha, subject to a floor of 1.2.

In the proposal, the agencies requested comment on all aspects of the effective EPE approach to counterparty credit risk and, in particular, on the appropriateness of the monotonically increasing effective EE function, the alpha constant of 1.4, and the floor on internal estimates of alpha of 1.2. Commenters expressed a number of objections to the proposed rule's internal models methodology.

Several commenters contended that banks that use the internal models methodology should be permitted to calculate effective EPE at the counterparty level and should not be required to calculate effective EPE at the netting set level. These commenters indicated that while the New Accord mandates calculation at the netting set level, those banks that currently use an EPE-style approach to measuring counterparty credit risk for internal risk management purposes typically use a counterparty-by-counterparty EPE approach. They asserted that forcing banks to use a netting-set-by-netting-set approach would be burdensome for banks and would provide the agencies no material regulatory benefits, as netting effects are taken into account in the calculation of EE.

The agencies have retained the netting set focus of the calculation of effective EPE to preserve international consistency. The agencies will continue to review the implications, particularly with respect to the appropriate recognition of netting benefits, of allowing banks to calculate effective EPE at the counterparty level.

One commenter objected to the proposed rule's requirement that a bank use effective EE (as opposed to EE). This commenter contended that effective EE is an

excessively conservative and imprecise mechanism to address rollover risk in a portfolio of short-term transactions. The commenter represented that rollover risk should be addressed under Pillar 2 rather than Pillar 1. The agencies continue to believe that rollover risk is a core credit risk that should be covered by explicit risk-based capital requirements. The agencies also remain concerned that EE and EPE (as opposed to effective EE and effective EPE) would not adequately incorporate rollover risk and do not believe that bank internal estimates of rollover risk are sufficiently reliable at this time to use for risk-based capital purposes. To ensure consistency with the New Accord and in light of the lack of alternative prudent mechanisms to incorporate rollover risk, the agencies continue to include effective EE and effective EPE in the final rule.

Several commenters criticized the default alpha of 1.4 and the 1.2 floor on internal estimates of alpha. These commenters contended that these supervisory alphas were too conservative for many dealer banks with large, diverse, and granular portfolios of repo-style transactions, eligible margin loans, and OTC derivatives. Although the agencies acknowledge the possibility that certain banks with certain types of portfolios at certain times could warrant an alpha of less than 1.2, the agencies believe it is important to have a supervisory floor on alpha. This floor will ensure consistency with the New Accord, comparability among the various banks that use the internal models methodology, and sufficient capital through the economic cycle for securities financing transactions and OTC derivatives. Therefore, the agencies are retaining the alpha floor as proposed.

Similar to the proposal, under the final rule a bank's primary Federal supervisor must determine that the bank meets certain qualifying criteria before the bank may use

the internal models methodology. These criteria consist of the following operational requirements, modeling standards, and model validation requirements.

First, the bank must have the systems capability to estimate EE on a daily basis. While this requirement does not require the bank to report EE daily, or even estimate EE daily, the bank must demonstrate that it is capable of performing the estimation daily.

Second, the bank must estimate EE at enough future time points to accurately reflect all future cash flows of contracts in the netting set. To accurately reflect the exposure arising from a transaction, the model should incorporate those contractual provisions, such as reset dates, that can materially affect the timing, probability, or amount of any payment. The requirement reflects the need for an accurate estimate of EPE. However, in order to balance the ability to calculate exposures with the need for information on timely basis, the number of time points is not specified.

Third, the bank must have been using an internal model that broadly meets the minimum standards to calculate the distributions of exposures upon which the EAD calculation is based for a period of at least one year prior to approval. This requirement is to ensure that the bank has integrated the modeling into its counterparty credit risk management process.

Fourth, the bank's model must account for the non-normality of exposure distribution where appropriate. Non-normality of exposure distribution means high loss events occur more frequently than would be expected on the basis of a normal distribution, the statistical term for which is leptokurtosis. In many instances, there may not be a need to account for this. Expected exposures are much less likely to be affected by leptokurtosis than peak exposures or high percentile losses. However, the bank must

demonstrate that its EAD measure is not affected by leptokurtosis or must account for it within the model.

Fifth, the bank must measure, monitor, and control the exposure to a counterparty over the whole life of all contracts in the netting set, in addition to accurately measuring and actively monitoring the current exposure to counterparties. The bank should exercise active management of both existing exposure and exposure that could change in the future due to market moves.

Sixth, the bank must be able to measure and manage current exposures gross and net of collateral held, where appropriate. The bank must estimate expected exposures for OTC derivative contracts both with and without the effect of collateral agreements. By contrast, under the proposed rule, a bank would have to measure and manage current exposure gross and net of collateral held. Some commenters criticized this requirement as inconsistent with the New Accord and bank internal risk management practices. The agencies agree and have revised the rule to only require a bank to “be able to” measure and manage current exposures gross and net of collateral.

Seventh, the bank must have procedures to identify, monitor, and control specific wrong-way risk throughout the life of an exposure. In this context, wrong-way risk is the risk that future exposure to a counterparty will be high when the counterparty’s probability of default is also high. Wrong-way risk generally arises from events specific to the counterparty, rather than broad market downturns.

Eighth, the data used by the bank should be adequate for the measurement and modeling of the exposures. In particular, the model must use current market data to compute current exposures. When a bank uses historical data to estimate model

parameters, the bank must use at least three years of data that cover a wide range of economic conditions. This requirement reflects the longer horizon for counterparty credit risk exposures compared to market risk exposures. The data must be updated at least quarterly or more frequently if market conditions warrant. Banks should consider using model parameters based on forward looking measures, where appropriate.

Ninth, the bank must subject its models used in the calculation of EAD to an initial validation and annual model review process. The model review should consider whether the inputs and risk factors, as well as the model outputs, are appropriate. The review of outputs should include a rigorous program of backtesting model outputs against realized exposures.

Maturity under the internal models methodology

Like corporate loan exposures, counterparty exposure on netting sets is susceptible to changes in economic value that stem from deterioration in the counterparty's creditworthiness short of default. The effective maturity parameter (M) reflects the impact of these changes on capital. The formula used to compute M for netting sets with maturities greater than one year must be different than that generally applied to wholesale exposures in order to reflect how counterparty credit exposures change over time. The final rule's definition of M under the internal models methodology is identical to that of the proposed rule and is based on a weighted average of expected exposures over the life of the transactions relative to their one year exposures. Consistent with the New Accord, the final rule expands upon the proposal by providing that a bank that uses an internal model to calculate a one-sided credit valuation

adjustment may use the effective credit duration estimated by the model as M(EPE) in place of the formula in the paragraph below.

If the remaining maturity of the exposure or the longest-dated contract contained in a netting set is greater than one year, the bank must set M for the exposure or netting set equal to the lower of 5 years or M(EPE), where:

$$(i) M(EPE) = 1 + \frac{\sum_{t_k > 1 \text{ year}}^{maturity} EE_k \times \Delta t_k \times df_k}{\sum_{k=1}^{t_k \leq 1 \text{ year}} effective EE_k \times \Delta t_k \times df_k}$$

and (ii) df_k is the risk-free discount factor for future time period t_k . The cap of five years on M is consistent with the treatment of wholesale exposures under section 31 of the rule.

If the remaining maturity of the exposure or the longest-dated contract in the netting set is one year or less, the bank must set M for the exposure or netting set equal to one year except as provided in section 31(d)(7) of the rule. In this case, repo-style transactions, eligible margin loans, and collateralized OTC derivative transactions subject to daily remargining agreements may use the effective maturity of the longest maturity transaction in the netting set as M.

Collateral agreements under the internal models methodology

The provisions of the final rule on collateral agreements under the internal models methodology are the same as those of the proposed rule. Under the final rule, if a bank has prior written approval from its primary Federal supervisor, it may capture within its

internal model the effect on EAD of a collateral agreement that requires receipt of collateral when exposure to the counterparty increases. In no circumstances, however, may a bank take into account in EAD collateral agreements triggered by deterioration of counterparty credit quality. Several commenters asked the agencies to permit banks to incorporate in EAD collateral agreements that are dependent on a decline in the external rating of the counterparty. The agencies do not believe that banks are able to model the necessary correlations with sufficient reliability to accept these types of collateral agreements under the internal models methodology at this time.

In the context of the internal models methodology, the rule defines a collateral agreement as a legal contract that: (i) specifies the time when, and circumstances under which, the counterparty is required to exchange collateral with the bank for a single financial contract or for all financial contracts covered under a qualifying master netting agreement; and (ii) confers upon the bank a perfected, first priority security interest (notwithstanding the prior security interest of any custodial agent), or the legal equivalent thereof, in the collateral posted by the counterparty under the agreement. This security interest must provide the bank with a right to close out the financial positions and the collateral upon an event of default of or failure to perform by the counterparty under the collateral agreement. A contract would not satisfy this requirement if the bank's exercise of rights under the agreement may be stayed or avoided under applicable law in the relevant jurisdictions.

If a bank's internal model does not capture the effects of collateral agreements, the final rule provides a "shortcut" method to provide the bank with some benefit, in the form of a smaller EAD, for collateralized counterparties. Under the shortcut method,

effective EPE is the lesser of a threshold amount (linked to the exposure amount at which a counterparty must post collateral) plus an add-on and effective EPE without a collateral agreement. Although any bank may use this “shortcut” method under the internal models methodology, the agencies expect banks that make extensive use of collateral agreements to develop the modeling capacity to measure the impact of such agreements on EAD. The shortcut method provided in the final rule is identical to the shortcut method provided in the proposed rule.

Alternative methods

Under the final rule, consistent with the proposed rule, a bank using the internal models methodology may use an alternative method to determine EAD for certain transactions, provided that the bank can demonstrate to its primary Federal supervisor that the method’s output is more conservative than an alpha of 1.4 (or higher) times effective EPE.

Use of an alternative method may be appropriate where a new product or business line is being developed, where a recent acquisition has occurred, or where the bank believes that other more conservative methods to measure counterparty credit risk for a category of transactions are prudent. The alternative method should be applied to all similar transactions. When an alternative method is used, the bank should either treat the particular transactions concerned as a separate netting set with the counterparty or apply the alternative model to the entire original netting set.

The agencies recognize that for new OTC derivative products a bank may need a transition period during which to incorporate a new product into its internal models methodology or to demonstrate that an alternative method is more conservative than an

alpha of 1.4 (or higher) times effective EPE. The final rule therefore provides that for material portfolios of new OTC derivative products, a bank may assume that the current exposure methodology in section 32(c) of the rule meets the conservatism requirement for a period not longer than 180 days. As a general matter, the agencies expect that the current exposure methodology in section 32(c) of the rule would be an acceptable, more conservative method for immaterial portfolios of OTC derivatives.

5. Guarantees and credit derivatives that cover wholesale exposures

The New Accord specifies that a bank may adjust either the PD or the LGD of a wholesale exposure to reflect the risk mitigating effects of a guarantee or credit derivative. Similarly, under the final rule, as under the proposed rule, a bank may choose either a PD substitution or an LGD adjustment approach to recognize the risk mitigating effects of an eligible guarantee or eligible credit derivative on a wholesale exposure (or in certain circumstances may choose to use a double default treatment, as discussed below). In all cases a bank must use the same risk parameters for calculating ECL for a wholesale exposure as it uses for calculating the risk-based capital requirement for the exposure. Moreover, in all cases, a bank's ultimate PD and LGD for the hedged wholesale exposure may not be lower than the PD and LGD floors discussed above and described in section 31(d) of the rule.

Eligible guarantees and eligible credit derivatives

Under the proposed rule, guarantees and credit derivatives had to meet specific eligibility requirements to be recognized as CRM for a wholesale exposure. The proposed rule defined an eligible guarantee as a guarantee that:

- (i) Is written and unconditional;

- (ii) Covers all or a pro rata portion of all contractual payments of the obligor on the reference exposure;
- (iii) Gives the beneficiary a direct claim against the protection provider;
- (iv) Is non-cancelable by the protection provider for reasons other than the breach of the contract by the beneficiary;
- (v) Is legally enforceable against the protection provider in a jurisdiction where the protection provider has sufficient assets against which a judgment may be attached and enforced; and
- (vi) Requires the protection provider to make payment to the beneficiary on the occurrence of a default (as defined in the guarantee) of the obligor on the reference exposure without first requiring the beneficiary to demand payment from the obligor.

Commenters suggested a number of improvements to the proposed definition of eligible guarantee. One commenter asked the agencies to clarify that the unconditionality requirement in criterion (i) of the definition would be interpreted consistently with the New Accord's requirement that "there should be no clause in the protection contract outside the direct control of the bank that could prevent the protection provider from being obliged to pay out in a timely manner in the event that the original counterparty fails to make the payment(s) due."⁸⁰ The agencies are not providing the requested clarification. The agencies have acquired considerable experience in the intricate issue of the conditionality of guarantees under the general risk-based capital rules and intend to address the meaning of "unconditional" in the context of eligible guarantees under this final rule on a case-by-case basis going forward.

⁸⁰ New Accord, ¶189.

This same commenter also asked the agencies to revise the second criterion of the definition from coverage of “all or a pro rata portion of all contractual payments of the obligor on the reference exposure” to coverage of “all or a pro rata portion of all principal or due and payable amounts on the reference exposure.” The agencies have decided to preserve the second criterion of the eligible guarantee definition without change to ensure that a bank only obtains CRM benefits from credit risk mitigants that cover all sources of credit exposure to the obligor. Although it is appropriate to provide partial CRM benefits under the wholesale framework for partial but pro rata guarantees of all contractual payments, the agencies are less comfortable with providing partial CRM benefits under the wholesale framework where the extent of the loss coverage of the credit exposure is not so easily quantifiable. Accordingly, for example, if a bank obtains a principal-only or interest-only guarantee of a corporate bond, the guarantee will not qualify as an eligible guarantee and the bank will not be able to obtain any CRM benefits from the guarantee.

Some commenters asked the agencies to modify the fourth criterion of the eligible guarantee definition to clarify, consistent with the New Accord, that a guarantee that is terminable by the bank and the protection provider by mutual consent may qualify as an eligible guarantee. This is an appropriate clarification of the definition and, therefore, the agencies have amended the fourth criterion of the definition to require that the guarantee be non-cancelable by the protection provider unilaterally.

One commenter asked the agencies to modify the fifth criterion of the eligible guarantee definition, which requires the guarantee to be legally enforceable in a jurisdiction where the protection provider has sufficient assets, by deleting the word “sufficient.” The agencies have preserved the fifth criterion of the proposed definition

intact. The agencies do not think that it would be consistent with safety and soundness to permit a bank to obtain CRM benefits under the rule if the guarantee were not legally enforceable against the protection provider in a jurisdiction where the protection provider has sufficient available assets.

Finally, some commenters objected to the sixth and final criterion of the eligible guarantee definition, which requires the protection provider to make payments to the beneficiary upon default of the obligor without first requiring the beneficiary to demand payment from the obligor. The agencies have decided to modify this criterion to make it more consistent with the New Accord and actual market practice. The final rule's sixth criterion requires only that the guarantee permit the bank to obtain payment from the protection provider in the event of an obligor default in a timely manner and without first having to take legal actions to pursue the obligor for payment.

The agencies also have performed additional analysis and review of the definition of eligible guarantee and have decided to add two additional criteria to the definition. The first additional criterion prevents guarantees from certain affiliated companies from being eligible guarantees. Under the final rule, a guarantee will not be an eligible guarantee if the protection provider is an affiliate of the bank (other than an affiliated depository institution, bank, securities broker or dealer, or insurance company that does not control the bank and that is subject to consolidated supervision and regulation comparable to that imposed on U.S. depository institutions, securities broker-dealers, or insurance companies). For purposes of the definition, an affiliate of a bank is defined as a company that controls, is controlled by, or is under common control with, the bank. Control of a company is defined as (i) ownership, control, or holding with power to vote

25 percent or more of a class of voting securities of the company; or (ii) consolidation of the company for financial reporting purposes.

The strong correlations among the financial conditions of affiliated parties would typically render guarantees from affiliates of the bank of little value precisely when the bank would need them most – when the bank itself is in financial distress.⁸¹ For example, a guarantee that a bank might receive from its parent shell bank holding company would provide little credit risk mitigation to the bank as the bank approached insolvency because the financial condition of the holding company would depend critically on the financial health of the subsidiary bank. Moreover, the holding company typically would experience no increase in its regulatory capital requirement for issuing the guarantee because the guarantee would be on behalf of a consolidated subsidiary and would be eliminated in the consolidation of the holding company’s financial statements.⁸²

The agencies have decided, however, that a bank should be able to recognize CRM benefits by obtaining a guarantee from an affiliated insured depository institution, bank, securities broker or dealer, or insurance company that does not control the bank and that is subject to consolidated supervision and regulation comparable to that imposed on U.S. depository institutions, securities broker-dealers, or insurance companies (as the case may be). A depository institution for this purpose includes all subsidiaries of the depository institution except financial subsidiaries. The final rule recognizes guarantees

⁸¹ This concern of the agencies is the same concern that led the agencies to exclude from the definition of tier 1 capital any instrument that has credit-sensitive features – such as an interest rate or dividend rate that increases as the credit quality of the bank issuer declines or an investor put right that is triggered by a decline in issuer credit quality. *See, e.g.*, 12 CFR part 208, appendix A, section II.A.1.b.

⁸² Although the Board’s Regulation W places strict quantitative and qualitative limits on guarantees issued by a bank on behalf of an affiliate, it does not restrict all guarantees issued by an affiliate on behalf of a bank. *See, e.g.*, 12 CFR 223.3(e).

from these types of affiliates because they are financial institutions subject to prudential regulation by national or state supervisory authorities. The agencies expect that the prudential regulation of the affiliate would help prevent the affiliate from exposing itself excessively to the credit exposures of the bank. Similarly, these affiliates would be subject to regulatory capital requirements of their own and should experience an increase in their regulatory capital requirements for issuing the guarantee.

The second additional criterion precludes a guarantee from eligible guarantee status if the guarantee increases the beneficiary's cost of credit protection in response to deterioration in the credit quality of the reference exposure. This additional criterion is consistent with the New Accord's treatment of guarantees and with the proposed rule's operational requirements for synthetic securitizations.

The proposed rule defined an eligible credit derivative as a credit derivative in the form of a credit default swap, nth-to-default swap, or total return swap provided that:

(i) The contract meets the requirements of an eligible guarantee and has been confirmed by the protection purchaser and the protection provider;

(ii) Any assignment of the contract has been confirmed by all relevant parties;

(iii) If the credit derivative is a credit default swap or nth-to-default swap, the contract includes the following credit events:

(A) Failure to pay any amount due under the terms of the reference exposure (with a grace period that is closely in line with the grace period of the reference exposure); and

(B) Bankruptcy, insolvency, or inability of the obligor on the reference exposure to pay its debts, or its failure or admission in writing of its inability generally to pay its debts as they become due, and similar events;

(iv) The terms and conditions dictating the manner in which the contract is to be settled are incorporated into the contract;

(v) If the contract allows for cash settlement, the contract incorporates a robust valuation process to estimate loss reliably and specifies a reasonable period for obtaining post-credit event valuations of the reference exposure;

(vi) If the contract requires the protection purchaser to transfer an exposure to the protection provider at settlement, the terms of the exposure provide that any required consent to transfer may not be unreasonably withheld;

(vii) If the credit derivative is a credit default swap or nth-to-default swap, the contract clearly identifies the parties responsible for determining whether a credit event has occurred, specifies that this determination is not the sole responsibility of the protection provider, and gives the protection purchaser the right to notify the protection provider of the occurrence of a credit event; and

(viii) If the credit derivative is a total return swap and the bank records net payments received on the swap as net income, the bank records offsetting deterioration in the value of the hedged exposure (either through reductions in fair value or by an addition to reserves).

Commenters generally supported the proposed rule's definition of eligible credit derivative, but two commenters asked for a series of changes. These commenters asked that the final rule specifically reference contingent credit default swaps (CCDSs) in the

list of eligible forms of credit derivatives. CCDS are a relatively new type of credit derivative, and the agencies are still considering their appropriate role within the risk-based capital rules. However, to enable the rule to adapt to future market innovations, the agencies have revised the definition of eligible credit derivative to add to the list of eligible credit derivative forms “any other form of credit derivative approved by” the bank’s primary Federal supervisor.⁸³

One commenter asked that the agencies amend the third criterion of the eligible credit derivative definition, which applies to credit default swaps and nth-to-default swaps. The commenter indicated that standard practice in the credit derivatives market is for a credit default swap to contain provisions that exempt the protection provider from making default payments to the protection purchaser if the reference obligor’s failure to pay is in an amount below a de minimis threshold. The agencies do not believe that safety and soundness would be materially impaired by conforming this criterion of the eligible credit derivative definition to the current standard market practice. Under the final rule, therefore, a credit derivative will satisfy the definition of an eligible credit derivative if the protection provider’s obligation to make default payments to the protection purchaser is triggered only if the reference obligor’s failure to pay exceeds any applicable minimal payment threshold that is consistent with standard market practice.

Finally, a commenter asked for clarification of the meaning of the sixth criterion of the definition of eligible credit derivative, which states that if the contract requires the protection purchaser to transfer an exposure to the protection provider at settlement, the

⁸³ One commenter also asked the agencies to clarify that a bank should translate the phrase “beneficiary” in the definition of eligible guarantee to “protection purchaser” when confirming that a credit derivative meets all the requirements of the definition of eligible guarantee. The agencies have not amended the rule to address this point, but do confirm that such translation is appropriate.

terms of the exposure provide that any required consent to transfer may not be unreasonably withheld. To address any potential ambiguity about which exposure's transferability must be analyzed, the agencies have amended the sixth component to read: "If the contract requires the protection purchaser to transfer an exposure to the protection provider at settlement, the terms of at least one of the exposures that is permitted to be transferred under the contract must provide that any required consent to transfer may not be unreasonably withheld."

The proposed rule also provided that a bank may recognize an eligible credit derivative that hedges an exposure that is different from the credit derivative's reference exposure used for determining the derivative's cash settlement value, deliverable obligation, or occurrence of a credit event only if:

(i) The reference exposure ranks *pari passu* (that is, equal) or junior to the hedged exposure; and

(ii) The reference exposure and the hedged exposure are exposures to the same legal entity, and legally enforceable cross-default or cross-acceleration clauses are in place.

One commenter acknowledged that the proposal's *pari passu* ceiling is consistent with the New Accord but asked for clarification that the provision only requires reference exposure equality or subordination with respect to priority of payments. Although the agencies have concluded that it is not necessary to amend the rule to provide this clarification, the agencies agree that the *pari passu* ceiling relates to priority of payments only.

Two commenters also asked the agencies to provide an exception to the cross-default/cross-acceleration requirement where the hedged exposure is an OTC derivative contract or a qualifying master netting agreement that covers OTC derivative contracts. Although some parts of the debt markets have incorporated obligations from OTC derivative contracts in cross-default/cross-acceleration clauses, the commenter asserted that the practice is not prevalent in many parts of the market. In addition, the commenter maintained that, unlike a failure to pay on a loan or a bond, failure to pay on an OTC derivative contract generally would not trigger a credit event with respect to the reference exposure of the credit default swap. The agencies have not made this change. The proposed cross-default/cross-acceleration requirement is consistent with the New Accord. In addition, the agencies are reluctant to permit a bank to obtain CRM benefits for an exposure hedged by a credit derivative whose reference exposure is different than the hedged exposure unless the hedged and reference exposures would default simultaneously. If the hedged exposure could default prior to the default of the reference exposure, the bank may suffer losses on the hedged exposure and not be able to collect default payments on the credit derivative. The final rule clarifies that, in order to recognize the credit risk mitigation benefits of an eligible credit derivative, cross-default/cross-acceleration provisions must assure payments under the credit derivative are triggered if the obligor fails to pay under the terms of the hedged exposure.

PD substitution approach

Under the PD substitution approach of the final rule, as under the proposal, if the protection amount (as defined below) of the eligible guarantee or eligible credit derivative is greater than or equal to the EAD of the hedged exposure, a bank may

substitute for the PD of the hedged exposure the PD associated with the rating grade of the protection provider. If the bank determines that full substitution leads to an inappropriate degree of risk mitigation, the bank may substitute a higher PD for that of the protection provider.

If the guarantee or credit derivative provides the bank with the option to receive immediate payout on triggering the protection, then the bank must use the lower of the LGD of the hedged exposure (not adjusted to reflect the guarantee or credit derivative) and the LGD of the guarantee or credit derivative. If the guarantee or credit derivative does not provide the bank with the option to receive immediate payout on triggering the protection (and instead provides for the guarantor to assume the payment obligations of the obligor over the remaining life of the hedged exposure), the bank must use the LGD of the guarantee or credit derivative.

If the protection amount of the eligible guarantee or eligible credit derivative is less than the EAD of the hedged exposure, however, the bank must treat the hedged exposure as two separate exposures (protected and unprotected) to recognize the credit risk mitigation benefit of the guarantee or credit derivative. The bank must calculate its risk-based capital requirement for the protected exposure under section 31 of the rule (using a PD equal to the protection provider's PD, an LGD determined as described above, and an EAD equal to the protection amount of the guarantee or credit derivative). If the bank determines that full substitution leads to an inappropriate degree of risk mitigation, the bank may use a higher PD than that of the protection provider. The bank must calculate its risk-based capital requirement for the unprotected exposure under section 31 of the rule (using a PD equal to the obligor's PD, an LGD equal to the hedged

exposure's LGD not adjusted to reflect the guarantee or credit derivative, and an EAD equal to the EAD of the original hedged exposure minus the protection amount of the guarantee or credit derivative).

The protection amount of an eligible guarantee or eligible credit derivative is defined as the effective notional amount of the guarantee or credit derivative reduced by any applicable haircuts for maturity mismatch, lack of restructuring, and currency mismatch (each described below). The effective notional amount of a guarantee or credit derivative is the lesser of the contractual notional amount of the credit risk mitigant and the EAD of the hedged exposure, multiplied by the percentage coverage of the credit risk mitigant. For example, the effective notional amount of a guarantee that covers, on a pro rata basis, 40 percent of any losses on a \$100 bond would be \$40.

The agencies received no material comments on the above-described structure of the PD substitution approach, and the final rule's PD substitution approach is substantially the same as that of the proposed rule.

LGD adjustment approach

Under the LGD adjustment approach of the final rule, as under the proposal, if the protection amount of the eligible guarantee or eligible credit derivative is greater than or equal to the EAD of the hedged exposure, the bank's risk-based capital requirement for the hedged exposure is the greater of (i) the risk-based capital requirement for the exposure as calculated under section 31 of the rule (with the LGD of the exposure adjusted to reflect the guarantee or credit derivative); or (ii) the risk-based capital requirement for a direct exposure to the protection provider as calculated under section 31 of the rule (using the bank's PD for the protection provider, the bank's LGD

for the guarantee or credit derivative, and an EAD equal to the EAD of the hedged exposure).

If the protection amount of the eligible guarantee or eligible credit derivative is less than the EAD of the hedged exposure, however, the bank must treat the hedged exposure as two separate exposures (protected and unprotected) in order to recognize the credit risk mitigation benefit of the guarantee or credit derivative. The bank's risk-based capital requirement for the protected exposure would be the greater of (i) the risk-based capital requirement for the protected exposure as calculated under section 31 of the rule (with the LGD of the exposure adjusted to reflect the guarantee or credit derivative and EAD set equal to the protection amount of the guarantee or credit derivative); or (ii) the risk-based capital requirement for a direct exposure to the protection provider as calculated under section 31 of the rule (using the bank's PD for the protection provider, the bank's LGD for the guarantee or credit derivative, and an EAD set equal to the protection amount of the guarantee or credit derivative). The bank must calculate its risk-based capital requirement for the unprotected exposure under section 31 of the rule using a PD set equal to the obligor's PD, an LGD set equal to the hedged exposure's LGD (not adjusted to reflect the guarantee or credit derivative), and an EAD set equal to the EAD of the original hedged exposure minus the protection amount of the guarantee or credit derivative.

The agencies received no material comments on the above-described structure of the LGD adjustment approach, and the final rule's LGD adjustment approach is substantially the same as that of the proposed rule.

The PD substitution approach allows a bank to effectively assess risk-based capital against a hedged exposure as if it were a direct exposure to the protection provider, and the LGD adjustment approach produces a risk-based capital requirement for a hedged exposure that is never lower than that of a direct exposure to the protection provider. Accordingly, these approaches do not fully reflect the risk mitigation benefits certain types of guarantees and credit derivatives may provide because the resulting risk-based capital requirement does not consider the joint probability of default of the obligor of the hedged exposure and the protection provider, sometimes referred to as the “double default” benefit. The agencies have decided, consistent with the New Accord and the proposed rule, to recognize double default benefits in the wholesale framework only for certain hedged exposures covered by certain guarantees and credit derivatives. A later section of the preamble describes which hedged exposures are eligible for the double default treatment and describes the double default treatment that is available to those exposures.

Maturity mismatch haircut

Under the final rule, a bank that seeks to reduce the risk-based capital requirement on a wholesale exposure by recognizing an eligible guarantee or eligible credit derivative must adjust the effective notional amount of the credit risk mitigant downward to reflect any maturity mismatch between the hedged exposure and the credit risk mitigant. A maturity mismatch occurs when the residual maturity of a credit risk mitigant is less than that of the hedged exposure(s).

The proposed rule provided, consistent with the New Accord, that when the hedged exposures have different residual maturities, the longest residual maturity of any

of the hedged exposures would be used as the residual maturity of all hedged exposures. One commenter criticized this provision as excessively conservative. The agencies agree and have decided to restrict the application of this provision to securitization CRM.⁸⁴ Accordingly, under the final rule, to calculate the risk-based capital requirement for a group of hedged wholesale exposures that are covered by a single eligible guarantee under which the protection provider has agreed to backstop all contractual payments associated with each hedged exposure, a bank should treat each hedged exposure as if it were fully covered by a separate eligible guarantee. To determine whether any of the hedged wholesale exposures has a maturity mismatch with the eligible guarantee, the bank must assess whether the residual maturity of the eligible guarantee is less than that of the hedged exposure.

The residual maturity of a hedged exposure is the longest possible remaining time before the obligor is scheduled to fulfil its obligation on the exposure. When determining the residual maturity of the guarantee or credit derivative, embedded options that may reduce the term of the credit risk mitigant must be taken into account so that the shortest possible residual maturity for the credit risk mitigant is used to determine the potential maturity mismatch. Where a call is at the discretion of the protection provider, the residual maturity of the guarantee or credit derivative is the first call date. If the call is at the discretion of the bank purchasing the protection, but the terms of the arrangement at inception of the guarantee or credit derivative contain a positive incentive for the bank to call the transaction before contractual maturity, the remaining time to the first call date is

⁸⁴ Under the final rule, if an eligible guarantee provides tranched credit protection to a group of hedged exposures – for example, the guarantee covers the first 2 percent of aggregate losses for the group – the bank must determine the risk-based capital requirements for the hedged exposures under the securitization framework.

the residual maturity of the credit risk mitigant. For example, where there is a step-up in the cost of credit protection in conjunction with a call feature or where the effective cost of protection increases over time even if credit quality remains the same or improves, the residual maturity of the credit risk mitigant is the remaining time to the first call.

Eligible guarantees and eligible credit derivatives with maturity mismatches may only be recognized if their original maturities are equal to or greater than one year. As a result, a guarantee or credit derivative is not recognized for a hedged exposure with an original maturity of less than one year unless the credit risk mitigant has an original maturity of equal to or greater than one year or an effective residual maturity equal to or greater than that of the hedged exposure. In all cases, credit risk mitigants with maturity mismatches may not be recognized when they have an effective residual maturity of three months or less.

When a maturity mismatch exists, a bank must apply the following maturity mismatch adjustment to determine the effective notional amount of the guarantee or credit derivative adjusted for maturity mismatch: $P_m = E \times (t-0.25)/(T-0.25)$, where:

(i) P_m = effective notional amount of the credit risk mitigant adjusted for maturity mismatch;

(ii) E = effective notional amount of the credit risk mitigant;

(iii) t = lesser of T or effective residual maturity of the credit risk mitigant, expressed in years; and

(iv) T = lesser of 5 or effective residual maturity of the hedged exposure, expressed in years.

Other than as discussed above with respect to pools of hedged exposures with different residual maturities, the final rule's provisions on maturity mismatch do not differ from those of the proposed rule.

Restructuring haircut

Under the final rule, as under the proposed rule, a bank that seeks to recognize an eligible credit derivative that does not include a distressed restructuring as a credit event that triggers payment under the derivative must reduce the recognition of the credit derivative by 40 percent. A distressed restructuring is a restructuring of the hedged exposure involving forgiveness or postponement of principal, interest, or fees that results in a charge-off, specific provision, or other similar debit to the profit and loss account.

In other words, the effective notional amount of the credit derivative adjusted for lack of restructuring credit event (and maturity mismatch, if applicable) is: $Pr = Pm \times 0.60$, where:

- (i) Pr = effective notional amount of the credit risk mitigant, adjusted for lack of restructuring credit event (and maturity mismatch, if applicable); and
- (ii) Pm = effective notional amount of the credit risk mitigant adjusted for maturity mismatch (if applicable).

Two commenters opposed the 40 percent restructuring haircut. One commenter contended that the 40 percent haircut is too punitive. The other commenter contended that the 40 percent haircut should not apply when the hedged exposure is an OTC derivative contract or a qualifying master netting agreement that covers OTC derivative contracts. The 40 percent haircut is a rough estimate of the reduced CRM benefits that accrue to a bank that purchases a credit derivative without restructuring coverage.

Nonetheless, the agencies recognize that restructuring events could result in substantial economic losses to a bank. Moreover, the 40 percent haircut is consistent with the New Accord and is a reasonably prudent mechanism for ensuring that banks do not receive excessive CRM benefits for purchasing credit protection that does not cover all material sources of economic loss to the bank on the hedged exposure.

The final rule's provisions on lack of restructuring as a credit event do not differ from those of the proposed rule.

Currency mismatch haircut

Under the final rule, as under the proposed rule, where the eligible guarantee or eligible credit derivative is denominated in a currency different from that in which any hedged exposure is denominated, the effective notional amount of the guarantee or credit derivative must be adjusted for currency mismatch (and maturity mismatch and lack of restructuring credit event, if applicable). The adjusted effective notional amount is calculated as: $P_c = P_r \times (1 - H_{fx})$, where:

(i) P_c = effective notional amount of the credit risk mitigant, adjusted for currency mismatch (and maturity mismatch and lack of restructuring credit event, if applicable);

(ii) P_r = effective notional amount of the credit risk mitigant (adjusted for maturity mismatch and lack of restructuring credit event, if applicable); and

(iii) H_{fx} = haircut appropriate for the currency mismatch between the credit risk mitigant and the hedged exposure.

A bank may use a standard supervisory haircut of 8 percent for H_{fx} (based on a ten-business-day holding period and daily marking-to-market and remargining).

Alternatively, a bank may use internally estimated haircuts for H_{fx} based on a ten-

business-day holding period and daily marking-to-market and remargining if the bank qualifies to use the own-estimates haircuts in paragraph (b)(2)(iii) of section 32, the simple VaR methodology in paragraph (b)(3) of section 32, or the internal models methodology in paragraph (d) of section 32 of the rule. The bank must scale these haircuts up using a square root of time formula if the bank revalues the guarantee or credit derivative less frequently than once every ten business days.

The agencies received no comments on the currency mismatch provisions discussed above, and the final rule's provisions on currency mismatch do not differ from those of the proposed rule.

Example

Assume that a bank holds a five-year \$100 corporate exposure, purchases a \$100 credit derivative to mitigate its credit risk on the exposure, and chooses to use the PD substitution approach. The unsecured LGD of the corporate exposure is 30 percent; the LGD of the credit derivative is 80 percent. The credit derivative is an eligible credit derivative, has the bank's exposure as its reference exposure, has a three-year maturity, no restructuring provision, no currency mismatch with the bank's hedged exposure, and the protection provider assumes the payment obligations of the obligor upon default. The effective notional amount and initial protection amount of the credit derivative would be \$100. The maturity mismatch would reduce the protection amount to $\$100 \times (3 - .25) / (5 - .25)$ or \$57.89. The haircut for lack of restructuring would reduce the protection amount to $\$57.89 \times 0.6$ or \$34.74. So the bank would treat the \$100 corporate exposure as two exposures: (i) an exposure of \$34.74 with the PD of the protection provider, an LGD of

80 percent, and an M of five; and (ii) an exposure of \$65.26 with the PD of the obligor, an LGD of 30 percent, and an M of five.

Multiple credit risk mitigants

The New Accord provides that if multiple credit risk mitigants (for example, two eligible guarantees) cover a single exposure, a bank must disaggregate the exposure into portions covered by each credit risk mitigant (for example, the portion covered by each guarantee) and must calculate separately the risk-based capital requirement of each portion.⁸⁵ The New Accord also indicates that when credit risk mitigants provided by a single protection provider have differing maturities, they should be subdivided into separate layers of protection.⁸⁶ In the proposal, the agencies invited comment on whether and how the agencies should address these and other similar situations in which multiple credit risk mitigants cover a single exposure.

Commenters generally agreed that the agencies should provide additional guidance about how to address situations where multiple credit risk mitigants cover a single exposure. Although one commenter recommended that the agencies permit banks effectively to recognize triple default benefits in situations where two credit risk mitigants cover a single exposure, commenters did not provide material specific suggestions as to their preferred approach to addressing these situations. Thus, the agencies have decided to adopt the New Accord's principles for dealing with multiple credit risk mitigant situations. The agencies have added several additional provisions to section 33(a) of the final rule to provide clarity in this area.

Double default treatment

⁸⁵ New Accord, ¶206.

⁸⁶ Id.

As noted above, the final rule, like the proposed rule, contains a separate risk-based capital methodology for hedged exposures eligible for double default treatment. The final rule's double default provisions are identical to those of the proposed rule, with the exception of some limited changes to the definition of an eligible double default guarantor discussed below.

To be eligible for double default treatment, a hedged exposure must be fully covered or covered on a pro rata basis (that is, there must be no tranching of credit risk) by an uncollateralized single-reference-obligor credit derivative or guarantee (or certain ⁿth-to-default credit derivatives) provided by an eligible double default guarantor (as defined below). Moreover, the hedged exposure must be a wholesale exposure other than a sovereign exposure.⁸⁷ In addition, the obligor of the hedged exposure must not be an eligible double default guarantor, an affiliate of an eligible double default guarantor, or an affiliate of the guarantor.

The proposed rule defined eligible double default guarantor to include a depository institution (as defined in section 3 of the Federal Deposit Insurance Act (12 U.S.C. 1813)); a bank holding company (as defined in section 2 of the Bank Holding Company Act (12 U.S.C. 1841)); a savings and loan holding company (as defined in 12 U.S.C. 1467a) provided all or substantially all of the holding company's activities are permissible for a financial holding company under 12 U.S.C. 1843(k)); a securities broker or dealer registered (under the Securities Exchange Act of 1934) with the Securities and Exchange Commission (SEC); an insurance company in the business of providing credit protection (such as a monoline bond insurer or re-insurer) that is subject

⁸⁷ The New Accord permits certain retail small business exposures to be eligible for double default treatment. Under the final rule, however, a bank must effectively desegment a retail small business exposure (thus rendering it a wholesale exposure) to make it eligible for double default treatment.

to supervision by a state insurance regulator; a foreign bank (as defined in section 211.2 of the Federal Reserve Board's Regulation K (12 CFR 211.2)); a non-U.S. securities firm; or a non-U.S. based insurance company in the business of providing credit protection. The proposal required an eligible double default guarantor to (i) have a bank-assigned PD that, at the time the guarantor issued the guarantee or credit derivative, was equal to or lower than the PD associated with a long-term external rating of at least the third highest investment-grade rating category; and (ii) have a current bank-assigned PD that is equal to or lower than the PD associated with a long-term external rating of at least investment grade. In addition, the proposal permitted a non-U.S. based bank, securities firm, or insurance company to qualify as an eligible double default guarantor only if the firm were subject to consolidated supervision and regulation comparable to that imposed on U.S. depository institutions, securities firms, or insurance companies (as the case may be) or had issued and outstanding an unsecured long-term debt security without credit enhancement that had a long-term applicable external rating in one of the three highest investment-grade rating categories.

Commenters expressed two principal criticisms of the proposed definition of an eligible double default guarantor. First, commenters asked the agencies to conform the definition to the New Accord by permitting a foreign financial firm to qualify so long as it had an outstanding long-term debt security with an external rating of investment grade or higher (for example, BBB- or higher) instead of in one of the three highest investment-grade rating categories (for example, A- or higher). In light of the other eligibility criteria, the agencies have concluded that it would be appropriate to conform this provision of the definition to the New Accord.

Commenters also requested that the agencies conform the definition of eligible double default guarantor to the New Accord by permitting a financial firm to qualify so long as it had a bank-assigned PD, at the time the guarantor issued the guarantee or credit derivative or at any time thereafter, that was equal to or lower than the PD associated with a long-term external rating of at least the third highest investment-grade rating category. In light of the other eligibility criteria, the agencies have concluded that it would be appropriate to conform this provision of the definition to the New Accord.

Effectively, under the final rule, the scope of an eligible double default guarantor is limited to financial firms whose normal business includes the provision of credit protection, as well as the management of a diversified portfolio of credit risk. This restriction arises from the agencies' concern to limit double default recognition to financial institutions that have a high level of credit risk management expertise and that provide sufficient market disclosure. The restriction is also designed to limit the risk of excessive correlation between the creditworthiness of the guarantor and the obligor of the hedged exposure due to their performance depending on common economic factors beyond the systematic risk factor. As a result, hedged exposures to potential credit protection providers or affiliates of credit protection providers are not eligible for the double default treatment. In addition, the agencies have excluded hedged exposures to sovereign entities from eligibility for double default treatment because of the potential high correlation between the creditworthiness of a sovereign and that of a guarantor.

One commenter urged the agencies to delete the requirement that the obligor of a hedged exposure that qualifies for double default treatment not be an eligible double default guarantor or an affiliate of such an entity. This commenter represented that this

requirement significantly constrained the scope of application of double default treatment and assumed inappropriately that there is an excessive amount of correlation among all financial firms. The agencies acknowledge that this requirement is a crude mechanism to prevent excessive wrong-way risk, but the agencies have decided to retain the requirement in light of its consistency with the New Accord and the limited ability of banks to measure accurately correlations among obligors.

In addition to limiting the types of guarantees, credit derivatives, guarantors, and hedged exposures eligible for double default treatment, the rule limits wrong-way risk further by requiring a bank to implement a process to detect excessive correlation between the creditworthiness of the obligor of the hedged exposure and the protection provider. The bank must receive prior written approval from its primary Federal supervisor for this process in order to recognize double default benefits for risk-based capital purposes. To apply double default treatment to a particular hedged exposure, the bank must determine that there is not excessive correlation between the creditworthiness of the obligor of the hedged exposure and the protection provider. For example, the creditworthiness of an obligor and a protection provider would be excessively correlated if the obligor derives a high proportion of its income or revenue from transactions with the protection provider. If excessive correlation is present, the bank may not use the double default treatment for the hedged exposure.

The risk-based capital requirement for a hedged exposure subject to double default treatment is calculated by multiplying a risk-based capital requirement for the hedged exposure (as if it were unhedged) by an adjustment factor that considers the PD of the protection provider (see section 34 of the rule). Thus, the PDs of both the obligor

of the hedged exposure and the protection provider are factored into the hedged exposure's risk-based capital requirement. In addition, as under the PD substitution treatment in section 33 of the rule, the bank is allowed to set LGD equal to the lower of the LGD of the hedged exposure (not adjusted to reflect the guarantee or credit derivative) or the LGD of the guarantee or credit derivative if the guarantee or credit derivative provides the bank with the option to receive immediate payout on the occurrence of a credit event. Otherwise, the bank must set LGD equal to the LGD of the guarantee or credit derivative. Accordingly, in order to apply the double default treatment, the bank must estimate a PD for the protection provider and an LGD for the guarantee or credit derivative. Finally, a bank using the double default treatment must make applicable adjustments to the protection amount of the guarantee or credit derivative to reflect maturity mismatches, currency mismatches, and lack of restructuring coverage (as under the PD substitution and LGD adjustment approaches in section 33 of the rule).

One commenter objected that the calibration of the double default formula under the proposed rule was too conservative because it assumed an excessive amount of correlation between the obligor of the hedged exposure and the protection provider. The agencies have decided to leave the calibration unaltered in light of its consistency with the New Accord. The agencies will evaluate this decision over time and will raise this issue with the BCBS if appropriate.

6. Guarantees and credit derivatives that cover retail exposures

Like the proposal, the final rule provides a different treatment for guarantees and credit derivatives that cover retail exposures than for those that cover wholesale

exposures. The approach set forth above for guarantees and credit derivatives that cover wholesale exposures is an exposure-by-exposure approach consistent with the overall exposure-by-exposure approach the rule takes to wholesale exposures. The agencies believe that a different treatment for guarantees that cover retail exposures is necessary and appropriate because of the rule's segmentation approach to retail exposures. The approaches to retail guarantees described in this section generally apply only to guarantees of individual retail exposures. Guarantees of multiple retail exposures (such as pool private mortgage insurance (PMI)) are typically tranching (that is, they cover less than the full amount of the hedged exposures) and, therefore, are securitization exposures under the final rule.

The rule does not specify the ways in which guarantees and credit derivatives may be taken into account in the segmentation of retail exposures. Likewise, the rule does not explicitly limit the extent to which a bank may take into account the credit risk mitigation benefits of guarantees and credit derivatives in its estimation of the PD and LGD of retail segments, except by the application of overall floors on certain PD and LGD assignments. This approach has the principal advantage of being relatively easy for banks to implement – the approach generally would not disrupt the existing retail segmentation practices of banks and would not interfere with banks' quantification of PD and LGD for retail segments.

In the proposal, the agencies expressed some concern, however, that this approach would provide banks with substantial discretion to incorporate double default and double recovery effects. To address these concerns, the preamble to the proposed rule described two possible alternative treatments for guarantees of retail exposures. The first

alternative distinguished between eligible retail guarantees and all other (non-eligible) guarantees of retail exposures. Under this alternative, an eligible retail guarantee would be an eligible guarantee that applies to a single retail exposure and is (i) PMI issued by a highly creditworthy insurance company; or (ii) issued by a sovereign entity or a political subdivision of a sovereign entity.

Under this alternative, a bank would be able to recognize the credit risk mitigation benefits of eligible retail guarantees that cover retail exposures in a segment by adjusting its estimates of LGD for the segment to reflect recoveries from the guarantor. However, the bank would have to estimate the PD of a segment without reflecting the benefit of guarantees. Specifically, a segment's PD would be an estimate of the stand-alone probability of default for the retail exposures in the segment, before taking account of any guarantees. Accordingly, for this limited set of traditional guarantees of retail exposures by high credit quality guarantors, a bank would be allowed to recognize the benefit of the guarantee when estimating LGD but not when estimating PD.

This alternative approach would provide a different treatment for non-eligible retail guarantees. In short, within the retail framework, a bank would not be able to recognize non-eligible retail guarantees when estimating PD and LGD for any segment of retail exposures. A bank would be required to estimate PD and LGD for segments containing retail exposures with non-eligible guarantees as if the exposures were not guaranteed. However, a bank would be permitted to recognize non-eligible retail guarantees provided by a wholesale guarantor by treating the hedged retail exposure as a direct exposure to the guarantor and applying the appropriate wholesale IRB risk-based capital formula. In other words, for retail exposures covered by non-eligible retail

guarantees, a bank would be permitted to reflect the guarantee by “desegmenting” the retail exposures (which effectively would convert the retail exposures into wholesale exposures) and then applying the rules set forth above for guarantees that cover wholesale exposures. Thus, under this approach, a bank would not be allowed to recognize either double default or double recovery effects for non-eligible retail guarantees.

A second alternative that the agencies described in the preamble to the proposed rule would permit a bank to recognize the credit risk mitigation benefits of all eligible guarantees (whether eligible retail guarantees or not) that cover retail exposures by adjusting its estimates of LGD for the relevant segments, but would subject a bank’s risk-based capital requirement for a segment of retail exposures that are covered by one or more non-eligible retail guarantees to a floor. Under this second alternative, the agencies could impose a floor on risk-based capital requirements of between 2 percent and 6 percent on such a segment of retail exposures.

A substantial number of commenters supported the flexible approach in the text of the proposed rule. A few commenters also supported the first alternative approach in the preamble of the proposed rule. Commenters uniformly urged the agencies not to adopt the second alternative approach. The agencies have decided to adopt the approach to retail guarantees in the text of the proposed rule and not to adopt either alternative approach described in the proposed rule preamble. Although the first alternative approach addresses prudential concerns, the agencies have concluded that it is excessively conservative and prescriptive and would not harmonize with banks’ internal risk measurement and management practices. The agencies also have determined that the

second alternative approach is insufficiently risk sensitive and is not consistent with the New Accord. In light of the final rule's flexible approach to retail guarantees, the agencies expect banks to limit their use of guarantees in the retail segmentation process and retail risk parameter estimation process to situations where the bank has particularly reliable data about the CRM benefits of such guarantees.

D. Unsettled Securities, Foreign Exchange, and Commodity Transactions

Section 35 of the final rule describes the risk-based capital requirements for unsettled and failed securities, foreign exchange, and commodities transactions. The agencies did not receive any material comments on this aspect of the proposed rule and are adopting it as proposed.

Under the final rule, certain transaction types are excluded from the scope of section 35, including:

(i) Transactions accepted by a qualifying central counterparty that are subject to daily marking-to-market and daily receipt and payment of variation margin (which do not have a risk-based capital requirement);⁸⁸

(ii) Repo-style transactions (the risk-based capital requirements of which are determined under sections 31 and 32 of the final rule);

(iii) One-way cash payments on OTC derivative contracts (the risk-based capital requirements of which are determined under sections 31 and 32 of the final rule); and

(iv) Transactions with a contractual settlement period that is longer than the normal settlement period (defined below), which transactions are treated as OTC derivative contracts and assessed a risk-based capital requirement under sections 31 and

⁸⁸ The agencies consider a qualifying central counterparty to be the functional equivalent of an exchange, and have long exempted exchange-traded contracts from risk-based capital requirements.

32 of the final rule. The final rule also provides that, in the case of a system-wide failure of a settlement or clearing system, the bank's primary Federal supervisor may waive risk-based capital requirements for unsettled and failed transactions until the situation is rectified.

The final rule contains separate treatments for delivery-versus-payment (DvP) and payment-versus-payment (PvP) transactions with a normal settlement period, on the one hand, and non-DvP/non-PvP transactions with a normal settlement period, on the other hand. The final rule provides the following definitions of a DvP transaction, a PvP transaction, and a normal settlement period. A DvP transaction is a securities or commodities transaction in which the buyer is obligated to make payment only if the seller has made delivery of the securities or commodities and the seller is obligated to deliver the securities or commodities only if the buyer has made payment. A PvP transaction is a foreign exchange transaction in which each counterparty is obligated to make a final transfer of one or more currencies only if the other counterparty has made a final transfer of one or more currencies. A transaction has a normal settlement period if the contractual settlement period for the transaction is equal to or less than the market standard for the instrument underlying the transaction and equal to or less than five business days.

A bank must hold risk-based capital against a DvP or PvP transaction with a normal settlement period if the bank's counterparty has not made delivery or payment within five business days after the settlement date. The bank must determine its risk-weighted asset amount for such a transaction by multiplying the positive current exposure of the transaction for the bank by the appropriate risk weight in Table E. The positive

current exposure of a transaction of a bank is the difference between the transaction value at the agreed settlement price and the current market price of the transaction, if the difference results in a credit exposure of the bank to the counterparty.

Table E – Risk Weights for Unsettled DvP and PvP Transactions

Number of business days after contractual settlement date	Risk weight to be applied to positive current exposure
From 5 to 15	100%
From 16 to 30	625%
From 31 to 45	937.5%
46 or more	1,250%

A bank must hold risk-based capital against any non-DvP/non-PvP transaction with a normal settlement period if the bank has delivered cash, securities, commodities, or currencies to its counterparty but has not received its corresponding deliverables by the end of the same business day. The bank must continue to hold risk-based capital against the transaction until the bank has received its corresponding deliverables. From the business day after the bank has made its delivery until five business days after the counterparty delivery is due, the bank must calculate its risk-based capital requirement for the transaction by treating the current market value of the deliverables owed to the bank as a wholesale exposure.

For purposes of computing a bank’s risk-based capital requirement for unsettled non-DvP/non-PvP transactions, a bank may assign an internal obligor rating to a counterparty for which it is not otherwise required under the final rule to assign an obligor rating on the basis of the applicable external rating of any outstanding unsecured long-term debt security without credit enhancement issued by the counterparty. A bank may estimate a loss severity rating or LGD for the exposure, or may use a 45 percent

LGD for the exposure provided the bank uses the 45 percent LGD for all such exposures (that is, for all non-DvP/non-PvP transactions subject to a risk-based capital requirement other than deduction under section 35 of the final rule). Alternatively, a bank may use a 100 percent risk weight for all non-DvP/non-PvP transactions subject to a risk-based capital requirement other than deduction under section 35 of the final rule.

If, in a non-DvP/non-PvP transaction with a normal settlement period, the bank has not received its deliverables by the fifth business day after counterparty delivery was due, the bank must deduct the current market value of the deliverables owed to the bank 50 percent from tier 1 capital and 50 percent from tier 2 capital.

The total risk-weighted asset amount for unsettled transactions equals the sum of the risk-weighted asset amount for each DvP and PvP transaction with a normal settlement period and the risk-weighted asset amount for each non-DvP/non-PvP transaction with a normal settlement period.

E. Securitization Exposures

This section describes the framework for calculating risk-based capital requirements for securitization exposures (the securitization framework). In contrast to the framework for wholesale and retail exposures, the securitization framework does not permit a bank to rely on its internal assessments of the risk parameters of a securitization exposure.⁸⁹ For securitization exposures, which typically are tranching exposures to a pool of underlying exposures, such assessments would require implicit or explicit estimates of correlations among the losses on the underlying exposures and estimates of

⁸⁹ Although the IAA described below does allow a bank to use an internal-ratings-based approach to determine its risk-based capital requirement for an exposure to an ABCP program, banks are required to follow NRSRO rating criteria and therefore are required implicitly to use the NRSRO's determination of the correlation of the underlying exposures in the ABCP program.

the credit risk-transferring consequences of tranching. Such correlation and tranching effects are difficult to estimate and validate in an objective manner and on a going-forward basis. Instead, the securitization framework relies principally on two sources of information, where available, to determine risk-based capital requirements: (i) an assessment of the securitization exposure's credit risk made by a nationally recognized statistical rating organization (NRSRO); or (ii) the risk-based capital requirement for the underlying exposures as if the exposures had not been securitized (along with certain other objective information about the securitization exposure, such as the size and relative seniority of the exposure).

1. Hierarchy of approaches

The securitization framework contains three general approaches for determining the risk-based capital requirement for a securitization exposure: a ratings-based approach (RBA), an internal assessment approach (IAA), and a supervisory formula approach (SFA). Consistent with the New Accord and the proposal, under the final rule a bank generally must apply the following hierarchy of approaches to determine the risk-based capital requirement for a securitization exposure.

Gains-on-sale and CEIOs.

Under the proposed rule, a bank would deduct from tier 1 capital any after-tax gain-on-sale resulting from a securitization and would deduct from total capital any portion of a CEIO that does not constitute a gain-on-sale, as described in section 42(a)(1) and (c) of the proposed rule. Thus, if the after-tax gain-on-sale associated with a securitization equaled \$100 while the amount of CEIOs associated with that same

securitization equaled \$120, the bank would deduct \$100 from tier 1 capital and \$20 from total capital (\$10 from tier 1 capital and \$10 from tier 2 capital).

Several commenters asserted that the proposed deductions of gains-on-sale and CEIOs were excessively conservative, because such deductions are not reflected in an originating bank's maximum risk-based capital requirement associated with a single securitization transaction (described below). Commenters noted that while securitization does not increase an originating bank's overall risk exposure to the securitized assets, in some circumstances the proposal would result in a securitization transaction increasing an originating bank's risk-based capital requirement. To address this concern, some commenters suggested deducting CEIOs from total capital only when the CEIOs constitute a gain-on-sale. Others urged adopting the treatment of CEIOs in the general risk-based capital rules. Under this treatment, the entire amount of CEIOs beyond a concentration threshold is deducted from total capital and there is no separate gain-on-sale deduction.

The final rule retains the proposed deduction of gains-on-sale and CEIOs. These deductions are consistent with the New Accord, and the agencies believe they are warranted given historical supervisory concerns with the subjectivity involved in valuations of gains-on-sale and CEIOs. Furthermore, although the treatments of gains-on-sale and CEIOs can increase an originating bank's risk-based capital requirement following a securitization, the agencies believe that such anomalies will be rare where a securitization transfers significant credit risk from the originating bank to third parties.

Ratings-based approach (RBA).

If a securitization exposure is not a gain-on-sale or CEIO, a bank must apply the RBA to a securitization exposure if the exposure qualifies for the RBA. As a general matter, an exposure qualifies for the RBA if the exposure has an external rating from an NRSRO or has an inferred rating (that is, the exposure is senior to another securitization exposure in the transaction that has an external rating from an NRSRO).⁹⁰ For example, a bank generally must use the RBA approach to determine the risk-based capital requirement for an asset-backed security that has an applicable external rating of AA+ from an NRSRO and for another tranche of the same securitization that is unrated but senior in all respects to the asset-backed security that was rated. In this example, the senior unrated tranche would be treated as if it were rated AA+.

Internal assessment approach (IAA).

If a securitization exposure does not qualify for the RBA but the exposure is to an ABCP program – such as a credit enhancement or liquidity facility – the bank may apply the IAA (if the bank, the exposure, and the ABCP program qualify for the IAA) or the SFA (if the bank and the exposure qualify for the SFA) to the exposure. As a general matter, a bank will qualify to use the IAA if the bank establishes and maintains an internal risk rating system for exposures to ABCP programs that has been approved by the bank’s primary Federal supervisor. Alternatively, a bank may use the SFA if the bank is able to calculate a set of risk factors relating to the securitization, including the risk-based capital requirement for the underlying exposures as if they were held directly by the bank. A bank that qualifies for and chooses to use the IAA must use the IAA for all exposures that qualify for the IAA.

⁹⁰ A securitization exposure held by an originating bank must have two or more external ratings or inferred ratings to qualify for the RBA.

A number of commenters asserted that a bank should be permitted to use the IAA for a securitization exposure to an ABCP conduit even when the exposure has an inferred rating, provided all other IAA eligibility criteria were met. The commenters maintained that the RBA would produce an excessive risk-based capital requirement for an unrated securitization exposure, such as a liquidity facility, when the inferred rating is based on a rated security that is very junior to the unrated exposure. Commenters suggested that allowing a bank to use the IAA instead of the RBA in such circumstances would lead to a risk-based capital requirement that was better aligned with the unrated exposure's actual risk.

Like the New Accord, the final rule does not allow a bank to use the IAA for securitization exposures that qualify for the RBA based on an inferred rating. While in some cases the IAA might produce a more risk-sensitive capital treatment relative to an inferred rating under the RBA, the agencies – as well as the majority of commenters – believe that it is important to retain as much consistency as possible with the New Accord to provide a level international playing field for financial services providers in a competitive line of business. The commenters' concerns relating to inferred ratings apply only to a small proportion of outstanding ABCP liquidity facilities. In many cases, a bank may mitigate such concerns by having the ABCP program issue an additional, intermediate layer of externally rated securities, which would provide a more accurate reference for inferring a rating on the unrated liquidity facility. The agencies intend to monitor developments in this area and, as appropriate, will coordinate any reassessment of the hierarchy of securitization approaches with the BCBS and other supervisory and regulatory authorities.

Supervisory formula approach (SFA).

If a securitization exposure is not a gain-on-sale or a CEIO, does not qualify for the RBA, and is not an exposure to an ABCP program for which the bank is applying the IAA, the bank may apply the SFA to the exposure if the bank is able to calculate the SFA risk parameters for the securitization. In many cases, an originating bank would use the SFA to determine its risk-based capital requirements for retained securitization exposures.

Deduction.

If a securitization exposure is not a gain-on-sale or a CEIO and does not qualify for the RBA, the IAA, or the SFA, the bank must deduct the exposure from total capital.

Numerous commenters requested an alternative to deducting the securitization exposure from capital. Some of these commenters noted that if a bank does not service the underlying assets, the bank may not be able to produce highly accurate estimates of a key SFA risk parameter, K_{IRB} , which is the risk-based capital requirement as if the underlying assets were held directly by the bank. Commenters expressed concern that, under the proposal, a bank would be required to deduct from capital some structured lending products that have long histories of low credit losses. Commenters maintained that a bank should be allowed to calculate the securitization exposure's risk-based capital requirement using the rules for wholesale exposures or using an IAA-like approach under which the bank's internal risk rating for the exposure would be mapped into an NRSRO's rating category.

Like the proposal, the final rule contains only those securitization approaches in the New Accord. As already noted, the agencies -- and most commenters -- believe that

it is important to minimize substantive differences between the final rule and the New Accord to foster international consistency. Furthermore, the agencies believe that the hierarchy of securitization approaches is sufficiently comprehensive to accommodate demonstrably low-risk structured lending arrangements in a risk-sensitive manner. As described in greater detail below, for securitization exposures that are not eligible for the RBA or the IAA, a bank has flexibility under the SFA to tailor its procedures for estimating K_{IRB} to the data that are available. The agencies recognize that, in light of data shortcomings, a bank may have to use approaches to estimating K_{IRB} that are less sophisticated than what the bank might use for similar assets that it originates, services, and holds directly. Supervisors generally will review the reasonableness of K_{IRB} estimates in the context of available data, and will expect estimates of K_{IRB} to incorporate appropriate conservatism to address any data shortcomings.

Total risk-weighted assets for securitization exposures equals the sum of risk-weighted assets calculated under the RBA, IAA, and SFA, plus any risk-weighted asset amounts calculated under the early amortization provisions in section 47 of the final rule.

Exceptions to the general hierarchy of approaches

Consistent with the New Accord and the proposed rule, the final rule includes a mechanism that generally prevents a bank's effective risk-based capital requirement from increasing as a result of the bank securitizing its assets. Specifically, the rule limits a bank's effective risk-based capital requirement for all of its securitization exposures to a single securitization to the applicable risk-based capital requirement if the underlying exposures were held directly by the bank. Under the rule, unless one or more of the underlying exposures does not meet the definition of a wholesale, retail, securitization, or

equity exposure, the total risk-based capital requirement for all securitization exposures held by a single bank associated with a single securitization (including any regulatory capital requirement that relates to an early amortization provision, but excluding any capital requirements that relate to the bank's gain-on-sale or CEIOs associated with the securitization) cannot exceed the sum of (i) the bank's total risk-based capital requirement for the underlying exposures as if the bank directly held the underlying exposures; and (ii) the bank's total ECL for the underlying exposures.

One commenter urged the agencies to delete the reference to ECL in the capital calculation. However, the agencies believe it is appropriate to include the ECL of the underlying exposures in this calculation because ECL is included in the New Accord's limit, and because the bank would have had to estimate the ECL of the exposures and hold reserves or capital against the ECL if the bank held the underlying exposures on its balance sheet.

This maximum risk-based capital requirement is different from the general risk-based capital rules. Under the general risk-based capital rules, banks generally are required to hold a dollar in capital for every dollar in residual interest, regardless of the effective risk-based capital requirement on the underlying exposures. The agencies adopted this dollar-for-dollar capital treatment for a residual interest to recognize that in many instances the relative size of the residual interest retained by the originating bank reveals market information about the quality of the underlying exposures and transaction structure that may not have been captured under the general risk-based capital rules. Given the significantly heightened risk sensitivity of the IRB approach, the agencies believe that the maximum risk-based capital requirement in the final rule is appropriate.

The securitization framework also includes provisions to limit the double counting of risks in situations involving overlapping securitization exposures. While the proposal addressed only those overlapping exposures arising in the context of exposures to ABCP programs and mortgage loan swaps with recourse, the final rule addresses overlapping exposures for securitizations more generally. If a bank has multiple securitization exposures that provide duplicative coverage of the underlying exposures of a securitization (such as when a bank provides a program-wide credit enhancement and multiple pool-specific liquidity facilities to an ABCP program), the bank is not required to hold duplicative risk-based capital against the overlapping position. Instead, the bank would apply to the overlapping position the applicable risk-based capital treatment under the securitization framework that results in the highest capital requirement. If different banks have overlapping exposures to a securitization, however, each bank must hold capital against the entire maximum amount of its exposure. Although duplication of capital requirements will not occur for individual banks, some systemic duplication may occur where multiple banks have overlapping exposures to the same securitization.

The proposed rule also addressed the risk-based capital treatment of a securitization of non-IRB assets. Claims to future music concert and film receivables are examples of financial assets that are not wholesale, retail, securitization, or equity exposures. In these cases, the SFA cannot be used because of the absence of a risk-sensitive measure of the credit risk of the underlying exposures. Specifically, under the proposed rule, if a bank had a securitization exposure and any underlying exposure of the securitization was not a wholesale, retail, securitization or equity exposure, the bank

would (i) apply the RBA if the securitization exposure qualifies for the RBA and is not gain-on-sale or a CEIO; or (ii) otherwise, deduct the exposure from total capital.

Numerous commenters asserted that a bank should be allowed to use the IAA in these situations since, unlike the SFA, the IAA is tied to NRSRO rating methodologies rather than to the risk-based capital requirement for the underlying exposures. The agencies believe that this is a reasonable approach for exposures to ABCP conduits. The final rule permits a bank to use the IAA for a securitization exposure for which any underlying exposure of the securitization is not a wholesale, retail, securitization or equity exposure, provided the securitization exposure is not gain-on-sale, not a CEIO, and not eligible for the RBA, and all of the IAA qualification criteria are met.

As described in section V.A.3. of this preamble, a few commenters asserted that OTC derivatives with a securitization SPE as the counterparty should be excluded from the definition of securitization exposure. These commenters objected to the burden of using the securitization framework to calculate a capital requirement for counterparty credit risk for OTC derivatives with a securitization SPE. The agencies continue to believe that the securitization framework is the most appropriate way to assess the counterparty credit risk of such exposures, and that in many cases the relatively simple RBA will apply to such exposures. In response to commenter concerns about burden, the agencies have decided to add an optional simple risk weight approach for certain OTC derivatives. Under the final rule, if a securitization exposure is an OTC derivative contract (other than a credit derivative) that has a first priority claim on the cash flows from the underlying exposures (notwithstanding amounts due under interest rate or currency derivative contracts, fees due, or other similar payments), a bank may choose to

apply an effective 100 percent risk weight to the exposure rather than the general securitization hierarchy of approaches. This treatment is subject to supervisory approval.

Like the proposed rule, the final rule contains three additional exceptions to the general hierarchy. Each exception parallels the general risk-based capital rules. First, an interest-only mortgage-backed security must be assigned a risk weight that is no less than 100 percent. Although a number of commenters objected to this risk weight floor on the grounds that it was not risk sensitive, the agencies believe that a minimum risk weight of 100 percent is prudent in light of the uncertainty implied by the substantial price volatility of these securities. Second, a sponsoring bank that qualifies as a primary beneficiary and must consolidate an ABCP program as a variable interest entity under GAAP generally may exclude the consolidated ABCP program assets from risk-weighted assets.⁹¹ In such cases, the bank must hold risk-based capital against any securitization exposures of the bank to the ABCP program. Third, as required by Federal statute, a special set of rules applies to transfers of small business loans and leases with recourse by well-capitalized depository institutions.⁹²

Servicer cash advances

A traditional securitization typically employs a servicing bank that – on a day-to-day basis – collects principal, interest, and other payments from the underlying exposures of the securitization and forwards such payments to the securitization SPE or to investors in the securitization. Such servicing banks often provide to the securitization a credit

⁹¹ See Financial Accounting Standards Board, Interpretation No. 46: Consolidation of Variable Interest Entities (January 2003).

⁹² See 12 U.S.C. 1835, which places a cap on the risk-based capital requirement applicable to a well-capitalized DI that transfers small business loans with recourse. The final rule does not expressly state that the agencies may permit adequately capitalized banks to use the small business recourse rule on a case-by-case basis because the agencies may do this under the general reservation of authority contained in section 1 of the rule.

facility under which the servicing bank may advance cash to ensure an uninterrupted flow of payments to investors in the securitization (including advances made to cover foreclosure costs or other expenses to facilitate the timely collection of the underlying exposures). These servicer cash advance facilities are securitization exposures.

Under the final rule, as under the proposed rule, a servicing bank must determine its risk-based capital requirement for any advances under such a facility using the hierarchy of securitization approaches described above. The treatment of the undrawn portion of the facility depends on whether the facility is an “eligible” servicer cash advance facility. An eligible servicer cash advance facility is a servicer cash advance facility in which (i) the servicer is entitled to full reimbursement of advances (except that a servicer may be obligated to make non-reimbursable advances for a particular underlying exposure if any such advance is limited to an insignificant amount of the outstanding principal balance of that exposure); (ii) the servicer’s right to reimbursement is senior in right of payment to all other claims on the cash flows from the underlying exposures of the securitization; and (iii) the servicer has no legal obligation to, and does not, make advances to the securitization if the servicer concludes the advances are unlikely to be repaid. Consistent with the general risk-based capital rules with respect to residential mortgage servicer cash advances, a servicing bank is not required to hold risk-based capital against the undrawn portion of an eligible servicer cash advance facility. A bank that provides a non-eligible servicer cash advance facility must determine its risk-based capital requirement for the undrawn portion of the facility in the same manner as the bank would determine its risk-based capital requirement for any other undrawn securitization exposure.

Amount of a securitization exposure

Under the proposed rule, the amount of an on-balance sheet securitization exposure was the bank's carrying value, if the exposure was held-to-maturity or for trading, or the bank's carrying value minus any unrealized gains and plus any unrealized losses on the exposure, if the exposure was available-for-sale. In general, the amount of an off-balance sheet securitization exposure was the notional amount of the exposure. For an OTC derivative contract that was not a credit derivative, the notional amount was the EAD of the derivative contract (as calculated in section 32).

In the final rule the agencies are maintaining the substance of the proposed provision on the amount of a securitization exposure with one exception. The final rule provides that the amount of a securitization exposure that is a repo-style transaction, eligible margin loan, or OTC derivative (other than a credit derivative) is the EAD of the exposure as calculated in section 32 of the final rule. The agencies believe this change is consistent with the way banks manage these exposures, more appropriately reflects the collateral that directly supports these exposures, and recognizes the credit risk mitigation benefits of netting where these exposures are part of a cross-product netting set. Because the collateral associated with a repo-style transaction or eligible margin loan is reflected in the determination of exposure amount under section 32 of the rule, these transactions are not eligible for the general securitization collateral approach in section 46(b) of the final rule. Similarly, if a bank chooses to reflect collateral associated with an OTC derivative contract in its determination of exposure amount under section 32 of the rule, it may not also apply the general securitization collateral approach in section 46(b) of the final rule. Similar to the definition of EAD for on-balance sheet exposures, the agencies

are clarifying that the amount of an on-balance sheet securitization exposure is based on whether or not the exposure is classified as an available for sale security.

Under the proposal, when a securitization exposure to an ABCP program takes the form of a commitment, such as a liquidity facility, the notional amount could be reduced to the maximum potential amount that the bank currently would be required to fund under the arrangement's documentation (the maximum potential amount that could be drawn given the assets currently held by the program). Within some ABCP programs, however, certain commitments, such as liquidity facilities, may be dynamic in that the maximum amount that can be drawn at any moment depends on the current credit quality of the program's underlying assets. That is, if the underlying assets were to remain fixed, but their credit quality deteriorated, the maximum amount that could be drawn against the liquidity facility could increase.

The final rule clarifies that in such circumstances the notional amount of an off-balance sheet securitization exposure to an ABCP program may be reduced to the maximum potential amount that the bank could be required to fund given the program's current assets (calculated without regard to the current credit quality of these assets). Thus, if \$100 is the maximum amount that could be drawn given the current volume and current credit quality of the program's assets, but the maximum potential draw against these same assets could increase to as much as \$200 if their credit quality were to deteriorate, then the exposure amount is \$200.

Some commenters recommended capping the securitization amount for an ABCP liquidity facility at the amount of the outstanding commercial paper covered by that facility. The agencies believe, however, that this would be inappropriate if the liquidity

provider could be required to advance a larger amount. The agencies note that when calculating the exposure amount of a liquidity facility, a bank may take into account any limits on advances – including limits based on the amount of commercial paper outstanding – that are contained in the program’s documentation.

Implicit support

Like the proposed rule, the final rule sets forth the regulatory capital consequences if a bank provides support to a securitization in excess of the bank’s predetermined contractual obligation to provide credit support to the securitization. First, consistent with the general risk-based capital rules,⁹³ a bank that provides such implicit support must hold regulatory capital against all of the underlying exposures associated with the securitization as if the exposures had not been securitized, and must deduct from tier 1 capital any after-tax gain-on-sale resulting from the securitization. Second, the bank must disclose publicly (i) that it has provided implicit support to the securitization, and (ii) the regulatory capital impact to the bank of providing the implicit support. The bank’s primary Federal supervisor also may require the bank to hold regulatory capital against all the underlying exposures associated with some or all the bank’s other securitizations as if the exposures had not been securitized, and to deduct from tier 1 capital any after-tax gain-on-sale resulting from such securitizations.

Operational requirements for traditional securitizations

In a traditional securitization, an originating bank typically transfers a portion of the credit risk of exposures to third parties by selling them to a securitization SPE. Under the final rule, consistent with the proposed rule, banks engaging in a traditional securitization may exclude the underlying exposures from the calculation of risk-

⁹³ Interagency Guidance on Implicit Recourse in Asset Securitizations, May 23, 2002.

weighted assets only if each of the following conditions is met: (i) the transfer is a sale under GAAP; (ii) the originating bank transfers to third parties credit risk associated with the underlying exposures; and (iii) any clean-up calls relating to the securitization are eligible clean-up calls (as discussed below). Originating banks that meet these conditions must hold regulatory capital against any securitization exposures they retain in connection with the securitization. Originating banks that fail to meet these conditions must hold regulatory capital against the transferred exposures as if they had not been securitized and must deduct from tier 1 capital any gain-on-sale resulting from the transaction. The operational requirements for synthetic securitization are described in preamble section V.E.7., below.

Consistent with the general risk-based capital rules, the above operational requirements refer specifically to GAAP for the purpose of determining whether a securitization transaction should be treated as an asset sale or a financing. In contrast, the New Accord stipulates guiding principles for use in determining whether sale treatment is warranted. One commenter requested that the agencies conform the proposed operational requirements for traditional securitizations to those in the New Accord. The agencies believe that the current conditions to qualify for sale treatment under GAAP are broadly consistent with the guiding principles enumerated in the New Accord. However, if GAAP in this area were to change materially in the future, the agencies would reassess, and possibly revise, the operational standards.

Clean-up calls

To satisfy the operational requirements for securitizations and enable an originating bank to exclude the underlying exposures from the calculation of its risk-

based capital requirements, any clean-up call associated with a securitization must be an eligible clean-up call. The proposal defined a clean-up call as a contractual provision that permits a servicer to call securitization exposures (for example, asset-backed securities) before the stated (or contractual) maturity or call date. The preamble to the proposed rule explained that, in the case of a traditional securitization, a clean-up call is generally accomplished by repurchasing the remaining securitization exposures once the amount of underlying exposures or outstanding securitization exposures falls below a specified level. In the case of a synthetic securitization, the clean-up call may take the form of a clause that extinguishes the credit protection once the amount of underlying exposures has fallen below a specified level.

Under the proposed rule, an eligible clean-up call would be a clean-up call that:

(i) Is exercisable solely at the discretion of the servicer;

(ii) Is not structured to avoid allocating losses to securitization exposures held by investors or otherwise structured to provide credit enhancement to the securitization (for example, to purchase non-performing underlying exposures); and

(iii) (A) For a traditional securitization, is only exercisable when 10 percent or less of the principal amount of the underlying exposures or securitization exposures (determined as of the inception of the securitization) is outstanding.

(B) For a synthetic securitization, is only exercisable when 10 percent or less of the principal amount of the reference portfolio of underlying exposures (determined as of the inception of the securitization) is outstanding.

A number of comments addressed the proposed definitions of clean-up call and eligible clean-up call. One commenter observed that prudential concerns would also be

satisfied if the call were at the discretion of the originator of the underlying exposures. The agencies concur with this view and have modified the final rule to state that a clean-up call may permit the servicer or originating bank to call the securitization exposures before the stated maturity or call date, and that an eligible clean-up call must be exercisable solely at the discretion of the servicer or the originating bank. Commenters also requested clarification whether, for a securitization that involves a master trust, the 10 percent requirement described above in criteria (iii)(A) and (iii)(B) would be interpreted as applying to each series or tranche of securities issued from the master trust. The agencies believe this is a reasonable interpretation. Thus, where a securitization SPE is structured as a master trust, a clean-up call with respect to a particular series or tranche issued by the master trust would meet criteria (iii)(A) and (iii)(B) so long as the outstanding principal amount in that series was 10 percent or less of its original amount at the inception of the series.

Additional supervisory guidance

Over the last several years, the agencies have published a significant amount of supervisory guidance to assist banks with assessing the extent to which they have transferred credit risk and, consequently, may recognize any reduction in required regulatory capital as a result of a securitization or other form of credit risk transfer.⁹⁴ In general, the agencies expect banks to continue to use this guidance, most of which remains applicable to the advanced approaches securitization framework. Banks are encouraged to consult with their primary Federal supervisor about transactions that require additional guidance.

⁹⁴ See, e.g., OCC Bulletin 99-46 (Dec. 13, 1999) (OCC); FDIC Financial Institution Letter 109-99 (Dec. 13, 1999) (FDIC); SR Letter 99-37 (Dec. 13, 1999) (Board); CEO Ltr. 99-119 (Dec. 14, 1999) (OTS).

2. Ratings-based approach (RBA)

Under the final rule, as under the proposal, a bank must determine the risk-weighted asset amount for a securitization exposure that is eligible for the RBA by multiplying the amount of the exposure by the appropriate risk-weight provided in the tables in section 43 of the rule. Under the proposal, whether a securitization exposure was eligible for the RBA would depend on whether the bank holding the securitization exposure is an originating bank or an investing bank. An originating bank would be eligible to use the RBA for a securitization exposure if (i) the exposure had two or more external ratings, or (ii) the exposure had two or more inferred ratings. In contrast, an investing bank would be eligible to use the RBA for a securitization exposure if the exposure has one or more external or inferred ratings. A bank would be an originating bank if it (i) directly or indirectly originated or securitized the underlying exposures included in the securitization, or (ii) serves as an ABCP program sponsor to the securitization.

The proposed rule defined an external rating as a credit rating assigned by a NRSRO to an exposure, provided (i) the credit rating fully reflects the entire amount of credit risk with regard to all payments owed to the holder of the exposure, and (ii) the external rating is published in an accessible form and is included in the transition matrices made publicly available by the NRSRO that summarize the historical performance of positions it has rated. For example, if a holder is owed principal and interest on an exposure, the credit rating must fully reflect the credit risk associated with timely repayment of principal and interest. Under the proposed rule, an exposure's

applicable external rating was the lowest external rating assigned to the exposure by any NRSRO.

The proposed two-rating requirement for originating banks was the only material difference between the treatment of originating banks and investing banks under the proposed securitization framework. Although the two-rating requirement is not included in the New Accord, it is generally consistent with the treatment of originating and investing banks in the general risk-based capital rules. The agencies sought comment on whether this treatment was appropriate, and on possible alternative mechanisms that could be employed to ensure the reliability of external and inferred ratings on securitization exposures retained by originating banks.

Commenters generally objected to the two-rating requirement for originating banks. Many asserted that since the credit risk of a given securitization exposure was the same regardless of the holder, the risk-based capital treatments also should be the same. Because external ratings would be publicly available, some commenters contended that NRSROs will have strong reputational reasons to give unbiased ratings—even to non-traded securitization exposures retained by originating banks. The agencies continue to believe that external ratings for securitization exposures retained by an originating bank, which typically are not traded, are subject to less market discipline than ratings for exposures sold to third parties. This disparity in market discipline warrants more stringent conditions on use of the former for risk-based capital purposes. Accordingly, the final rule retains the two-rating requirement for originating banks.

Consistent with the New Accord, the final rule states that an unrated securitization exposure has an inferred rating if another securitization exposure issued by the same

issuer and secured by the same underlying exposures has an external rating and this rated reference exposure (i) is subordinate in all respects to the unrated securitization exposure; (ii) does not benefit from any credit enhancement that is not available to the unrated securitization exposure; and (iii) has an effective remaining maturity that is equal to or longer than the unrated securitization exposure. Under the RBA, securitization exposures with an inferred rating are treated the same as securitization exposures with an identical external rating. This definition does not permit a bank to assign an inferred rating based on the ratings of the underlying exposures in a securitization, even when the unrated securitization exposure is secured by a single, externally rated security. In particular, such a look-through approach would fail to meet the requirements that the rated reference exposure must be issued by the same issuer, secured by the same underlying assets, and subordinated in all respects to the unrated securitization exposure.

The agencies sought comment on whether they should consider other bases for inferring a rating for an unrated securitization position, such as using an applicable credit rating on outstanding long-term debt of the issuer or guarantor of the securitization exposure. In situations where an unrated securitization exposure benefited from a guarantee that covered all contractual payments associated with the securitization exposure, several commenters advocated allowing an inferred rating to be assigned based on the long-term rating of the guarantor. In addition, some commenters recommended that if a senior, unrated securitization exposure is secured by a single externally rated underlying security, a bank should be permitted to assign an inferred rating for the unrated exposure using a look-through approach.

The agencies do not believe there is a compelling need at this time to supplement the New Accord's methods for determining an inferred rating. However, if a need develops in the future, the agencies will seek to revise the New Accord in coordination with the BCBS and other supervisory and regulatory authorities. In the situations cited above, the framework already provides simplified methods for calculating a securitization exposure's risk-based capital requirement. For example, when a securitization exposure benefits from a full guarantee, such as from an externally rated monoline insurance company, the exposure's external rating often will reflect that guarantee. When the guaranteed securitization exposure is not externally rated, subject to the rules for recognition of guarantees of securitization exposures in section 46, the unrated securitization exposure may be treated as a direct (wholesale) exposure to the guarantor. In addition, when a securitization exposure to an ABCP program is secured by a single, externally rated asset, a look-through approach may be possible under the IAA provided that such a look-through is no less conservative than the applicable NRSRO rating methodologies.

Under the proposal, if a securitization exposure had multiple external ratings or multiple inferred ratings, a bank would be required to use the lowest rating (the rating that would produce the highest risk-based capital requirement). Commenters objected that this treatment was significantly more conservative than required by the New Accord, which permits use of the second most favorable rating, and would unfairly penalize banks in situations where the lowest rating was unsolicited or an outlier. The agencies recognize commenters' concerns regarding unsolicited ratings, and note that the New Accord states banks should use solicited ratings. To maintain consistency with the

general risk-based capital rules, the final rule defines the applicable external rating of a securitization exposure to be its lowest solicited external rating and the applicable inferred rating of a securitization exposure to be the inferred rating based on its lowest solicited external rating.

For securitization exposures eligible for the RBA, the risk-based capital requirement per dollar of securitization exposure depends on four factors: (i) the applicable rating of the exposure; (ii) whether the rating reflects a long-term or short-term assessment of the exposure's credit risk; (iii) whether the exposure is a "senior" exposure; and (iv) a measure of the effective number ("N") of underlying exposures. In response to a specific question posed by the agencies, commenters generally supported linking risk weights under the RBA to these factors.

In the proposed rule, a "senior securitization exposure" was defined as a securitization exposure that has a first priority claim on the cash flows from the underlying exposures, disregarding the claims of a service provider (such as a swap counterparty or trustee, custodian, or paying agent for the securitization) to fees from the securitization. Generally, only the most senior tranche of a securitization would be a senior securitization exposure. For example, if multiple tranches of a securitization share the transaction's highest rating, only the tranche with the shortest remaining maturity would be treated as senior, since other tranches with the same rating would not have a first claim to cash flows throughout their lifetimes. A liquidity facility that supports an ABCP program would be a senior securitization exposure if the liquidity facility provider's right to reimbursement of the drawn amounts was senior to all claims on the cash flows from the underlying exposures except claims of a service provider to fees.

In the final rule, the agencies modified this definition to clarify two points. First, in the context of an ABCP program, the final rule specifically states that both the most senior commercial paper issued by the program and a liquidity facility supporting the program may be ‘senior’ exposures if the liquidity facility provider’s right to reimbursement of any drawn amounts is senior to all claims on the cash flow from the underlying exposures. Second, the final rule clarifies that when determining whether a securitization exposure is senior, a bank is not required to consider any amounts due under interest rate or currency derivative contracts, fees due, or other similar payments.

Consistent with the New Accord, a bank must use Table F below when a securitization exposure qualifies for the RBA based on a long-term external rating or an inferred rating based on a long-term external rating. A bank may apply the risk weights in column 1 of Table F to the securitization exposure only if the N is six or more and the securitization exposure is a senior securitization exposure. If N is six or more but the securitization exposure is not a senior securitization exposure, the bank must apply the risk weights in column 2 of Table F. Applying the principle of conservatism, however, if N is six or more a bank may use the risk weights in column 2 of Table F without determining whether the exposure is senior. A bank must apply the risk weights in column 3 of Table F to the securitization exposure if N is less than six.

In certain situations the rule provides a simplified approach for determining N. If the notional number of underlying exposures of a securitization is 25 or more or if all the underlying exposures are retail exposures, a bank may assume that N is six or more (unless the bank knows or has reason to know that N is less than six). However, if the notional number of underlying exposures of a securitization is less than 25 and one or

more of the underlying exposures is a non-retail exposure, the bank must compute N as described in the SFA section below.

A few commenters wanted to determine N only at the inception of a securitization transaction, due to the burden of tracking N over time. The agencies believe that a bank must track N over time to ensure an appropriate risk-based capital requirement. The number of underlying exposures in a securitization typically changes over time as some underlying exposures are repaid or default. As the number of underlying exposures changes, the risk profile of the associated securitization exposures changes, and a bank must reflect this change in risk profile in its risk-based capital requirement.

Table F – Long-Term Credit Rating Risk Weights under RBA and IAA

	<u>Column 1</u>	<u>Column 2</u>	<u>Column 3</u>
Applicable external or inferred rating (illustrative rating example)	Risk weights for senior securitization exposures backed by granular pools	Risk weights for non-senior securitization exposures backed by granular pools	Risk weights for securitization exposures backed by non-granular pools
Highest investment grade (for example, AAA)	7%	12%	20%
Second highest investment grade (for example, AA)	8%	15%	25%
Third-highest investment grade – positive designation (for example, A+)	10%	18%	35%
Third-highest investment grade (for example, A)	12%	20%	

Third-highest investment grade – negative designation (for example, A-)	20%	35%	
Lowest investment grade – positive designation (for example, BBB+)	35%	50%	
Lowest investment grade (for example, BBB)	60%	75%	
Lowest investment grade – negative designation (for example, BBB-)	100%		
One category below investment grade – positive designation (for example, BB+)	250%		
One category below investment grade (for example, BB)	425%		
One category below investment grade – negative designation (for example, BB-)	650%		
More than one category below investment grade	Deduction from tier 1 and tier 2 capital		

A bank must apply the risk weights in Table G when the securitization exposure qualifies for the RBA based on a short-term external rating or an inferred rating based on a short-term external rating. A bank must apply the decision rules outlined in the previous paragraph to determine which column of Table G applies.

Table G – Short-Term Credit Rating Risk Weights under RBA and IAA

	<u>Column 1</u>	<u>Column 2</u>	<u>Column 3</u>
Applicable external or inferred rating (Illustrative rating example)	Risk weights for senior securitization exposures backed by granular pools	Risk weights for non-senior securitization exposures backed by granular pools	Risk weights for securitization exposures backed by non-granular pools
Highest investment grade (for example, A1)	7%	12%	20%
Second highest investment grade (for example, A2)	12%	20%	35%
Third highest investment grade (for example, A3)	60%	75%	75%
All other ratings	Deduction from tier 1 and tier 2 capital		

Within Tables G and H, risk weights increase as rating grades decline. Under column 2 of Table F, for example, the risk weights range from 12 percent for exposures with the highest investment-grade rating to 650 percent for exposures rated one category below investment grade with a negative designation. This pattern of risk weights is broadly consistent with analyses employing standard credit risk models and a range of assumptions regarding correlation effects and the types of exposures being securitized.⁹⁵ These analyses imply that, compared with a corporate bond having a given level of stand-alone credit risk (for example, as measured by its expected loss rate), a securitization tranche having the same level of stand-alone credit risk – but backed by a reasonably

⁹⁵ See Vladislav Peretyatkin and William Perraudin, “Capital for Asset-Backed Securities,” Bank of England, February 2003.

granular and diversified pool – will tend to exhibit more systematic risk.⁹⁶ This effect is most pronounced for below-investment-grade tranches and is the primary reason why the RBA risk-weights increase rapidly as ratings deteriorate over this range – much more rapidly than for similarly rated corporate bonds.

Under the RBA, a securitization exposure that has an investment-grade rating and has fewer than six effective underlying exposures generally receives a higher risk weight than a similarly rated securitization exposure with six or more effective underlying exposures. This treatment is intended to discourage a bank from engaging in regulatory capital arbitrage by securitizing very high-quality wholesale exposures (wholesale exposures with a low PD and LGD), obtaining external ratings on the securitization exposures issued by the securitization, and retaining essentially all the credit risk of the pool of underlying exposures.

A bank must deduct from regulatory capital any securitization exposure with an external or inferred rating lower than one category below investment grade for long-term ratings or below investment grade for short-term ratings. Although this treatment is more conservative than suggested by credit risk modeling analyses, the agencies believe that deducting such exposures from regulatory capital is appropriate in light of significant modeling uncertainties for such low-rated securitization tranches. Moreover, external ratings of these tranches are subject to less market discipline because these positions generally are retained by the bank and are not traded.

The most senior tranches of granular securitizations with long-term investment-grade external ratings receive a more favorable risk weight as compared to more

⁹⁶ See, e.g., Michael Pykhtin and Ashish Dev, “Credit Risk in Asset Securitizations: An Analytical Model,” Risk (May 2002) S16-S20.

subordinated tranches of the same securitizations. To be considered granular, a securitization must have an N of at least six. Consistent with the New Accord, the lowest possible risk-weight, 7 percent, applies only to senior securitization exposures receiving the highest external rating (for example, AAA) and backed by a granular asset pool.

The agencies sought comment on how well the risk weights in Tables G and H capture the most important risk factors for securitization exposures of varying degrees of seniority and granularity. A number of commenters contended that, in the interest of competitive equity, the risk weight for senior securitization exposures having the highest rating and backed by a granular asset pool should be 6 percent, the level specified in the European Union's Capital Requirements Directive (CRD). The agencies decided against making this change. There is no compelling empirical evidence to support a 6 percent risk weight for all exposures satisfying these conditions and, further, a 6 percent risk weight is inconsistent with the New Accord. Moreover, estimates of the credit risk associated with such positions tend to be highly sensitive to subjective modeling assumptions and to the specific types of underlying assets and structure of the transaction, which supports the use of the more conservative approach in the New Accord.

3. Internal assessment approach (IAA)

Under the final rule, as under the proposal, a bank is permitted to compute its risk-based capital requirement for a securitization exposure to an ABCP program (such as a liquidity facility or credit enhancement) using the bank's internal assessment of the credit quality of the securitization exposure. The ABCP program may be sponsored by the bank itself or by a third party. To apply the IAA, the bank's internal assessment process and the ABCP program must meet certain qualification requirements in

section 44 of the final rule, and the securitization exposure must initially be internally rated at least equivalent to investment grade. A bank that elects to use the IAA for any securitization exposure to an ABCP program must use the IAA to compute risk-based capital requirements for all securitization exposures that qualify for the IAA. Under the IAA, a bank maps its internal credit assessment of a securitization exposure to an equivalent external credit rating from an NRSRO. The bank must determine the risk-weighted asset amount for a securitization exposure by multiplying the amount of the exposure (using the methodology set forth above in the RBA section) by the appropriate risk weight provided in Table F or G above.

Under the proposal, a bank required prior written approval from its primary Federal supervisor before it could use the IAA. Several commenters objected to this requirement maintaining that approval is not required under the New Accord and would likely delay a bank being authorized to use the IAA for new ABCP programs. Instead, commenters requested a submission and non-objection approach, under which a bank would be allowed to use the IAA in the absence of any objection from its supervisor based on examination findings. The final rule retains the requirement for prior written approval before a bank can use the IAA. Like other optional approaches in the final rule (for example, the double default treatment and the internal models methodology), it is important that the primary Federal supervisor have an opportunity to review a bank's practices relative to the final rule before allowing a bank to use the optional approach. If a bank chooses to implement the IAA at the same time that it implements the advanced approaches, the IAA review and approval process will be part of the overall qualification process. If a bank chooses to implement the IAA after it has qualified for the advanced

approaches, prior written approval is a necessary safeguard for ensuring appropriate application of the IAA. Furthermore, the agencies believe this requirement can be implemented without impeding future innovations in ABCP programs.

Similar to the proposed rule, under the final rule a bank must demonstrate that its internal credit assessment process satisfies all the following criteria in order to receive approval to use the IAA.

The bank's internal credit assessments of securitization exposures to ABCP programs must be based on publicly available rating criteria used by an NRSRO for evaluating the credit risk of the underlying exposures. The requirement that an NRSRO's rating criteria be publicly available does not mean that these criteria must be published formally by the NRSRO. While the agencies expect banks to rely on published rating criteria when these criteria are available, an NRSRO often delays publication of rating criteria for securitizations involving new asset types until the NRSRO builds sufficient experience with such assets. Similarly, as securitization structures evolve over time, published criteria may be revised with some lag. Especially for securitizations involving new structures or asset types, the requirement that rating criteria be publicly available should be interpreted broadly to encompass not only published criteria, but also criteria that are obtained through written correspondence or other communications with an NRSRO. In such cases, these communications should be documented and available for review by the bank's primary Federal supervisor. The agencies believe this flexibility is appropriate only for unique situations when published rating criteria are not generally applicable.

A commenter asked whether the applicable NRSRO rating criteria must cover all contractual payments owed to the bank holding the exposure, or only contractual principal and interest. For example, liquidity facilities typically obligate the seller to make certain future fee and indemnity payments directly to the liquidity bank. These ancillary obligations, however, are not an exposure to the ABCP program and would not normally be covered by NRSRO rating criteria, which focus on the risks of the underlying assets and the exposure's vulnerability to those risks. The agencies agree that such ancillary obligations of the seller need not be covered by the applicable NRSRO rating criteria for an exposure to be eligible for the IAA.

To be eligible for the IAA, a bank must also demonstrate that its internal credit assessments of securitization exposures used for regulatory capital purposes are consistent with those used in its internal risk management process, capital adequacy assessment process, and management information reporting systems. The bank must also demonstrate that its internal credit assessment process has sufficient granularity to identify gradations of risk. Each of the bank's internal credit assessment categories must correspond to an external credit rating of an NRSRO. In addition, the bank's internal credit assessment process, particularly the stress test factors for determining credit enhancement requirements, must be at least as conservative as the most conservative of the publicly available rating criteria of the NRSROs that have provided external credit ratings to the commercial paper issued by the ABCP program. In light of recent events in the securitization market, the agencies emphasize that if an NRSRO that provides an external rating to an ABCP program's commercial paper changes its methodology, the bank must evaluate whether to revise its internal assessment process.

Moreover, the bank must have an effective system of controls and oversight that ensures compliance with these operational requirements and maintains the integrity and accuracy of the internal credit assessments. The bank must also have an internal audit function independent from the ABCP program business line and internal credit assessment process that assesses at least annually whether the controls over the internal credit assessment process function as intended. The bank must review and update each internal credit assessment whenever new material information is available, but no less frequently than annually. The bank must also validate its internal credit assessment process on an ongoing basis, but not less frequently than annually.

Under the proposed rule, in order for a bank to use the IAA on a specific exposure to an ABCP program, the program had to satisfy the following requirements:

(i) All commercial paper issued by the ABCP program must have an external rating.

(ii) The ABCP program must have robust credit and investment guidelines (underwriting standards).

(iii) The ABCP program must perform a detailed credit analysis of the asset sellers' risk profiles.

(iv) The ABCP program's underwriting policy must establish minimum asset eligibility criteria that include a prohibition of the purchase of assets that are significantly past due or defaulted, as well as limitations on concentrations to an individual obligor or geographic area and the tenor of the assets to be purchased.

(v) The aggregate estimate of loss on an asset pool that the ABCP program is considering purchasing must consider all sources of potential risk, such as credit and dilution risk.

(vi) The ABCP program must incorporate structural features into each purchase of assets to mitigate potential credit deterioration of the underlying exposures. Such features may include wind-down triggers specific to a pool of underlying exposures.

Commenters suggested that the program-level eligibility criteria should apply only to those elements of the ABCP program that are relevant to the securitization exposure held by the bank in order to prevent an ABCP program's purchase of a single asset pool that does not meet the above criteria from disallowing the IAA for securitization exposures to that program that are unrelated to the non-qualifying asset pool. The agencies agree that this is a reasonable approach. Accordingly, the final rule applies criteria (ii) through (vi) to the exposures underlying a securitization exposure, rather than to the entire ABCP program. For a program-wide credit enhancement facility, all of the separate seller-specific arrangements benefiting from that facility must meet the above requirements for the facility to be eligible for the IAA.

Several commenters objected to the requirement that the ABCP program prohibit purchases of significantly past-due or defaulted assets. Commenters contended that such purchases should be allowed so long as the applicable NRSRO rating criteria permit and deal appropriately with such assets. Like the New Accord, the final rule prohibits the ABCP program from purchasing significantly past-due or defaulted assets in order to ensure that the IAA is applied only to securitization exposures that are relatively low-risk at inception. This criterion would be met if the ABCP program does not fund underlying

assets that are significantly past due or defaulted when placed into the program (that is, the program's advance rate against such assets is 0 percent) and the securitization exposure is not subject to potential losses associated with these assets. The agencies observe that the rule does not set a specific number-of-days-past due criterion. In addition, the term 'defaulted assets' in criterion (iv) does not refer to the wholesale and retail definitions of default in the final rule, but rather may be interpreted as referring to assets that have been charged off or written down by the seller prior to being placed into the ABCP program or to assets that would be charged off or written down under the program's governing contracts.

In addition, commenters asked the agencies to clarify that a bank may ignore one or more of the eligibility requirements where the requirement is not relevant to a particular exposure. For example, in the case of a liquidity facility supporting a static pool of term loans, it may not be possible to incorporate features into the transaction that mitigate against a potential deterioration in these assets, and there may be no use for detailed credit analyses of the seller following the securitization if the seller has no further involvement with the transaction. The agencies have modified the final criterion for determining whether an exposure qualifies for the IAA, to specify that where relevant, the ABCP program must incorporate structural features into each purchase of exposures underlying the securitization exposure to mitigate potential credit deterioration of the underlying exposures.

4. Supervisory formula approach (SFA)

General requirements

Under the proposed rule, a bank using the SFA would determine the risk-weighted asset amount for a securitization exposure by multiplying the SFA risk-based capital requirement for the exposure (as determined by the supervisory formula set forth below) by 12.5. If the SFA risk weight for a securitization exposure was 1,250 percent or greater, however, the bank would deduct the exposure from total capital rather than risk weight the exposure. The agencies noted that deduction is consistent with the treatment of other high-risk securitization exposures, such as CEIOs.

The SFA capital requirement for a securitization exposure depends on the following seven inputs:

- (i) The amount of the underlying exposures (UE);
- (ii) The securitization exposure's proportion of the tranche that contains the securitization exposure (TP);
- (iii) The sum of the risk-based capital requirement and ECL for the underlying exposures (as determined under the final rule as if the underlying exposures were held directly on the bank's balance sheet) divided by the amount of the underlying exposures (K_{IRB});
- (iv) The tranche's credit enhancement level (L);
- (v) The tranche's thickness (T);
- (vi) The securitization's effective number of underlying exposures (N); and
- (vii) The securitization's exposure-weighted average loss given default (EWALGD).

A bank may only use the SFA to determine its risk-based capital requirement for a securitization exposure if the bank can calculate each of these seven inputs on an ongoing

basis. In particular, if a bank cannot compute K_{IRB} because the bank cannot compute the risk-based capital requirement for all underlying exposures, the bank may not use the SFA to compute its risk-based capital requirement for the securitization exposure. In those cases, the bank must deduct the exposure from regulatory capital.

The SFA capital requirement for a securitization exposure is UE multiplied by TP multiplied by the greater of (i) $0.0056 \cdot T$; or (ii) $S[L+T] - S[L]$, where:

$$(i) S[Y] = \left\{ \begin{array}{ll} Y & \text{when } Y \leq K_{IRB} \\ K_{IRB} + K[Y] - K[K_{IRB}] + \frac{d \cdot K_{IRB}}{20} \left(1 - e^{-\frac{20 \cdot (K_{IRB} - Y)}{K_{IRB}}}\right) & \text{when } Y > K_{IRB} \end{array} \right\}$$

$$(ii) K[Y] = (1 - h) \cdot [(1 - \beta[Y; a, b]) \cdot Y + \beta[Y; a + 1, b] \cdot c]$$

$$(iii) h = \left(1 - \frac{K_{IRB}}{EWALGD}\right)^N$$

$$(iv) a = g \cdot c$$

$$(v) b = g \cdot (1 - c)$$

$$(vi) c = \frac{K_{IRB}}{1 - h}$$

$$(vii) g = \frac{(1 - c) \cdot c}{f} - 1$$

$$(viii) f = \frac{v + K_{IRB}^2}{1 - h} - c^2 + \frac{(1 - K_{IRB}) \cdot K_{IRB} - v}{(1 - h) \cdot 1000}$$

$$(ix) v = K_{IRB} \cdot \frac{(EWALGD - K_{IRB}) + .25 \cdot (1 - EWALGD)}{N}$$

$$(x) d = 1 - (1 - h) \cdot (1 - \beta[K_{IRB}; a, b])$$

In these expressions, $\beta [Y; a, b]$ refers to the cumulative beta distribution with parameters a and b evaluated at Y . In the case where $N = 1$ and $EWALGD = 100$ percent, $S[Y]$ in formula (1) must be calculated with $K[Y]$ set equal to the product of K_{IRB} and Y , and d set equal to $1 - K_{IRB}$. The major inputs to the SFA formula (UE , TP , K_{IRB} , L , T , $EWALGD$, and N) are defined below and in section 45 of the final rule.

The agencies are modifying the SFA treatment of certain high risk securitization exposures in the final rule. Under the proposed treatment described above, a bank would have to deduct from total capital any securitization exposure with a SFA risk weight equal to 1,250 percent. Under certain circumstances, however, a slight increase in the thickness of the tranche that contains the securitization exposure (T), holding other SFA risk parameters fixed, could cause the exposure's SFA risk-weight to fall below 1,250 percent. As a result, the bank would not deduct any part of the exposure from capital and would, instead, reflect the entire amount of the SFA risk-based capital requirement in its risk-weighted assets. Consistent with the New Accord,⁹⁷ the agencies have removed this anomaly from the final rule. Under the final rule a bank must deduct from total capital any part of a securitization exposure that incurs a 1,250 percent risk weight under the SFA (that is, any part of a securitization exposure covering loss rates on the underlying assets between zero and K_{IRB}). Any part of a securitization exposure that incurs less than a 1,250 percent risk weight must be risk weighted rather than deducted.

To illustrate, suppose that an exposure's SFA capital requirement equaled \$15, and UE , TP , K_{IRB} , and L equaled \$1000, 1.0, 0.10, and 0.095, respectively. The bank

⁹⁷ New Accord, Annex 7.

must deduct from total capital \$5 ($UE \times TP \times (K_{IRB} - L)$), and the exposure's risk-weighted asset amount would be \$125 ($(\$15 - \$5) \times 12.5$).

The specific securitization exposures that are subject to this deduction treatment under the SFA may change over time in response to variations in the credit quality of the underlying exposures. For example, if the pool's IRB capital requirement were to increase after the inception of a securitization, additional portions of unrated securitization exposures may fall below K_{IRB} and thus become subject to deduction under the SFA. Therefore, if at the inception of a securitization a bank owns an unrated securitization exposure well in excess of K_{IRB} , the capital requirement on the exposure could climb rapidly in the event of marked deterioration in the credit quality of the underlying exposures and the bank may be required to deduct the exposure.

The SFA formula effectively imposes a 56 basis point minimum risk-based capital requirement (8 percent of the 7 percent risk weight) per dollar of securitization exposure. Although such a floor may impose a capital requirement that is too high for some securitization exposures, the agencies continue to believe that some minimum prudential capital requirement is appropriate in the securitization context. This 7 percent risk-weight floor is also consistent with the lowest capital requirement available under the RBA and, thus, should reduce incentives for regulatory capital arbitrage.

The SFA formula is a blend of credit risk modeling results and supervisory judgment. The function $S[Y]$ incorporates two distinct features. The first is a pure model-based estimate of the pool's aggregate systematic or non-diversifiable credit risk that is attributable to a first loss position covering losses up to and including Y . Because the tranche of interest covers losses over a specified range (defined in terms of L and T),

the tranche's systematic risk can be represented as $S[L+T] - S[L]$. The second feature involves a supervisory add-on primarily intended to avoid behavioral distortions associated with what would otherwise be a discontinuity in capital requirements for relatively thin mezzanine tranches lying just below and just above the K_{IRB} boundary. Without this add-on, all tranches at or below K_{IRB} would be deducted from capital, whereas a very thin tranche just above K_{IRB} would incur a pure model-based percentage capital requirement that could vary between zero and one, depending on the number of effective underlying exposures (N). The supervisory add-on applies primarily to positions just above K_{IRB} , and its quantitative effect diminishes rapidly as the distance from K_{IRB} widens.

Apart from the risk-weight floor and other supervisory adjustments described above, the supervisory formula attempts to be as consistent as possible with the parameters and assumptions of the IRB approach that would apply to the underlying exposures if held directly by a bank.⁹⁸ The specification of $S[Y]$ assumes that K_{IRB} is an accurate measure of the total systematic credit risk of the pool of underlying exposures and that a securitization merely redistributes this systematic risk among its various tranches. In this way, $S[Y]$ embodies precisely the same asset correlations as are assumed elsewhere within the IRB approach. In addition, this specification embodies the result that a pool's systematic risk (K_{IRB}) tends to be redistributed toward more senior tranches as N declines.⁹⁹ The importance of pool granularity depends on the pool's average loss severity rate, $EWALGD$. For small values of N , the framework implies that,

⁹⁸ The conceptual basis for specification of $K[x]$ is developed in Michael B. Gordy and David Jones, "Random Tranches," *Risk* (March 2003), 16(3), 78-83.

⁹⁹ See Michael Pykhtin and Ashish Dev, "Coarse-grained CDOs," *Risk* (January 2003), 16(1), 113-116.

as EWALGD increases, systematic risk is shifted toward senior tranches. For highly granular pools, such as securitizations of retail exposures, EWALGD would have no influence on the SFA capital requirement.

Inputs to the SFA formula

Consistent with the proposal, the final rule defines the seven inputs into the SFA formula as follows:

(i) Amount of the underlying exposures (UE). This input (measured in dollars) is the EAD of any underlying wholesale and retail exposures plus the amount of any underlying exposures that are securitization exposures (as defined in section 42(e) of the proposed rule) plus the adjusted carrying value of any underlying equity exposures (as defined in section 51(b) of the proposed rule). UE also includes any funded spread accounts, cash collateral accounts, and other similar funded credit enhancements.

(ii) Tranche percentage (TP). TP is the ratio of (i) the amount of the bank's securitization exposure to (ii) the amount of the securitization tranche that contains the bank's securitization exposure.

(iii) K_{IRB} . K_{IRB} is the ratio of (i) the risk-based capital requirement for the underlying exposures plus the ECL of the underlying exposures (all as determined as if the underlying exposures were directly held by the bank) to (ii) UE. The definition of K_{IRB} includes the ECL of the underlying exposures in the numerator because if the bank held the underlying exposures on its balance sheet, the bank also would hold reserves against the exposures.

The calculation of K_{IRB} must reflect the effects of any credit risk mitigant applied to the underlying exposures (either to an individual underlying exposure, a group of

underlying exposures, or to the entire pool of underlying exposures). In addition, all assets related to the securitization must be treated as underlying exposures for purposes of the SFA, including assets in a reserve account (such as a cash collateral account).

In practice, a bank's ability to calculate K_{IRB} will often determine whether it can use the SFA or whether it must instead deduct an unrated securitization exposure from total capital. As noted above, there is a need for flexibility when the estimation of K_{IRB} is constrained by data shortcomings, such as when the bank holding the securitization exposure is not the servicer of the underlying assets. The final rule clarifies that the simplified approach for eligible purchased wholesale exposures (Section 31) may be used for calculating K_{IRB} .

To reduce the operational burden of estimating K_{IRB} , several commenters urged the agencies to develop a simple look-through approach such that when all of the assets held by the SPE are externally rated, K_{IRB} could be determined directly from the external ratings of these assets. The agencies believe that a look-through approach for estimating K_{IRB} would be inconsistent with the New Accord and would increase the potential for capital arbitrage. The agencies note that several simplified methods for estimating risk-weighted assets for the underlying exposures for the purposes of computing K_{IRB} are provided in other parts of the framework. For example, the simplified approach for eligible purchased wholesale exposures in section 31 may be available when a bank can estimate risk parameters for segments of underlying wholesale exposures but not for each of the individual exposures. If the assets held by the SPE are securitization exposures with external ratings, the RBA would be used to determine risk-weighted assets for the underlying exposures based on these ratings. If the assets held by the SPE represent

shares in an investment company (that is, unleveraged, pro rata ownership interests in a pool of financial assets), the bank may be eligible to determine risk-weighted assets for the underlying exposures using the Alternative Modified Look-Through Approach of Section 54 (d) based on investment limits specified in the program's prospectus or similar documentation.

(iv) Credit enhancement level (L). L is the ratio of (i) the amount of all securitization exposures subordinated to the securitization tranche that contains the bank's securitization exposure to (ii) UE. Banks must determine L before considering the effects of any tranche-specific credit enhancements (such as third-party guarantees that benefit only a single tranche). Any after-tax gain-on-sale or CEIOs associated with the securitization may not be included in L.

Any reserve account funded by accumulated cash flows from the underlying exposures that is subordinated to the tranche that contains the bank's securitization exposure may be included in the numerator and denominator of L to the extent cash has accumulated in the account. Unfunded reserve accounts (reserve accounts that are to be funded from future cash flows from the underlying exposures) may not be included in the calculation of L.

In some cases, the purchase price of receivables will reflect a discount that provides credit enhancement (for example, first loss protection) for all or certain tranches. When this arises, L should be calculated inclusive of this discount if the discount provides credit enhancement for the securitization exposure.

(v) Thickness of tranche (T). T is the ratio of (i) the size of the tranche that contains the bank's securitization exposure to (ii) UE.

(vi) Effective number of exposures (N). As a general matter, the effective number of exposures is calculated as follows:

$$N = \frac{(\sum_i EAD_i)^2}{\sum_i EAD_i^2}$$

where EAD_i represents the EAD associated with the i^{th} instrument in the pool of underlying exposures. For purposes of computing N, multiple exposures to one obligor must be treated as a single underlying exposure. In the case of a re-securitization (a securitization in which some or all of the underlying exposures are themselves securitization exposures), a bank must treat each underlying securitization exposure as a single exposure and must not look through to the exposures that secure the underlying securitization exposures.

N represents the granularity of a pool of underlying exposures using an “effective” number of exposures concept rather than a “gross” number of exposures concept to appropriately assess the diversification of pools that have individual underlying exposures of different sizes. An approach that simply counts the gross number of underlying exposures in a pool treats all exposures in the pool equally. This simplifying assumption could radically overestimate the granularity of a pool with numerous small exposures and one very large exposure. The effective exposure approach captures the notion that the risk profile of such an unbalanced pool is more like a pool of several medium-sized exposures than like a pool of a large number of equally sized small exposures.

For example, suppose Pool A contains four loans with EADs of \$100 each. Under the formula set forth above, N for Pool A would be four, precisely equal to the actual number of exposures. Suppose Pool B also contains four loans: one loan with an EAD of \$100 and three loans with an EAD of \$1. Although both pools contain four loans, Pool B is much less diverse and granular than Pool A because Pool B is dominated by the presence of a single \$100 loan. Intuitively, therefore, N for Pool B should be closer to one than to four. Under the formula in the rule, N for Pool B is calculated as follows:

$$N = \frac{(100 + 1 + 1 + 1)^2}{100^2 + 1^2 + 1^2 + 1^2} = \frac{10,609}{10,003} = 1.06$$

As noted above, when calculating N for a re-securitization, a bank must treat each underlying securitization exposure as an exposure to a single obligor. This conservative treatment addresses the concern that AVCs among securitization exposures can be much greater than the AVCs among the underlying individual assets securing these securitization exposures. Because the framework's simple approach to re-securitizations may result in the differential treatment of economically similar securitization exposures, the agencies sought comment on alternative approaches for determining the N of a re-securitization. While a number of commenters urged that a bank be permitted to calculate N for re-securitizations of asset-backed securities by looking through to the underlying pools of assets securing these securities, none provided theoretical or empirical evidence to support this recommendation. Absent such evidence, the final rule remains consistent with New Accord's measurement of N for re-securitizations.

(vii) Exposure-weighted average loss given default (EWALGD). The EWALGD is calculated as:

$$EWALGD = \frac{\sum_i LGD_i \cdot EAD_i}{\sum_i EAD_i}$$

where LGD_i represents the average LGD associated with all exposures to the i^{th} obligor. In the case of a re-securitization, an LGD of 100 percent must be assumed for any underlying exposure that is a securitization exposure.

Although this treatment of EWALGD is consistent with the New Accord, several commenters asserted that assigning an LGD of 100 percent to all securitization exposures in the underlying pool was excessively conservative, particularly for underlying exposures that are senior, highly rated asset-backed securities. The agencies acknowledge that in many situations an LGD significantly lower than 100 percent may be appropriate. However, determination of the appropriate LGD depends on many complex factors, including the characteristics of the underlying assets and structural features of the securitization, such as the securitization exposure's thickness. Moreover, for thin securitization exposures or certain mezzanine positions backed by low-quality assets, the LGD may in fact be close to 100 percent. In this light, the agencies believe that any simple alternative to the New Accord's measurement of EWALGD would increase the potential for capital arbitrage, and any more risk-sensitive alternative would take considerable time to develop. Thus, the agencies have retained the proposed treatment, consistent with the New Accord.

Under certain conditions, a bank may employ the following simplifications to the SFA. First, for securitizations all of whose underlying exposures are retail exposures, a bank may set $h = 0$ and $v = 0$. In addition, if the share of a securitization corresponding

to the largest underlying exposure (C_1) is no more than 0.03 (or 3 percent of the underlying exposures), then for purposes of the SFA the bank may set N equal to the following amount:

$$N = \frac{1}{C_1 C_m + \left(\frac{C_m - C_1}{m - 1} \right) \max(1 - m C_1, 0)}$$

where C_m is the ratio of (i) the sum of the amounts of the largest ‘ m ’ underlying exposures of the securitization; to (ii) UE. A bank may select the level of ‘ m ’ using its discretion. For example, if the three largest underlying exposures of a securitization represent 15 percent of the pool of underlying exposures, C_3 for the securitization is 0.15. As an alternative simplification option, if only C_1 is available, and C_1 is no more than 0.03, then the bank may set $N = 1/C_1$. Under both simplification options a bank may set EWALGD = 0.50 unless one or more of the underlying exposures is a securitization exposure. If one or more of the underlying exposures is a securitization exposure, a bank using a simplification option must set EWALGD = 1.

5. Eligible market disruption liquidity facilities

Under the proposed SFA, there was no special treatment provided for ABCP liquidity facilities that could be drawn upon only during periods of general market disruption. In contrast, the New Accord provides a more favorable capital treatment within the SFA for eligible market disruption liquidity facilities than for other liquidity facilities. Under the New Accord, an eligible market disruption liquidity facility is a liquidity facility that supports an ABCP program and that (i) is subject to an asset quality

test that precludes funding of underlying exposures that are in default; (ii) can be used to fund only those exposures that have an investment-grade external rating at the time of funding, if the underlying exposures that the facility must fund against are externally rated exposures at the time that the exposures are sold to the program; and (iii) may only be drawn in the event of a general market disruption.

The agencies sought comment on the prevalence of eligible market disruption liquidity facilities that might be subject to the SFA and, by implication, whether the final rule should incorporate the treatment provided in the New Accord. Commenters responded that eligible market disruption liquidity facilities currently are not a material product line for U.S. banks, but urged international consistency in this area. To limit additional complexity in the final rule, and because U.S. banks have limited exposure to eligible market disruption liquidity facilities, the agencies are not including a separate treatment of eligible market disruption liquidity facilities in the final rule. The agencies believe that the final rule provide adequate flexibility to determine an appropriate capital requirement for market disruption liquidity facilities.

6. CRM for securitization exposures

The treatment of CRM for securitization exposures differs from that applicable to wholesale and retail exposures, and is largely unchanged from the proposal. An originating bank that has obtained a credit risk mitigant to hedge its securitization exposure to a synthetic or traditional securitization that satisfies the operational criteria in section 41 of the final rule may recognize the credit risk mitigant, but only as provided in section 46 of the final rule. An investing bank that has obtained a credit risk mitigant to hedge a securitization exposure also may recognize the credit risk mitigant, but only as

provided in section 46. A bank that has used the RBA or IAA to calculate its risk-based capital requirement for a securitization exposure whose external or inferred rating (or equivalent internal rating under the IAA) reflects the benefits of a particular credit risk mitigant provided to the associated securitization or that supports some or all of the underlying exposures, however, may not use the securitization credit risk mitigation rules to further reduce its risk-based capital requirement for the exposure based on that credit risk mitigant. For example, a bank that owns a AAA-rated asset-backed security that benefits from an insurance wrap that is part of the securitization transaction must calculate its risk-based capital requirement for the security strictly under the RBA. No additional credit is given for the presence of the insurance wrap. On the other hand, if a bank owns a BBB-rated asset-backed security and obtains a credit default swap from a AAA-rated counterparty to protect the bank from losses on the security, the bank would be able to apply the securitization CRM rules to recognize the risk mitigating effects of the credit default swap and determine the risk-based capital requirement for the position.

As under the proposal, the final rule contains a treatment of CRM for securitization exposures separate from the treatment for wholesale and retail exposures because the wholesale and retail exposure CRM approaches rely on substitutions of, or adjustments to, the risk parameters of the hedged exposure. Because the securitization framework does not rely on risk parameters to determine risk-based capital requirements for securitization exposures, a different treatment of CRM for securitization exposures is necessary.

The securitization CRM rules, like the wholesale and retail CRM rules, address collateral separately from guarantees and credit derivatives. A bank is not permitted to

recognize collateral other than financial collateral as a credit risk mitigant for securitization exposures. A bank may recognize financial collateral in determining the bank's risk-based capital requirement for a securitization exposure that is not a repo-style transaction, an eligible margin loan, or an OTC derivative for which the bank has reflected collateral in its determination of exposure amount under section 32 of the rule by using a collateral haircut approach. The bank's risk-based capital requirement for a collateralized securitization exposure is equal to the risk-based capital requirement for the securitization exposure as calculated under the RBA or the SFA multiplied by the ratio of adjusted exposure amount (SE*) to original exposure amount (SE), where:

(i) $SE^* = \max \{0, [SE - C \times (1 - H_s - H_{fx})]\}$;

(ii) SE = the amount of the securitization exposure (as calculated under section 42(e) of the rule);

(iii) C = the current market value of the collateral;

(iv) H_s = the haircut appropriate to the collateral type; and

(v) H_{fx} = the haircut appropriate for any currency mismatch between the collateral and the exposure.

Where the collateral is a basket of different asset types or a basket of assets denominated in different currencies, the haircut on the basket is $H = \sum_i a_i H_i$, where a_i is the current market value of the asset in the basket divided by the current market value of all assets in the basket and H_i is the haircut applicable to that asset.

With the prior written approval of its primary Federal supervisor, a bank may calculate haircuts using its own internal estimates of market price volatility and foreign exchange volatility, subject to the requirements for use of own-estimates haircuts

contained in section 32 of the rule. Banks that use own-estimates haircuts for collateralized securitization exposures must assume a minimum holding period (T_M) for securitization exposures of 65 business days.

A bank that does not qualify for and use own-estimates haircuts must use the collateral type haircuts (H_s) in Table 3 of the final rule and must use a currency mismatch haircut (H_{fx}) of 8 percent if the exposure and the collateral are denominated in different currencies. To reflect the longer-term nature of securitization exposures as compared to securities financing transactions, however, these standard supervisory haircuts (which are based on a ten-business-day holding period and daily marking-to-market and remargining) must be adjusted to a 65-business-day holding period (the approximate number of business days in a calendar quarter) by multiplying them by the square root of 6.5 (2.549510). A bank also must adjust the standard supervisory haircuts upward on the basis of a holding period longer than 65 business days where and as appropriate to take into account the illiquidity of the collateral.

A bank may only recognize an eligible guarantee or eligible credit derivative provided by an eligible securitization guarantor in determining the bank's risk-based capital requirement for a securitization exposure. The definitions of eligible guarantee and eligible credit derivative apply to both the wholesale and retail frameworks and the securitization framework. An eligible securitization guarantor is defined to mean (i) a sovereign entity, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, the European Commission, a Federal Home Loan Bank, the Federal Agricultural Mortgage Corporation (Farmer Mac), a multilateral development bank, a depository institution (as defined in section 3 of the Federal Deposit Insurance

Act (12 U.S.C. 1813)), a bank holding company (as defined in section 2 of the Bank Holding Company Act (12 U.S.C. 1841)), a savings and loan holding company (as defined in 12 U.S.C. 1467a) provided all or substantially all of the holding company's activities are permissible for a financial holding company under 12 U.S.C. 1843(k)), a foreign bank (as defined in section 211.2 of the Federal Reserve Board's Regulation K (12 CFR 211.2)), or a securities firm; (ii) any other entity (other than a securitization SPE) that has issued and outstanding an unsecured long-term debt security without credit enhancement that has a long-term applicable external rating in one of the three highest investment-grade rating categories; or (iii) any other entity (other than a securitization SPE) that has a PD assigned by the bank that is lower than or equivalent to the PD associated with a long-term external rating in the third-highest investment-grade rating category.

A bank must use the following procedures if the bank chooses to recognize an eligible guarantee or eligible credit derivative provided by an eligible securitization guarantor in determining the bank's risk-based capital requirement for a securitization exposure. If the protection amount of the eligible guarantee or eligible credit derivative equals or exceeds the amount of the securitization exposure, the bank must set the risk-weighted asset amount for the securitization exposure equal to the risk-weighted asset amount for a direct exposure to the eligible securitization guarantor (as determined in the wholesale risk weight function described in section 31 of the final rule), using the bank's PD for the guarantor, the bank's LGD for the guarantee or credit derivative, and an EAD equal to the amount of the securitization exposure (as determined in section 42(e) of the final rule).

If the protection amount of the eligible guarantee or eligible credit derivative is less than the amount of the securitization exposure, the bank must divide the securitization exposure into two exposures in order to recognize the guarantee or credit derivative. The risk-weighted asset amount for the securitization exposure is equal to the sum of the risk-weighted asset amount for the covered portion and the risk-weighted asset amount for the uncovered portion. The risk-weighted asset amount for the covered portion is equal to the risk-weighted asset amount for a direct exposure to the eligible securitization guarantor (as determined in the wholesale risk weight function described in section 31 of the rule), using the bank's PD for the guarantor, the bank's LGD for the guarantee or credit derivative, and an EAD equal to the protection amount of the credit risk mitigant. The risk-weighted asset amount for the uncovered portion is equal to the product of (i) 1.0 minus the ratio of the protection amount of the eligible guarantee or eligible credit derivative divided by the amount of the securitization exposure; and (ii) the risk-weighted asset amount for the securitization exposure without the credit risk mitigant (as determined in sections 42-45 of the final rule).

For any hedged securitization exposure, the bank must make applicable adjustments to the protection amount as required by the maturity mismatch, currency mismatch, and lack of restructuring provisions in paragraphs (d), (e), and (f) of section 33 of the final rule. The agencies have clarified in the final rule that the mismatch provisions apply to any hedged securitization exposure and any more senior securitization exposure that benefits from the hedge. In the context of a synthetic securitization, when an eligible guarantee or eligible credit derivative covers multiple hedged exposures that have different residual maturities, the bank must use the longest

residual maturity of any of the hedged exposures as the residual maturity of all the hedged exposures. If the risk-weighted asset amount for a guaranteed securitization exposure is greater than the risk-weighted asset amount for the securitization exposure without the guarantee or credit derivative, a bank may elect not to recognize the guarantee or credit derivative.

When a bank recognizes an eligible guarantee or eligible credit derivative provided by an eligible securitization guarantor in determining the bank's risk-based capital requirement for a securitization exposure, the bank also must (i) calculate ECL for the protected portion of the exposure using the same risk parameters that it uses for calculating the risk-weighted asset amount of the exposure (that is, the PD associated with the guarantor's rating grade, the LGD of the guarantee, and an EAD equal to the protection amount of the credit risk mitigant); and (ii) add this ECL to the bank's total ECL.

7. Synthetic securitizations

Background

In a synthetic securitization, an originating bank uses credit derivatives or guarantees to transfer the credit risk, in whole or in part, of one or more underlying exposures to third-party protection providers. The credit derivative or guarantee may be either collateralized or uncollateralized. In the typical synthetic securitization, the underlying exposures remain on the balance sheet of the originating bank, but a portion of the originating bank's credit exposure is transferred to the protection provider or covered by collateral pledged by the protection provider.

In general, the final rule's treatment of synthetic securitizations is identical to that of traditional securitizations and to that described in the proposal. The operational requirements for synthetic securitizations are more detailed than those for traditional securitizations and are intended to ensure that the originating bank has truly transferred credit risk of the underlying exposures to one or more third-party protection providers.

Although synthetic securitizations typically employ credit derivatives, which might suggest that such transactions would be subject to the CRM rules in section 33 of the final rule, banks must apply the securitization framework when calculating risk-based capital requirements for a synthetic securitization exposure. Banks may ultimately be redirected to the securitization CRM rules to adjust the securitization framework capital requirement for an exposure to reflect the CRM technique used in the transaction.

Operational requirements for synthetic securitizations

For synthetic securitizations, an originating bank may recognize for risk-based capital purposes the use of CRM to hedge, or transfer credit risk associated with, underlying exposures only if each of the following conditions is satisfied:

(i) The credit risk mitigant is financial collateral, an eligible credit derivative from an eligible securitization guarantor (defined above), or an eligible guarantee from an eligible securitization guarantor.

(ii) The bank transfers credit risk associated with the underlying exposures to third-party investors, and the terms and conditions in the credit risk mitigants employed do not include provisions that:

(A) Allow for the termination of the credit protection due to deterioration in the credit quality of the underlying exposures;

(B) Require the bank to alter or replace the underlying exposures to improve the credit quality of the underlying exposures;

(C) Increase the bank's cost of credit protection in response to deterioration in the credit quality of the underlying exposures;

(D) Increase the yield payable to parties other than the bank in response to a deterioration in the credit quality of the underlying exposures; or

(E) Provide for increases in a retained first loss position or credit enhancement provided by the bank after the inception of the securitization.

(iii) The bank obtains a well-reasoned opinion from legal counsel that confirms the enforceability of the credit risk mitigant in all relevant jurisdictions.

(iv) Any clean-up calls relating to the securitization are eligible clean-up calls (as discussed above).

Failure to meet the above operational requirements for a synthetic securitization prevents the originating bank from using the securitization framework and requires the originating bank to hold risk-based capital against the underlying exposures as if they had not been synthetically securitized. A bank that provides credit protection to a synthetic securitization must use the securitization framework to compute risk-based capital requirements for its exposures to the synthetic securitization even if the originating bank failed to meet one or more of the operational requirements for a synthetic securitization.

Consistent with the treatment of traditional securitization exposures, a bank must use the RBA for synthetic securitization exposures that have an appropriate number of external or inferred ratings. For an originating bank, the RBA will typically be used only for the most senior tranche of the securitization, which often has an inferred rating. If a

bank has a synthetic securitization exposure that does not have an external or inferred rating, the bank must apply the SFA to the exposure (if the bank and the exposure qualify for use of the SFA) without considering any CRM obtained as part of the synthetic securitization. Then, if the bank has obtained a credit risk mitigant on the exposure as part of the synthetic securitization, the bank may apply the securitization CRM rules to reduce its risk-based capital requirement for the exposure. For example, if the credit risk mitigant is financial collateral, the bank may use the standard supervisory or own-estimates haircuts to reduce its risk-based capital requirement. If the bank is a protection provider to a synthetic securitization and has obtained a credit risk mitigant on its exposure, the bank may also apply the securitization CRM rules in section 46 of the final rule to reduce its risk-based capital requirement on the exposure. If neither the RBA nor the SFA is available, a bank must deduct the exposure from regulatory capital.

First-loss tranches

If a bank has a first-loss position in a pool of underlying exposures in connection with a synthetic securitization, the bank must deduct the position from regulatory capital unless (i) the position qualifies for use of the RBA or (ii) the bank and the position qualify for use of the SFA and K_{IRB} is greater than L.

Mezzanine tranches

In a typical synthetic securitization, an originating bank obtains credit protection on a mezzanine, or second-loss, tranche of a synthetic securitization by either (i) obtaining a credit default swap or financial guarantee from a third-party financial institution; or (ii) obtaining a credit default swap or financial guarantee from an SPE whose obligations are secured by financial collateral.

For a bank that creates a synthetic mezzanine tranche by obtaining an eligible credit derivative or guarantee from an eligible securitization guarantor, the bank generally will treat the notional amount of the credit derivative or guarantee (as adjusted to reflect any maturity mismatch, lack of restructuring coverage, or currency mismatch) as a wholesale exposure to the protection provider and use the IRB approach for wholesale exposures to determine the bank's risk-based capital requirement for the exposure. A bank that creates the synthetic mezzanine tranche by obtaining from a non-eligible securitization guarantor a guarantee or credit derivative that is collateralized by financial collateral generally will (i) first use the SFA to calculate the risk-based capital requirement on the exposure (ignoring the guarantee or credit derivative and the associated collateral); and (ii) then use the securitization CRM rules to calculate any reductions to the risk-based capital requirement resulting from the associated collateral. The bank may look only to the protection provider from which it obtains the guarantee or credit derivative when determining its risk-based capital requirement for the exposure (that is, if the protection provider hedges the guarantee or credit derivative with a guarantee or credit derivative from a third party, the bank may not look through the protection provider to that third party when calculating its risk-based capital requirement for the exposure).

For a bank providing credit protection on a mezzanine tranche of a synthetic securitization, the bank must use the RBA to determine the risk-based capital requirement for the exposure if the exposure has an external or inferred rating. If the exposure does not have an external or inferred rating and the exposure qualifies for use of the SFA, the bank may use the SFA to calculate the risk-based capital requirement for the exposure. If

neither the RBA nor the SFA are available, the bank must deduct the exposure from regulatory capital. If a bank providing credit protection on the mezzanine tranche of a synthetic securitization obtains a credit risk mitigant to hedge its exposure, the bank may apply the securitization CRM rules to reflect the risk reduction achieved by the credit risk mitigant.

Super-senior tranches

A bank that has the most senior position in a pool of underlying exposures in connection with a synthetic securitization must use the RBA to calculate its risk-based capital requirement for the exposure if the exposure has at least one external or inferred rating (in the case of an investing bank) or at least two external or inferred ratings (in the case of an originating bank). If the super-senior tranche does not have an external or inferred rating and the bank and the exposure qualify for use of the SFA, the bank may use the SFA to calculate the risk-based capital requirement for the exposure. If neither the RBA nor the SFA are available, the bank must deduct the exposure from regulatory capital. If an investing bank in the super-senior tranche of a synthetic securitization obtains a credit risk mitigant to hedge its exposure, however, the investing bank may apply the securitization CRM rules to reflect the risk reduction achieved by the credit risk mitigant.

8. Nth-to-default credit derivatives

Credit derivatives that provide credit protection only for the nth defaulting reference exposure in a group of reference exposures (nth-to-default credit derivatives) are similar to synthetic securitizations that provide credit protection only after the first-loss tranche has defaulted or become a loss. A simplified treatment is available to banks that

purchase and provide such credit protection. A bank that obtains credit protection on a group of underlying exposures through a first-to-default credit derivative must determine its risk-based capital requirement for the underlying exposures as if the bank had synthetically securitized only the underlying exposure with the lowest capital requirement and had obtained no credit risk mitigant on the other (higher capital requirement) underlying exposures. If the bank purchases credit protection on a group of underlying exposures through an n^{th} -to-default credit derivative (other than a first-to-default credit derivative), it may only recognize the credit protection for risk-based capital purposes either if it has obtained credit protection on the same underlying exposures in the form of first-through-($n-1$)-to-default credit derivatives, or if $n-1$ of the underlying exposures have already defaulted. In such a case, the bank must again determine its risk-based capital requirement for the underlying exposures as if the bank had only synthetically securitized the $n - 1$ underlying exposures with the lowest capital requirement and had obtained no credit risk mitigant on the other underlying exposures.

A bank that provides credit protection on a group of underlying exposures through a first-to-default credit derivative must determine its risk-weighted asset amount for the derivative by applying the RBA (if the derivative qualifies for the RBA) or, if the derivative does not qualify for the RBA, by setting its risk-weighted asset amount for the derivative equal to the product of (i) the protection amount of the derivative; (ii) 12.5; and (iii) the sum of the risk-based capital requirements of the individual underlying exposures, up to a maximum of 100 percent. If a bank provides credit protection on a group of underlying exposures through an n^{th} -to-default credit derivative (other than a first-to-default credit derivative), the bank must determine its risk-weighted asset amount

for the derivative by applying the RBA (if the derivative qualifies for the RBA) or, if the derivative does not qualify for the RBA, by setting the risk-weighted asset amount for the derivative equal to the product of (i) the protection amount of the derivative; (ii) 12.5; and (iii) the sum of the risk-based capital requirements of the individual underlying exposures (excluding the n-1 underlying exposures with the lowest risk-based capital requirements), up to a maximum of 100 percent.

For example, a bank provides credit protection in the form of a second-to-default credit derivative on a basket of five reference exposures. The derivative is unrated and the protection amount of the derivative is \$100. The risk-based capital requirements of the underlying exposures are 2.5 percent, 5.0 percent, 10.0 percent, 15.0 percent, and 20 percent. The risk-weighted asset amount of the derivative would be $\$100 \times 12.5 \times (.05 + .10 + .15 + .20)$ or \$625. If the derivative were externally rated in the lowest investment-grade rating category with a positive designation, the risk-weighted asset amount would be $\$100 \times 0.50$ or \$50.

9. Early amortization provisions

Background

Many securitizations of revolving credit facilities (for example, credit card receivables) contain provisions that require the securitization to be wound down and investors to be repaid if the excess spread falls below a certain threshold.¹⁰⁰ This decrease in excess spread may, in some cases, be caused by deterioration in the credit

¹⁰⁰ The final rule defines excess spread for a period as gross finance charge collections and other income received by the securitization SPE (including market interchange fees) over the period minus interest paid to holders of securitization exposures, servicing fees, charge-offs, and other senior trust similar expenses of the securitization SPE over the period, divided by the principal balance of the underlying exposures at the end of the period.

quality of the underlying exposures. An early amortization event can increase a bank's capital needs if new draws on the revolving credit facilities need to be financed by the bank using on-balance sheet sources of funding. The payment allocations used to distribute principal and finance charge collections during the amortization phase of these transactions also can expose a bank to greater risk of loss than in other securitization transactions. The final rule, consistent with the proposed rule, assesses a risk-based capital requirement that, in general, is linked to the likelihood of an early amortization event to address the risks that early amortization of a securitization poses to originating banks.

Consistent with the proposed rule, the final rule defines an early amortization provision as a provision in a securitization's governing documentation that, when triggered, causes investors in the securitization exposures to be repaid before the original stated maturity of the securitization exposure, unless the provision is solely triggered by events not related to the performance of the underlying exposures or the originating bank (such as material changes in tax laws or regulations).

Under the proposed rule, a bank would not be required to hold regulatory capital against the investors' interest if early amortization is solely triggered by events not related to the performance of the underlying exposures or the originating bank, such as material changes in tax laws or regulation. Under the New Accord, a bank is also not required to hold regulatory capital against the investors' interest if (i) the securitization has a replenishment structure in which the individual underlying exposures do not revolve and the early amortization ends the ability of the originating bank to add new underlying exposures to the securitization; (ii) the securitization involves revolving assets

and contains early amortization features that mimic term structures; or (iii) investors in the securitization remain fully exposed to future draws by borrowers on the underlying exposures even after the occurrence of early amortization. The agencies sought comment on the appropriateness of these additional exemptions in the U.S. markets for revolving securitizations. Most commenters asserted that the exemptions provided in the New Accord are prudent and should be adopted by the agencies in order to avoid placing U.S. banking organizations at a competitive disadvantage relative to foreign competitors. The agencies generally agree with this view of exemption (iii), above, and the definition of early amortization provision in the final rule incorporates this exemption. The agencies have not included exemption (i) or (ii). The agencies do not believe that the exemption for non-revolving exposures is meaningful because the early amortization provisions apply only to securitizations with revolving underlying exposures. The agencies also do not believe that the exemption for early amortization features that mimic term structures is meaningful in the U.S. market.

Under the final rule, as under the proposed rule, an originating bank must generally hold risk-based capital against the sum of the originating bank's interest and the investors' interest arising from a securitization that contains an early amortization provision. An originating bank must compute its capital requirement for its interest using the hierarchy of approaches for securitization exposures as described above. The originating bank's risk-weighted asset amount for the investors' interest in the securitization is equal to the product of the following five quantities: (i) the EAD associated with the investors' interest; (ii) the appropriate CF as determined below; (iii) K_{IRB} ; (iv) 12.5; and (v) the proportion of the underlying exposures in which the

borrower is permitted to vary the drawn amount within an agreed limit under a line of credit. The agencies added (v) to the final rule because, for securitizations containing both revolving and non-revolving underlying exposures, only the revolving underlying exposures give rise to the risk of early amortization.

Under the final rule, consistent with the proposal, the investors' interest with respect to a revolving securitization captures both the drawn balances and undrawn lines of the underlying exposures that are allocated to the investors in the securitization. The EAD associated with the investors' interest is equal to the EAD of the underlying exposures multiplied by the ratio of:

- (i) the total amount of securitization exposures issued by the securitization SPE to investors; divided by
- (ii) the outstanding principal amount of underlying exposures.

In general, the applicable CF depends on whether the early amortization provision repays investors through a controlled or non-controlled mechanism and whether the underlying exposures are revolving retail credit facilities that are uncommitted (unconditionally cancelable by the bank to the fullest extent of Federal law, such as credit card receivables) or are other revolving credit facilities (for example, revolving corporate credit facilities). Consistent with the New Accord, under the proposed rule a controlled early amortization provision would meet each of the following conditions:

- (i) The originating bank has appropriate policies and procedures to ensure that it has sufficient capital and liquidity available in the event of an early amortization;
- (ii) Throughout the duration of the securitization (including the early amortization period) there is the same pro rata sharing of interest, principal, expenses, losses, fees,

recoveries, and other cash flows from the underlying exposures, based on the originating bank's and the investors' relative shares of the underlying exposures outstanding measured on a consistent monthly basis;

(iii) The amortization period is sufficient for at least 90 percent of the total underlying exposures outstanding at the beginning of the early amortization period to have been repaid or recognized as in default; and

(iv) The schedule for repayment of investor principal is not more rapid than would be allowed by straight-line amortization over an 18-month period.

An early amortization provision that does not meet any of the above criteria is a non-controlled early amortization provision.

The agencies solicited comment on the distinction between controlled and non-controlled early amortization provisions and on the extent to which banks use controlled early amortization provisions. The agencies also invited comment on the proposed definition of a controlled early amortization provision, including in particular the 18-month period set forth above. Commenters generally believed that very few, if any, revolving securitizations would meet the criteria needed to qualify for treatment as a controlled early amortization structure. One commenter maintained that a fixed 18-month straight-line amortization period was too long for certain exposures, such as prime credit cards.

The final rule is unchanged from the proposal with respect to controlled and non-controlled early amortization provisions. The agencies believe that the proposed eligibility criteria for a controlled early amortization are important indicators of the risks to which an originating bank would be exposed in the event of any early amortization.

While a fixed 18-month straight-line amortization period is unlikely to be the most appropriate period in all cases, it is a reasonable period for the vast majority of cases. The lower operational burden of using a single, fixed amortization period warrants the potential diminution in risk-sensitivity.

Controlled early amortization

Under the proposed rule, to calculate the appropriate CF for a securitization of uncommitted revolving retail exposures that contains a controlled early amortization provision, a bank would compare the three-month average annualized excess spread for the securitization to the point at which the bank is required to trap excess spread under the securitization transaction. In securitizations that do not require excess spread to be trapped, or that specify a trapping point based primarily on performance measures other than the three-month average annualized excess spread, the excess spread trapping point was 4.5 percent. The bank would divide the three-month average annualized excess spread level by the excess spread trapping point and apply the appropriate CF from Table H.

Table H – Controlled Early Amortization Provisions

	Uncommitted	Committed
Retail Credit Lines	Three-month average annualized excess spread Conversion Factor (CF)	90% CF
	133.33% of trapping point or more 0% CF	
	less than 133.33% to 100% of trapping point 1% CF	
	less than 100% to 75% of trapping point 2% CF	
	less than 75% to 50% of trapping point	

	10% CF	
	less than 50% to 25% of trapping point	
	20% CF	
	less than 25% of trapping point	
	40% CF	
Non-retail Credit Lines	90% CF	90% CF

A bank would apply a 90 percent CF for all other revolving underlying exposures (committed exposures and nonretail exposures) in securitizations containing a controlled early amortization provision. The proposed CFs for uncommitted revolving retail credit lines were much lower than for committed retail credit lines or for non-retail credit lines because of the demonstrated ability of banks to monitor and, when appropriate, to curtail promptly uncommitted retail credit lines for customers of deteriorating credit quality. Such account management tools are unavailable for committed lines, and banks may be less proactive about using such tools in the case of uncommitted non-retail credit lines owing to lender liability concerns and the prominence of broad-based, longer-term customer relationships.

Non-controlled early amortization

Under the proposed rule, to calculate the appropriate CF for securitizations of uncommitted revolving retail exposures that contain a non-controlled early amortization provision, a bank would perform the excess spread calculations described in the controlled early amortization section above and then apply the CFs in Table I.

Table I – Non-Controlled Early Amortization Provisions

	Uncommitted	Committed
Retail Credit Lines	Three-month average annualized excess spread Conversion Factor (CF)	100% CF

	133.33% of trapping point or more 0% CF	
	less than 133.33% to 100% of trapping point 5% CF	
	less than 100% to 75% of trapping point 15% CF	
	less than 75% to 50% of trapping point 50% CF	
	less than 50% of trapping point 100% CF	
Non-retail Credit Lines	100% CF	100% CF

A bank would use a 100 percent CF for all other revolving underlying exposures (committed exposures and nonretail exposures) in securitizations containing a non-controlled early amortization provision. In other words, no risk transference would be recognized for these transactions; an originating bank’s IRB capital requirement would be the same as if the underlying exposures had not been securitized.

A few commenters asserted that the proposed CFs were too high. The agencies believe, however, that the proposed CFs appropriately capture the risk to the bank of a potential early amortization event. The agencies also believe that the proposed CFs, which are consistent with the New Accord, foster consistency across national jurisdictions. Therefore, the agencies are maintaining the proposed CFs in the final rule with one exception, discussed below.

In circumstances where a securitization contains a mix of retail and nonretail exposures or a mix of committed and uncommitted exposures, a bank may take a pro rata approach to determining the CF for the securitization’s early amortization provision. If a

pro rata approach is not feasible, a bank must treat the securitization as a securitization of nonretail exposures if a single underlying exposure is a nonretail exposure and must treat the securitization as a securitization of committed exposures if a single underlying exposure is a committed exposure.

Securitizations of revolving residential mortgage exposures

The agencies sought comment on the appropriateness of the proposed 4.5 percent excess spread trapping point and on whether there were other types and levels of early amortization triggers used in securitizations of revolving retail exposures that should be addressed by the agencies. Although some commenters believed the 4.5 percent trapping point assumption was reasonable, others believed that it was inappropriate for securitizations of HELOCs. Unlike credit card securitizations, U.S. HELOC securitizations typically do not generate material excess spread and typically are structured with credit enhancements and early amortization triggers based on other factors, such as portfolio loss rates. Under the proposed treatment, banks would be required to hold capital against the potential early amortization of most U.S. HELOC securitizations at their inception, rather than only if the credit quality of the underlying exposures deteriorated. Although the New Accord does not provide an alternative methodology, the agencies concluded that the features of the U.S. HELOC securitization market warrant an alternative approach. Accordingly, the final rule allows a bank the option of applying either (i) the CFs in Tables I and J, as appropriate, or ii) a fixed CF equal to 10 percent to its securitizations for which all or substantially all of the underlying exposures are revolving residential mortgage exposures. If a bank chooses the fixed CF of 10 percent, it must use that CF for all securitizations for which all or

substantially all of the underlying exposures are revolving residential mortgage exposures. The agencies will monitor the implementation of this alternative approach to ensure that it is consistent with safety and soundness.

F. Equity exposures

1. Introduction and exposure measurement

This section describes the final rule's risk-based capital treatment for equity exposures. Consistent with the proposal, under the final rule, a bank has the option to use either a simple risk-weight approach (SRWA) or an internal models approach (IMA) for equity exposures that are not exposures to an investment fund. A bank must use a look-through approach for equity exposures to an investment fund.

Although the New Accord provides national supervisors the option to provide a grandfathering period for equity exposures – whereby for a maximum of ten years, supervisors could permit banks to exempt from the IRB treatment equity investments held at the time of the publication of the New Accord – the proposed rule did not include such a grandfathering provision. A number of commenters asserted that the proposal was inconsistent with the New Accord and would subject banks using the agencies' advanced approaches to significant competitive inequity.

The agencies continue to believe that it is not appropriate or necessary to incorporate the New Accord's optional ten-year grandfathering period for equity exposures. The grandfathering concept would reduce the risk sensitivity of the SRWA and IMA. Moreover, the IRB approach does not provide grandfathering for other types of exposures, and the agencies see no compelling reason to do so for equity exposures. Further, the agencies believe that the overall final rule approach to equity exposures

sufficiently mitigates potential competitive issues. Accordingly, the final rule does not provide a grandfathering period for equity exposures.

Under the proposed SRWA, a bank generally would assign a 300 percent risk weight to publicly traded equity exposures and a 400 percent risk weight to non-publicly traded equity exposures. Certain equity exposures to sovereigns, multilateral institutions, and public sector enterprises would have a risk weight of 0 percent, 20 percent, or 100 percent; and certain community development equity exposures, hedged equity exposures, and, up to certain limits, non-significant equity exposures would receive a 100 percent risk weight.

Alternatively, under the proposed rule, a bank that met certain minimum quantitative and qualitative requirements on an ongoing basis and obtained the prior written approval of its primary Federal supervisor could use the IMA to determine its risk-based capital requirement for all modeled equity exposures. A bank that qualified to use the IMA could apply the IMA to its publicly traded and non-publicly traded equity exposures, or could apply the IMA only to its publicly traded equity exposures. However, if the bank applied the IMA to its publicly traded equity exposures, it would be required to apply the IMA to all such exposures. Similarly, if a bank applied the IMA to both publicly traded and non-publicly traded equity exposures, it would be required to apply the IMA to all such exposures. If a bank did not qualify to use the IMA, or elected not to use the IMA, to compute its risk-based capital requirements for equity exposures, the bank would apply the SRWA to assign risk weights to its equity exposures.

Several commenters objected to the proposed restrictions on the use of the IMA. Commenters asserted that banks should be able to apply the SRWA and the IMA for

different portfolios or subsets of equity exposures, provided that banks' choices are consistent with internal risk management practices.

The agencies have not relaxed the proposed restrictions regarding use of the SRWA and IMA. The agencies remain concerned that if banks are permitted to employ either the SRWA or IMA to different equity portfolios, banks could choose one approach over the other to manipulate their risk-based capital requirements and not for risk management purposes. In addition, because of concerns about lack of transparency, it is not prudent to allow a bank to apply the IMA only to its non-publicly traded equity exposures and not its publicly traded equity exposures.

The proposed rule defined publicly traded to mean traded on (i) any exchange registered with the SEC as a national securities exchange under section 6 of the Securities Exchange Act of 1934 (15 U.S.C. 78f) or (ii) any non-U.S.-based securities exchange that is registered with, or approved by, a national securities regulatory authority and that provides a liquid, two-way market for the exposure (that is, there are enough independent bona fide offers to buy and sell so that a sales price reasonably related to the last sales price or current bona fide competitive bid and offer quotations can be determined promptly and a trade can be settled at such a price within five business days).

Several commenters explicitly supported the proposed definition of publicly traded, noting that it is reasonable and consistent with industry practice. Other commenters requested that the agencies revise the proposed definition by eliminating the requirement that a non-U.S.-based securities exchange provide a liquid, two-way market for the exposure. Commenters asserted that this requirement goes beyond the definition in the New Accord, which defines a publicly traded equity exposure as any equity

security traded on a recognized security exchange. They asserted that registration with or approval by the national securities regulatory authority should suffice, as registration or approval generally would be predicated on the existence of a two-way market.

The agencies have retained the definition of publicly traded as proposed. The agencies believe that the liquid, two-way market requirement is not in addition to the requirements of the New Accord. Rather, this requirement clarifies the intent of “traded” in the New Accord and helps to ensure that a sales price reasonably related to the last sales price or competitive bid and offer quotations can be determined promptly and settled within five business days.

A bank using either the IMA or the SRWA must determine the adjusted carrying value for each equity exposure. The proposed rule defined the adjusted carrying value of an equity exposure as:

(i) For the on-balance sheet component of an equity exposure, the bank’s carrying value of the exposure reduced by any unrealized gains on the exposure that are reflected in such carrying value but excluded from the bank’s tier 1 and tier 2 capital;¹⁰¹ and

(ii) For the off-balance sheet component of an equity exposure, the effective notional principal amount of the exposure, the size of which is equivalent to a hypothetical on-balance sheet position in the underlying equity instrument that would evidence the same change in fair value (measured in dollars) for a given small change in the price of the underlying equity instrument, minus the adjusted carrying value of the on-balance sheet component of the exposure as calculated in (i).

¹⁰¹ The potential downward adjustment to the carrying value of an equity exposure reflects the fact that 100 percent of the unrealized gains on available-for-sale equity exposures are included in carrying value but only up to 45 percent of any such unrealized gains are included in regulatory capital.

Commenters generally supported the proposed definition of adjusted carrying value and the agencies are adopting the definition as proposed with one minor clarification regarding unfunded equity commitments (discussed below).

The agencies created the definition of the effective notional principal amount of the off-balance sheet portion of an equity exposure to provide a uniform method for banks to measure the on-balance sheet equivalent of an off-balance sheet exposure. For example, if the value of a derivative contract referencing the common stock of company X changes the same amount as the value of 150 shares of common stock of company X, for a small (for example, 1 percent) change in the value of the common stock of company X, the effective notional principal amount of the derivative contract is the current value of 150 shares of common stock of company X regardless of the number of shares the derivative contract references. The adjusted carrying value of the off-balance sheet component of the derivative is the current value of 150 shares of common stock of company X minus the adjusted carrying value of any on-balance sheet amount associated with the derivative.

The final rule clarifies the determination of the effective notional principal amount of unfunded equity commitments. Under the final rule, for an unfunded equity commitment that is unconditional, a bank must use the notional amount of the commitment. If the unfunded equity commitment is conditional, the bank must use its best estimate of the amount that would be funded during economic downturn conditions.

Hedge transactions

The agencies proposed specific rules for recognizing hedged equity exposures; they received no substantive comment on these rules and are adopting these rules as

proposed. For purposes of determining risk-weighted assets under both the SRWA and the IMA, a bank may identify hedge pairs, which the final rule defines as two equity exposures that form an effective hedge provided each equity exposure is publicly traded or has a return that is primarily based on a publicly traded equity exposure. A bank may risk weight only the effective and ineffective portions of a hedge pair rather than the entire adjusted carrying value of each exposure that makes up the pair. Two equity exposures form an effective hedge if the exposures either have the same remaining maturity or each has a remaining maturity of at least three months; the hedge relationship is documented formally before the bank acquires at least one of the equity exposures; the documentation specifies the measure of effectiveness (E) (defined below) the bank will use for the hedge relationship throughout the life of the transaction; and the hedge relationship has an E greater than or equal to 0.8. A bank must measure E at least quarterly and must use one of three alternative measures of E – the dollar-offset method, the variability-reduction method, or the regression method.

It is possible that only part of a bank's exposure to a particular equity instrument is part of a hedge pair. For example, assume a bank has an equity exposure A with a \$300 adjusted carrying value and chooses to hedge a portion of that exposure with an equity exposure B with an adjusted carrying value of \$100. Also assume that the combination of equity exposure B and \$100 of the adjusted carrying value of equity exposure A form an effective hedge with an E of 0.8. In this situation the bank would treat \$100 of equity exposure A and \$100 of equity exposure B as a hedge pair, and the remaining \$200 of its equity exposure A as a separate, stand-alone equity position.

The effective portion of a hedge pair is E multiplied by the greater of the adjusted carrying values of the equity exposures forming the hedge pair, and the ineffective portion is $(1-E)$ multiplied by the greater of the adjusted carrying values of the equity exposures forming the hedge pair. In the above example, the effective portion of the hedge pair would be $0.8 \times \$100 = \80 and the ineffective portion of the hedge pair would be $(1 - 0.8) \times \$100 = \20 .

Measures of hedge effectiveness

Under the dollar-offset method of measuring effectiveness, the bank must determine the ratio of the cumulative sum of the periodic changes in the value of one equity exposure to the cumulative sum of the periodic changes in the value of the other equity exposure, termed the ratio of value change (RVC). If the changes in the values of the two exposures perfectly offset each other, the RVC will be -1. If RVC is positive, implying that the values of the two equity exposures move in the same direction, the hedge is not effective and $E = 0$. If RVC is negative and greater than or equal to -1 (that is, between zero and -1), then E equals the absolute value of RVC. If RVC is negative and less than -1, then E equals 2 plus RVC.

The variability-reduction method of measuring effectiveness compares changes in the value of the combined position of the two equity exposures in the hedge pair (labeled X) to changes in the value of one exposure as though that one exposure were not hedged (labeled A). This measure of E expresses the time-series variability in X as a proportion of the variability of A. As the variability described by the numerator becomes small relative to the variability described by the denominator, the measure of effectiveness improves, but is bounded from above by a value of one. E is computed as:

$$E = 1 - \frac{\sum_{t=1}^T (X_t - X_{t-1})^2}{\sum_{t=1}^T (A_t - A_{t-1})^2}, \text{ where}$$

$$X_t = A_t - B_t$$

A_t = the value at time t of the one exposure in a hedge pair, and

B_t = the value at time t of the other exposure in the hedge pair.

The value of t will range from zero to T, where T is the length of the observation period for the values of A and B, and is comprised of shorter values each labeled t.

The regression method of measuring effectiveness is based on a regression in which the change in value of one exposure in a hedge pair is the dependent variable and the change in value of the other exposure in the hedge pair is the independent variable. E equals the coefficient of determination of this regression, which is the proportion of the variation in the dependent variable explained by variation in the independent variable. However, if the estimated regression coefficient is positive, then the value of E is zero. The closer the relationship between the values of the two exposures, the higher E will be.

2. Simple risk-weight approach (SRWA)

Under the SRWA in section 52 of the proposed rule, a bank would determine the risk-weighted asset amount for each equity exposure, other than an equity exposure to an investment fund, by multiplying the adjusted carrying value of the equity exposure, or the effective portion and ineffective portion of a hedge pair as described above, by the lowest applicable risk weight in Table J. A bank would determine the risk-weighted asset

amount for an equity exposure to an investment fund under section 54 of the proposed rule.

If a bank exclusively uses the SRWA for its equity exposures, the bank's aggregate risk-weighted asset amount for its equity exposures (other than equity exposures to investment funds) would be equal to the sum of the risk-weighted asset amounts for each of the bank's individual equity exposures.

Table J

Risk weight	Equity Exposure
0 Percent	An equity exposure to an entity whose credit exposures are exempt from the 0.03 percent PD floor
20 Percent	An equity exposure to a Federal Home Loan Bank or Farmer Mac if the equity exposure is not publicly traded and is held as a condition of membership in that entity
100 Percent	<ul style="list-style-type: none"> • Community development equity exposures • An equity exposure to a Federal Home Loan Bank or Farmer Mac not subject to a 20 percent risk weight • The effective portion of a hedge pair • Non-significant equity exposures to the extent less than 10 percent of tier 1 plus tier 2 capital
300 Percent	A publicly traded equity exposure (including the ineffective portion of a hedge pair)
400 Percent	An equity exposure that is not publicly traded

Several commenters addressed the proposed risk weights under the SRWA. A few commenters asserted that the 100 percent risk weight for the effective portion of a hedge pair is too high. These commenters suggested that the risk weight for such exposures should be zero or no more than 7 percent because the effectively hedged portion of a hedge pair involves negligible credit risk. One commenter remarked that it

does not believe there is an economic basis for the different risk weight for an equity exposure to a Federal Home Loan Bank depending on whether the equity exposure is held as a condition of membership.

The agencies do not agree with commenters' assertion that the effective portion of a hedge pair entails negligible credit risk. The agencies believe the 100 percent risk weight under the proposal is an appropriate and prudential safeguard; thus, it is maintained in the final rule. Banks that seek to more accurately account for equity hedging in their risk-based capital requirements should use the IMA.

The agencies agree that different risk weights for an equity exposure to a Federal Home Loan Bank or Farmer Mac depending on whether the equity exposure is held as a condition of membership do not have an economic justification, given the similar risk profile of the exposures. Accordingly, under the final rule SRWA, all equity exposures to a Federal Home Loan Bank or to Farmer Mac receive a 20 percent risk weight.

Non-significant equity exposures

Under the SRWA, a bank may apply a 100 percent risk weight to non-significant equity exposures. The proposed rule defined non-significant equity exposures as equity exposures to the extent that the aggregate adjusted carrying value of the exposures did not exceed 10 percent of the bank's tier 1 capital plus tier 2 capital.

Several commenters objected to the 10 percent materiality threshold for determining significance. They asserted that this standard is more conservative than the 15 percent threshold under the OCC, FDIC, and Board general risk-based capital rules for nonfinancial equity investments.

The agencies note that the applicable general risk-based capital rules address only nonfinancial equity investments; that the 15 percent threshold is a percentage only of tier 1 capital; and that the 15 percent threshold was designed for that particular rule. The proposed materiality threshold of 10 percent of tier 1 plus tier 2 capital is consistent with the New Accord and is intended to identify non-significant holdings of equity exposures under a different type of capital framework. Thus, the two threshold limits are not directly comparable. The agencies believe that the proposed 10 percent threshold for determining non-significant equity exposures is appropriate for the advanced approaches and, thus, are adopting it as proposed.

As discussed above in preamble section V.A.3., the agencies have discretion under the final rule to exclude from the definition of a traditional securitization those investment firms that exercise substantially unfettered control over the size and composition of their assets, liabilities, and off-balance sheet exposures. Equity exposures to investment firms that would otherwise be a traditional securitization were it not for the specific agency exclusion are leveraged exposures to the underlying financial assets of the investment firm. The agencies believe that equity exposure to such firms with greater than immaterial leverage warrant a 600 percent risk weight under the SRWA, due to their particularly high risk. Moreover, the agencies believe that the 100 percent risk weight assigned to non-significant equity exposures is inappropriate for equity exposures to investment firms with greater than immaterial leverage.

Under the final rule, to compute the aggregate adjusted carrying value of a bank's equity exposures for determining non-significance, the bank may exclude (i) equity exposures that receive less than a 300 percent risk weight under the SRWA (other than

equity exposures determined to be non-significant); (ii) the equity exposure in a hedge pair with the smaller adjusted carrying value; and (iii) a proportion of each equity exposure to an investment fund equal to the proportion of the assets of the investment fund that are not equity exposures or that qualify as community development equity exposures. If a bank does not know the actual holdings of the investment fund, the bank may calculate the proportion of the assets of the fund that are not equity exposures based on the terms of the prospectus, partnership agreement, or similar contract that defines the fund's permissible investments. If the sum of the investment limits for all exposure classes within the fund exceeds 100 percent, the bank must assume that the investment fund invests to the maximum extent possible in equity exposures.

When determining which of a bank's equity exposures qualify for a 100 percent risk weight based on non-significance, a bank first must include equity exposures to unconsolidated small business investment companies or held through consolidated small business investment companies described in section 302 of the Small Business Investment Act of 1958 (15 U.S.C. 682), then must include publicly traded equity exposures (including those held indirectly through investment funds), and then must include non-publicly traded equity exposures (including those held indirectly through investment funds).

The SRWA is summarized in Table K:

Table K

Risk weight	Equity Exposure
0 Percent	An equity exposure to an entity whose credit exposures are exempt from the 0.03 percent PD floor

Risk weight	Equity Exposure
20 Percent	An equity exposure to a Federal Home Loan Bank or Farmer Mac
100 Percent	<ul style="list-style-type: none"> • Community development equity exposures¹⁰² • The effective portion of a hedge pair • Non-significant equity exposures to the extent less than 10 percent of tier 1 plus tier 2 capital
300 Percent	A publicly traded equity exposure (other than an equity exposure that receives a 600 percent risk weight and including the ineffective portion of a hedge pair)
400 Percent	An equity exposure that is not publicly traded (other than an equity exposure that receives a 600 percent risk weight)
600 percent	An equity exposure to an investment firm that (1) would meet the definition of a traditional securitization were it not for the primary Federal supervisor's application of paragraph (8) of that definition and (2) has greater than immaterial leverage

3. Internal models approach (IMA)

The IMA is designed to provide banks with a more sophisticated and risk-sensitive mechanism for calculating risk-based capital requirements for equity exposures. To qualify to use the IMA, a bank must receive prior written approval from its primary Federal supervisor. To receive such approval, the bank must demonstrate to its primary Federal supervisor's satisfaction that the bank meets the quantitative and qualitative criteria discussed below. As noted earlier, a bank may model both publicly traded and non-publicly traded equity exposures or model only publicly traded equity exposures.

¹⁰² The final rule generally defines these exposures as exposures that would qualify as community development investments under 12 U.S.C. 24(Eleventh), excluding equity exposures to an unconsolidated small business investment company and equity exposures held through a consolidated small business investment company described in section 302 of the Small Business Investment Act of 1958 (15 U.S.C. 682). For savings associations, community development investments would be defined to mean equity investments that are designed primarily to promote community welfare, including the welfare of low- and moderate-income communities or families, such as by providing services or jobs, and excluding equity exposures to an unconsolidated small business investment company and equity exposures held through a consolidated small business investment company described in section 302 of the Small Business Investment Act of 1958 (15 U.S.C. 682).

In the final rule, the agencies clarify that under the IMA, a bank may use more than one model, as appropriate for its equity exposures, provided that it has received supervisory approval for use of the IMA, and each model meets the qualitative and quantitative criteria specified below and in section 53 of the rule.

IMA qualification

The bank must have one or more models that (i) assess the potential decline in value of its modeled equity exposures; (ii) are commensurate with the size, complexity, and composition of the bank's modeled equity exposures; and (iii) adequately capture both general market risk and idiosyncratic risks. The bank's models must produce an estimate of potential losses for its modeled equity exposures that is no less than the estimate of potential losses produced by a VaR methodology employing a 99.0 percent one-tailed confidence interval of the distribution of quarterly returns for a benchmark portfolio of equity exposures comparable to the bank's modeled equity exposures using a long-term sample period. Banks with equity portfolios containing equity exposures with values that are highly nonlinear in nature (for example, equity derivatives or convertibles) must employ an internal model designed to appropriately capture the risks associated with these instruments.

In addition, the number of risk factors and exposures in the sample and the data period used for quantification in the bank's models and benchmarking exercise must be sufficient to provide confidence in the accuracy and robustness of the bank's estimates. The bank's model and benchmarking exercise also must incorporate data that are relevant in representing the risk profile of the bank's modeled equity exposures, and must include data from at least one equity market cycle containing adverse market movements relevant

to the risk profile of the bank's modeled equity exposures. In addition, for the reasons described below, the final rule adds that the bank's benchmarking exercise must be based on daily market prices for the benchmark portfolio. If the bank's model uses a scenario methodology, the bank must demonstrate that the model produces a conservative estimate of potential losses on the bank's modeled equity exposures over a relevant long-term market cycle. If the bank employs risk factor models, the bank must demonstrate through empirical analysis the appropriateness of the risk factors used.

Under the proposed rule, the agencies also required that daily market prices be available for all modeled equity exposures. The proposed requirement applied to either direct holdings or proxies. Several commenters objected to the requirement of daily market prices. A few asserted that proxies for private equity investments are more relevant than public market proxies and should be permitted even if they are only available on a monthly basis. The agencies agree with commenters on this issue. Accordingly, under the final rule, banks are not required to have daily market prices for all modeled equity exposures, either direct holdings or proxies. However, to ensure sufficient rigor in the modeling process, the final rule requires that a bank's benchmarking exercise be based on daily market prices for the benchmark portfolio, as noted above.

Finally, the bank must be able to demonstrate, using theoretical arguments and empirical evidence, that any proxies used in the modeling process are comparable to the bank's modeled equity exposures, and that the bank has made appropriate adjustments for differences. The bank must derive any proxies for its modeled equity exposures or benchmark portfolio using historical market data that are relevant to the bank's modeled

equity exposures or benchmark portfolio (or, where not, must use appropriately adjusted data), and such proxies must be robust estimates of the risk of the bank's modeled equity exposures.

In evaluating whether a bank has met the criteria described above, the bank's primary Federal supervisor may consider, among other factors, (i) the nature of the bank's equity exposures, including the number and types of equity exposures (for example, publicly traded, non-publicly traded, long, short); (ii) the risk characteristics and makeup of the bank's equity exposures, including the extent to which publicly available price information is obtainable on the exposures; and (iii) the level and degree of concentration of, and correlations among, the bank's equity exposures.

The agencies do not intend to dictate the form or operational details of a bank's internal model for equity exposures. Accordingly, the agencies are not prescribing any particular type of model for determining risk-based capital requirements. Although the final rule requires a bank that uses the IMA to ensure that its internal model produces an estimate of potential losses for its modeled equity exposures that is no less than the estimate of potential losses produced by a VaR methodology employing a 99.0 percent one-tailed confidence interval of the distribution of quarterly returns for a benchmark portfolio of equity exposures, the rule does not require a bank to use a VaR-based model. The agencies recognize that the type and sophistication of internal models will vary across banks due to differences in the nature, scope, and complexity of business lines in general and equity exposures in particular. The agencies also recognize that some banks employ models for internal risk management and capital allocation purposes that can be more relevant to the bank's equity exposures than some VaR models. For example, some

banks employ rigorous historical scenario analysis and other techniques for assessing the risk of their equity portfolios.

Banks that choose to use a VaR-based internal model under the IMA should use a historical observation period that includes a sufficient amount of data points to ensure statistically reliable and robust loss estimates relevant to the long-term risk profile of the bank's specific holdings. The data used to represent return distributions should reflect the longest sample period for which data are available and should meaningfully represent the risk profile of the bank's specific equity holdings. The data sample should be long-term in nature and, at a minimum, should encompass at least one complete equity market cycle containing adverse market movements relevant to the risk profile of the bank's modeled exposures. The data used should be sufficient to provide conservative, statistically reliable, and robust loss estimates that are not based purely on subjective or judgmental considerations.

The parameters and assumptions used in a VaR model should be subject to a rigorous and comprehensive regime of stress-testing. Banks utilizing VaR models should subject their internal model and estimation procedures, including volatility computations, to either hypothetical or historical scenarios that reflect worst-case losses given underlying positions in both publicly traded and non-publicly traded equities. At a minimum, banks that use a VaR model should employ stress tests to provide information about the effect of tail events beyond the level of confidence assumed in the IMA.

Banks using non-VaR internal models that are based on stress tests or scenario analyses should estimate losses under worst-case modeled scenarios. These scenarios should reflect the composition of the bank's equity portfolio and should produce risk-

based capital requirements at least as large as those that would be required to be held against a representative market index or other relevant benchmark portfolio under a VaR approach. For example, for a portfolio consisting primarily of publicly held equity securities that are actively traded, risk-based capital requirements produced using historical scenario analyses should be greater than or equal to risk-based capital requirements produced by a baseline VaR approach for a major index or sub-index that is representative of the bank's holdings.

The loss estimate derived from the bank's internal model constitutes the risk-based capital requirement for the modeled equity exposures (subject to the supervisory floors described below). The equity capital requirement is incorporated into a bank's risk-based capital ratio through the calculation of risk-weighted equivalent assets. To convert the equity capital requirement into risk-weighted equivalent assets, a bank must multiply the capital requirement by 12.5.

Risk-weighted assets under the IMA

Under the proposed and final rules, as noted above, a bank may apply the IMA only to its publicly traded equity exposures or may apply the IMA to its publicly traded and non-publicly traded equity exposures. In either case, a bank is not allowed to apply the IMA to equity exposures that receive a 0 or 20 percent risk weight under the SRWA, community development equity exposures, and equity exposures to investment funds (collectively, excluded equity exposures). Unlike the SRWA, the IMA does not provide for a 10 percent materiality threshold for non-significant equity exposures.

Several commenters objected to the fact that the IMA does not provide a 100 percent risk weight for non-significant equity exposures up to a 10 percent materiality

threshold. These commenters maintained that the lack of a materiality threshold under the IMA will discourage use of this methodology relative to the SRWA. Commenters suggested that the agencies incorporate a materiality threshold into the IMA.

The agencies do not believe that it is necessary or appropriate to incorporate such a threshold under the IMA. The agencies are concerned that a bank could manipulate significantly its risk-based capital requirements based on the exposures it chooses to model and those which it would deem immaterial (and to which it would apply a 100 percent risk weight). The agencies also believe that a flat 100 percent risk weight is inconsistent with the risk sensitivity of the IMA.

Under the proposal, if a bank applied the IMA to both publicly traded and non-publicly traded equity exposures, the bank's aggregate risk-weighted asset amount for its equity exposures would be equal to the sum of the risk-weighted asset amount of excluded equity exposures (calculated outside of the IMA) and the risk-weighted asset amount of the non-excluded equity exposures (calculated under the IMA). The risk-weighted asset amount of the non-excluded equity exposures generally would be set equal to the estimate of potential losses on the bank's non-excluded equity exposures generated by the bank's internal model multiplied by 12.5. To ensure that a bank holds a minimum amount of risk-based capital against its modeled equity exposures, however, the proposed rule contained a supervisory floor on the risk-weighted asset amount of the non-excluded equity exposures. As a result of this floor, the risk-weighted asset amount of the non-excluded equity exposures could not fall below the sum of (i) 200 percent multiplied by the aggregate adjusted carrying value or ineffective portion of hedge pairs, as appropriate, of the bank's non-excluded publicly traded equity exposures; and

(ii) 300 percent multiplied by the aggregate adjusted carrying value of the bank's non-excluded non-publicly traded equity exposures.

Also under the proposal, if a bank applied the IMA only to its publicly traded equity exposures, the bank's aggregate risk-weighted asset amount for its equity exposures would be equal to the sum of (i) the risk-weighted asset amount of excluded equity exposures (calculated outside of the IMA); (ii) 400 percent multiplied by the aggregate adjusted carrying value of the bank's non-excluded non-publicly traded equity exposures; and (iii) the aggregate risk-weighted asset amount of its non-excluded publicly traded equity exposures. The risk-weighted asset amount of the non-excluded publicly traded equity exposures would be equal to the estimate of potential losses on the bank's non-excluded publicly traded equity exposures generated by the bank's internal model multiplied by 12.5. Under the proposed rule, the risk-weighted asset amount for the non-excluded publicly traded equity exposures would be subject to a floor of 200 percent multiplied by the aggregate adjusted carrying value or ineffective portion of hedge pairs, as appropriate, of the bank's non-excluded publicly traded equity exposures.

Several commenters did not support the concept of floors in a risk-sensitive approach that requires a comparison to estimates of potential losses produced by a VaR methodology. If floors are required in the final rule, however, these commenters noted that the calculation at the aggregate level would not pose significant operational issues. A few commenters, in contrast, objected to the proposed aggregate floors, asserting that it would be operationally difficult to determine compliance with such floors.

The agencies believe that it is prudent to retain the floor requirements in the IMA and, thus, are adopting the floor requirements as described above. The agencies note that

the New Accord also imposes a 200 percent and 300 percent floor for publicly traded and non-publicly traded equity exposures, respectively. Regarding the proposal to calculate the floors on an aggregate basis, the agencies believe it is appropriate to maintain this approach, given that for most banks it does not seem to pose significant operational issues.

4. Equity exposures to investment funds

The proposed rule included a separate treatment for equity exposures to investment funds. As proposed, a bank would determine the risk-weighted asset amount for equity exposures to investment funds using one of three approaches: the full look-through approach, the simple modified look-through approach, or the alternative modified look-through approach, unless the equity exposure to an investment fund is a community development equity exposure. Such equity exposures would be subject to a 100 percent risk weight. If an equity exposure to an investment fund is part of a hedge pair, a bank could use the ineffective portion of the hedge pair as the adjusted carrying value for the equity exposure to the investment fund. The risk-weighted asset amount of the effective portion of the hedge pair is equal to its adjusted carrying value. A bank could choose to apply a different approach among the three alternatives to different equity exposures to investment funds.

The agencies proposed a separate treatment for equity exposures to an investment fund to prevent banks from arbitraging the proposed rule's risk-based capital requirements for certain high-risk exposures and to ensure that banks do not receive a punitive risk-based capital requirement for equity exposures to investment funds that hold only low-risk assets. Under the proposal, the agencies defined an investment fund as a

company (i) all or substantially all of the assets of which are financial assets and (ii) that has no material liabilities.

Generally, commenters supported the separate treatment for equity exposures to investment funds. However, several commenters objected to the exclusion of investment funds with material liabilities from this separate treatment, observing that it would exclude equity exposures to hedge funds. Several commenters suggested that investment funds with material liabilities should be eligible for the look-through approaches. One commenter suggested that the agencies should adopt the following definition of investment fund: “A company in which all or substantially all of the assets are pooled financial assets that are collectively managed in order to generate a financial return, including investment companies or funds with material liabilities.” A few commenters suggested that equity exposures to investment funds with material liabilities should be treated under the SRWA or IMA as non-publicly traded equity exposures rather than the separate treatment developed for equity exposures to investment funds.

The agencies do not agree with commenters that the look-through approaches for investment funds should apply to investment vehicles with material liabilities. The look-through treatment is designed to capture the risks of an indirect holding of the underlying assets of the investment fund. Investment vehicles with material liabilities provide a leveraged exposure to the underlying financial assets and have a risk profile that may not be appropriately captured by a look-through approach.

Under the proposal, each of the approaches to equity exposures to investment funds imposed a 7 percent minimum risk weight on such exposures. This proposed minimum risk weight was similar to the minimum 7 percent risk weight under the RBA

for securitization exposures and the effective 56 basis point minimum risk-based capital requirement per dollar of securitization exposure under the SFA.

Several commenters objected to the proposed 7 percent risk weight floor. A few commenters suggested that the floor should be decreased or eliminated, particularly for low-risk investment funds that receive the highest rating from an NRSRO. Others recommended that the 7 percent risk weight floor should be applied on an aggregate basis rather than on a fund-by-fund basis.

The agencies proposed the 7 percent risk weight floor as a minimum risk-based capital requirement for exposures not directly held by a bank. However, the agencies believe the comments on this issue have merit and recognize that the floor would provide banks with an incentive to invest in higher-risk investment funds. Consistent with the New Accord, the final rule does not impose a 7 percent risk weight floor on equity exposures to investment funds, on either an individual or aggregate basis.

Full look-through approach

A bank may use the full look-through approach only if the bank is able to compute a risk-weighted asset amount for each of the exposures held by the investment fund. Under the proposed rule, a bank would be required to calculate the risk-weighted asset amount for each of the exposures held by the investment fund as if the exposures were held directly by the bank. Depending on whether the exposures were wholesale, retail, securitization, or equity exposures, a bank would apply the appropriate IRB risk-based capital treatment.

Several commenters suggested that the agencies should allow a bank with supervisory approval to use the IMA to model the underlying assets of an investment

fund by including the bank's pro rata share of the investment fund's assets in its equities model. The commenters believed there is no basis for preventing a bank from using the IMA, a sophisticated and risk-sensitive approach, when a bank has full position data for an investment fund.

The agencies agree with commenters' views in this regard. If a bank has full position data for an investment fund and has been approved by its primary Federal supervisor for use of the IMA, it may include the underlying equity exposures held by an investment fund, after adjustment for proportional ownership, in its equities model under the IMA. Therefore, in the final rule, under the full look-through approach, a bank must either (i) set the risk-weighted asset amount of the bank's equity exposure to the investment fund equal to product of (A) the aggregate risk-weighted asset amounts of the exposures held by the fund as if they were held directly by the bank and (B) the bank's proportional ownership share of the fund; or (ii) include the bank's proportional ownership share of each exposure held by the fund in the bank's IMA. If the bank chooses (ii), the risk-weighted asset amount for the equity exposure to the investment fund is determined together with the risk-weighted asset amount for the bank's other non-excluded equity exposures and is subject to the aggregate floors under this approach.

Simple modified look-through approach

Under the proposed simple modified look-through approach, a bank would set the risk-weighted asset amount for its equity exposure to an investment fund equal to the adjusted carrying value of the equity exposure multiplied by the highest risk weight in Table L that applies to any exposure the fund is permitted to hold under its prospectus, partnership agreement, or similar contract that defines the fund's permissible

investments. The bank could exclude derivative contracts that are used for hedging, not speculative purposes, and do not constitute a material portion of the fund's exposures.

Commenters generally supported the simple modified look-through approach as a low-burden yet moderately risk-sensitive way of treating equity exposures to an investment fund. However, several commenters objected to the large jump in risk weights (from a 400 percent to a 1,250 percent risk weight) between investment funds permitted to hold non-publicly traded equity exposures and investment funds permitted to hold OTC derivative contracts and/or exposures that must be deducted from regulatory capital or receive a risk weight greater than 400 percent under the IRB approach. In addition, one commenter objected to the proposed 20 percent risk weight for the most highly rated money market mutual funds that are subject to SEC rule 2a-7 governing portfolio maturity, quality, diversification and liquidity. This commenter asserted that a 7 percent risk weight for such exposures would be appropriate.

The agencies agree that the proposed risk-weighting for highly-rated money market mutual funds subject to SEC rule 2a-7 is conservative, given the generally low risk of such funds. Accordingly, the agencies added a new investment fund approach—the Money Market Fund Approach—which applies a 7 percent risk weight to a bank's equity exposure to a money market fund that is subject to SEC rule 2a-7 and that has an applicable external rating in the highest investment-grade rating category.

The agencies have made no changes to address commenters' concerns about a lack of intermediate risk weights between 400 percent and 1,250 percent. The agencies believe the range of risk weights is sufficiently granular to accommodate most equity exposures to investment funds.

Table L – Modified Look-Through Approaches for Equity Exposures to
Investment Funds

<u>Risk Weight</u>	<u>Exposure Class or Investment Fund Type</u>
0 Percent	Sovereign exposures with a long-term external rating in the highest investment-grade rating category and sovereign exposures of the United States
20 Percent	Exposures with a long-term external rating in the highest or second-highest investment-grade rating category; exposures with a short-term external rating in the highest investment-grade rating category; and exposures to, or guaranteed by, depository institutions, foreign banks (as defined in 12 CFR 211.2), or securities firms subject to consolidated supervision or regulation comparable to that imposed on U.S. securities broker-dealers that are repo-style transactions or bankers' acceptances
50 Percent	Exposures with a long-term external rating in the third-highest investment-grade rating category or a short-term external rating in the second-highest investment-grade rating category
100 Percent	Exposures with a long-term or short-term external rating in the lowest investment-grade rating category
200 Percent	Exposures with a long-term external rating one rating category below investment grade
300 Percent	Publicly traded equity exposures
400 Percent	Non-publicly traded equity exposures; exposures with a long-term external rating two or more rating categories below investment grade; and unrated exposures (excluding publicly traded equity exposures)
1,250 Percent	OTC derivative contracts and exposures that must be deducted from regulatory capital or receive a risk weight greater than 400 percent under this appendix

Alternative modified look-through approach

Under this approach, a bank may assign the adjusted carrying value of an equity exposure to an investment fund on a pro rata basis to different risk-weight categories in

Table L based on the investment limits in the fund's prospectus, partnership agreement, or similar contract that defines the fund's permissible investments. If the sum of the investment limits for all exposure classes within the fund exceeds 100 percent, the bank must assume that the fund invests to the maximum extent permitted under its investment limits in the exposure class with the highest risk weight under Table L, and continues to make investments in the order of the exposure class with the next highest risk-weight under Table L until the maximum total investment level is reached. If more than one exposure class applies to an exposure, the bank must use the highest applicable risk weight. A bank may exclude derivative contracts held by the fund that are used for hedging, not speculative, purposes and do not constitute a material portion of the fund's exposures. Other than comments addressing the risk weight table and the 7 percent floor (addressed above), the agencies did not receive significant comment on this approach and have adopted it without significant change.

VI. Operational Risk

This section describes features of the AMA framework for determining the risk-based capital requirement for operational risk. A bank meeting the AMA qualifying criteria uses its internal operational risk quantification system to calculate its risk-based capital requirement for operational risk.

Currently, the agencies' general risk-based capital rules do not include an explicit capital charge for operational risk. Rather, the existing risk-based capital rules were designed to broadly cover all risks, and therefore implicitly cover operational risk. With the adoption of the more risk-sensitive treatment under the IRB approach for credit risk in this final rule, there no longer is an implicit capital buffer for other risks.

The agencies recognize that operational risk is a key risk in banks, and evidence indicates that a number of factors are driving increases in operational risk. These factors include greater use of automated technology, proliferation of new and highly complex products, growth of e-banking transactions and related business applications, large-scale acquisitions, mergers, and consolidations, and greater use of outsourcing arrangements. Furthermore, the experience of a number of high-profile, high-severity operational losses across the banking industry, including those resulting from legal settlements, highlight operational risk as a major source of unexpected losses. Because the implicit regulatory capital buffer for operational risk is removed under the final rule, the agencies are requiring banks using the IRB approach for credit risk to use the AMA to address operational risk when computing their risk-based capital requirement.

As discussed previously, operational risk exposure is the 99.9th percentile of the distribution of potential aggregate operational losses as generated by the bank's operational risk quantification system over a one-year horizon. EOL is the expected value of the same distribution of potential aggregate operational losses. Under the proposal, a bank's risk-based capital requirement for operational risk would be the sum of EOL and UOL. A bank would be allowed to recognize (i) certain offsets for EOL (such as certain reserves and other internal business practices), and (ii) the effect of risk mitigants such as insurance in calculating its regulatory capital requirement for operational risk.

Under the proposed rule, the agencies recognized that a bank's risk-based capital requirement for operational risk could be based on UOL alone if the bank could demonstrate it has offset EOL with eligible operational risk offsets. Eligible operational

risk offsets were defined as amounts, not to exceed EOL, that (i) are generated by internal business practices to absorb highly predictable and reasonably stable operational losses, including reserves calculated in a manner consistent with GAAP; and (ii) are available to cover EOL with a high degree of certainty over a one-year horizon. Eligible operational risk offsets could only be used to offset EOL, not UOL.

The preamble to the proposed rule stated that in determining whether to accept a proposed EOL offset, the agencies would consider whether the proposed offset would be available to cover EOL with a high degree of certainty over a one-year horizon.

Supervisory recognition of EOL offsets would be limited to those business lines and event types with highly predictable, routine losses. The preamble noted that based on discussions with the industry and supervisory experience, highly predictable and routine losses appear to be limited to those relating to securities processing and to credit card fraud.

The majority of commenters on this issue recommended that the agencies should allow banks to present evidence of additional areas with highly predictable and reasonably stable losses for which eligible operational risk offsets could be considered. These commenters identified fraud losses pertaining to debit or ATM cards, commercial or business credit cards, HELOCs, and external checks in retail banking as additional events that have highly predictable and reasonably stable losses. Commenters also identified legal reserves set aside for small, predictable legal loss events, budgeted funds, and forecasted funds as other items that should be considered eligible operational risk offsets. Several commenters also highlighted that the proposed rule was inconsistent with the New Accord regarding the ability of budgeted funds to serve as EOL offsets.

One commenter proposed eliminating EOL altogether because the commenter already factors it into its pricing practices.

The New Accord permits a supervisor to accept expected loss offsets provided a bank is “able to demonstrate to the satisfaction of its national supervisor that it has measured and accounted for its EL exposure.”¹⁰³ To the extent a bank is permitted to adjust its estimate of operational risk exposure to reflect potential operational risk offsets, it is appropriate to consider the degree to which such offsets meet U.S. accounting standards and can be viewed as regulatory capital substitutes. The final rule retains the proposed definition described above. The agencies believe that this definition allows for the supervisory consideration of EOL offsets in a flexible and prudent manner.

In determining its operational risk exposure, the bank may also take into account the effects of qualifying operational risk mitigants such as insurance. To recognize the effects of qualifying operational risk mitigants such as insurance for risk-based capital purposes, the bank must estimate its operational risk exposure with and without such effects. The reduction in a bank’s risk-based capital requirement for operational risk due to qualifying operational risk mitigants may not exceed 20 percent of the bank’s risk-based capital requirement for operational risk, after approved adjustments for EOL offsets.

A risk mitigant must be able to absorb losses with sufficient certainty to warrant inclusion as a qualifying operational risk mitigant. For insurance to meet this standard, it must:

- (i) be provided by an unaffiliated company that has a claims paying ability that is rated in one of the three highest rating categories by an NRSRO;

¹⁰³ New Accord, ¶669(b).

- (ii) have an initial term of at least one year and a residual term of more than 90 days;
- (iii) have a minimum notice period for cancellation of 90 days;
- (iv) have no exclusions or limitations based upon regulatory action or for the receiver or liquidator of a failed bank; and
- (v) be explicitly mapped to an actual operational risk exposure of the bank.

A bank must receive prior written approval from its primary Federal supervisor to recognize an operational risk mitigant other than insurance as a qualifying operational risk mitigant. In evaluating an operational risk mitigant other than insurance, a primary Federal supervisor will consider whether the operational risk mitigant covers potential operational losses in a manner equivalent to holding regulatory capital.

The bank's methodology for incorporating the effects of insurance must capture, through appropriate discounts in the amount of risk mitigation, the residual term of the policy, where less than one year; the policy's cancellation terms, where less than one year; the policy's timeliness of payment; and the uncertainty of payment as well as mismatches in coverage between the policy and the hedged operational loss event. The bank may not recognize for regulatory capital purposes insurance with a residual term of 90 days or less.

Several commenters criticized the proposal for limiting recognition of non-insurance operational risk mitigants to those mitigants that would cover potential operational losses in a manner equivalent to holding regulatory capital. The commenters noted that similar limitations are not included in the New Accord. Other commenters asserted that qualifying operational risk mitigants should be broader than insurance.

The New Accord discusses the use of insurance explicitly as an operational risk mitigant and notes that the BCBS “in due course, may consider revising the criteria for and limits on the recognition of operational risk mitigants on the basis of growing experience.”¹⁰⁴ Similarly, under the proposed rule, the agencies provided flexibility that recognizes the potential for developing operational risk mitigants other than insurance over time. The agencies continue to believe it is appropriate to consider the degree to which such mitigants can be viewed as regulatory capital substitutes. Therefore, under the final rule, in evaluating such mitigants, the agencies will consider whether the operational risk mitigant covers potential operational losses in a manner equivalent to holding regulatory capital.

Under the final rule, as under the proposal, if a bank does not qualify to use or does not have qualifying operational risk mitigants, the bank’s dollar risk-based capital requirement for operational risk is its operational risk exposure minus eligible operational risk offsets (if any). If a bank qualifies to use operational risk mitigants and has qualifying operational risk mitigants, the bank’s dollar risk-based capital requirement for operational risk is the greater of: (i) the bank’s operational risk exposure adjusted for qualifying operational risk mitigants minus eligible operational risk offsets (if any); and (ii) 0.8 multiplied by the difference between the bank’s operational risk exposure and its eligible operational risk offsets (if any). The dollar risk-based capital requirement for operational risk is multiplied by 12.5 to convert it into an equivalent risk-weighted asset amount. The resulting amount is added to the comparable amount for credit risk in calculating the institution’s risk-based capital denominator.

VII. Disclosure

¹⁰⁴ New Accord, footnote 110.

1. Overview

The agencies have long supported meaningful public disclosure by banks with the objective of improving market discipline. The agencies recognize the importance of market discipline in encouraging sound risk management practices and fostering financial stability.

Pillar 3 of the New Accord, market discipline, complements the minimum capital requirements and the supervisory review process by encouraging market discipline through enhanced and meaningful public disclosure. The public disclosure requirements in the final rule are intended to allow market participants to assess key information about a bank's risk profile and its associated level of capital.

The agencies view public disclosure as an important complement to the advanced approaches to calculating minimum regulatory risk-based capital requirements, which will be heavily based on internal systems and methodologies. With enhanced transparency regarding banks' experiences with the advanced approaches, investors can better evaluate a bank's capital structure, risk exposures, and capital adequacy. With sufficient and relevant information, market participants can better evaluate a bank's risk management performance, earnings potential and financial strength.

Improvements in public disclosures come not only from regulatory standards, but also through efforts by bank management to improve communications to public shareholders and other market participants. In this regard, improvements to risk management processes and internal reporting systems provide opportunities to significantly improve public disclosures over time. Accordingly, the agencies strongly encourage the management of each bank to regularly review its public disclosures and

enhance these disclosures, where appropriate, to clearly identify all significant risk exposures – whether on- or off-balance sheet – and their effects on the bank’s financial condition and performance, cash flow, and earnings potential.

Comments on the proposed rule

Many commenters expressed concern that the proposed disclosures were excessive, burdensome and overly prescriptive and would hinder – rather than facilitate – market discipline by requiring banks to disclose items that would not be well understood or provide useful information to market participants. In particular, commenters were concerned that the differences between the proposed rule and the New Accord (such as the proposed ELGD risk parameter and proposed wholesale definition of default) would not be meaningful for cross-border comparative purposes, and would increase compliance burden for banks subject to the agencies’ risk-based capital rules. Some commenters also believed that the information provided in the disclosures would not be comparable across banks because each bank would use distinct internal methodologies to generate the disclosures. Several commenters suggested that the agencies should delay the disclosure requirements until U.S. implementation of the IRB approach has gained some maturity. This would allow the agencies and banking industry sufficient time to ensure usefulness of the public disclosure requirements and comparability across banks.

The agencies believe that it is important to retain the vast majority of the proposed disclosures, which are consistent with the New Accord. These disclosures will enable market participants to gain key insights regarding a bank’s capital structure, risk exposures, risk assessment processes, and ultimately, the capital adequacy of the institution. The agencies also note that many of the disclosure requirements are already

required by, or are consistent with, existing GAAP, SEC disclosure requirements, or regulatory reporting requirements for banks. More generally, the agencies view the public disclosure requirements as an integral part of the advanced approaches and the New Accord and are continuing to require their implementation beginning with a bank's first transitional floor period.

The agencies are sympathetic, however, to commenters' concerns about cross-border comparability. The agencies believe that many of the changes they have made to the final rule (such as eliminating the ELGD risk parameter and adopting the New Accord's definition of default for wholesale exposures, as discussed above) will address commenters' concerns regarding comparability. In addition, the agencies have made several changes to the disclosure requirements to make them more consistent with the New Accord. These changes should increase cross-border comparability and reduce implementation and compliance burden. These changes are discussed in the relevant sections below.

2. General requirements

Under the proposed rule, the public disclosure requirements would apply to the top-tier legal entity that is a core or opt-in bank within a consolidated banking group – the top-tier U.S. BHC or DI that is a core or opt-in bank.

Several commenters objected to this proposal, noting that it is inconsistent with the New Accord, which requires such disclosures at the global top consolidated level of a banking group to which the framework applies. Commenters asserted that public disclosure at the U.S. BHC or DI level for U.S. banking organizations owned by a foreign

banking organization is not meaningful and could generate confusion or misunderstanding in the market.

The agencies agree that commenters' concerns have merit and believe that it is important to be consistent with the New Accord. Accordingly, under the final rule, the public disclosure requirements will generally be required only at the top-tier global consolidated level. Under exceptional circumstances, a primary Federal supervisor may require some or all of the public disclosures at the top-tier U.S. level if the primary Federal supervisor determines that such disclosures are important for market participants to form appropriate insights regarding the bank's risk profile and associated level of capital. A factor the agencies will consider, for example, is whether a U.S. subsidiary of a foreign banking organization has debt or equity registered and actively traded in the United States.

In addition, the proposed rule stated that, in general, a DI that is a subsidiary of a BHC or another DI would not be subject to the disclosure requirements except that every DI would be required to disclose total and tier 1 capital ratios and their components, similar to current requirements. Nonetheless, these entities must file applicable bank regulatory reports and thrift financial reports. In addition, as described below in the regulatory reporting section, the agencies will require certain additional regulatory reporting from banks applying the advanced approaches, and a limited amount of the reported information will be publicly disclosed. If a DI that is a core or opt-in bank and is not a subsidiary of a BHC or another DI that must make the full set of disclosures, the DI would be required to make the full set disclosures.

One commenter objected to the supervisory flexibility provided to require additional disclosures at the subsidiary level. The commenter maintained that in all cases DIs that are a subsidiary of a BHC or another DI should not be subject to the disclosure requirements beyond disclosing their total and tier 1 capital ratios and the ratio components, as proposed. The commenter suggested that the agencies clarify this issue in the final rule.

The agencies do not believe, however, that these changes are appropriate. The agencies believe that it is important to preserve some flexibility in the event that the primary Federal supervisor believes that disclosures from such a DI are important for market participants to form appropriate insights regarding the bank's risk profile and associated level of capital.

The risks to which a bank is exposed, and the techniques that it uses to identify, measure, monitor, and control those risks are important factors that market participants consider in their assessment of the bank. Accordingly, under the proposed and final rules, each bank that is subject to the disclosure requirements must have a formal disclosure policy approved by its board of directors that addresses the bank's approach for determining the disclosures it should make. The policy should address the associated internal controls and disclosure controls and procedures. The board of directors and senior management must ensure that appropriate review of the disclosures takes place and that effective internal controls and disclosure controls and procedures are maintained.

A bank should decide which disclosures are relevant for it based on the materiality concept. Information would be regarded as material if its omission or

misstatement could change or influence the assessment or decision of a user relying on that information for the purpose of making investment decisions.

To the extent applicable, a bank may fulfill its disclosure requirements under this final rule by relying on disclosures made in accordance with accounting standards or SEC mandates that are very similar to the disclosure requirements in this final rule. In these situations, a bank must explain material differences between the accounting or other disclosure and the disclosures required under this final rule.

Frequency/timeliness

Under the proposed rule, the agencies required that quantitative disclosures be made quarterly. Several commenters objected to this requirement. These commenters asserted that banks subject to the U.S. public disclosure requirements would be placed at a competitive disadvantage because the New Accord requires banks to make Pillar 3 public disclosures on a semiannual basis.

The agencies believe that quarterly public disclosure requirements are important to ensure that the market has access to timely and relevant information and therefore have decided to retain quarterly quantitative disclosure requirements in the final rule. This disclosure frequency is consistent with longstanding requirements in the United States for robust quarterly disclosures in financial and regulatory reports, and is appropriate considering the potential for rapid changes in risk profiles. Moreover, many of the existing SEC, regulatory reporting, and other disclosure requirements that a bank may use to help meet its public disclosure requirements in the final rule are already required on a quarterly basis.

The proposal stated that the disclosures must be timely and that the agencies would consider a disclosure to be timely if it was made no later than the reporting deadlines for regulatory reports (for example, FR Y-9C) and financial reports (for example, SEC Forms 10-Q and 10-K). When these deadlines differ, the later deadline should be used.

Several commenters expressed concern that the tight timeframe for public disclosure requirements would be a burden and requested that the agencies provide greater flexibility, such as by setting the deadline for public disclosures at 60 days after quarter-end.

The agencies believe commenters' concerns must be balanced against the importance of allowing market participants to have access to timely information that is reflective of a bank's risk profile and associated capital levels. Accordingly, the agencies have decided to interpret the requirement for timely public disclosures for purposes of this final rule to mean within 45 days after calendar quarter-end.

In some cases, management may determine that a significant change has occurred, such that the most recent reported amounts do not reflect the bank's capital adequacy and risk profile. In those cases, banks should disclose the general nature of these changes and briefly describe how they are likely to affect public disclosures going forward. These interim disclosures should be made as soon as practicable after the determination that a significant change has occurred.

Location of disclosures and audit/attestation requirements

Under the proposed and final rules, the disclosures must be publicly available (for example, included on a public website) for each of the latest three years (12 quarters) or

such shorter time period since the bank entered its first transitional floor period. Except as discussed below, management has discretion to determine the appropriate medium and location of the disclosures required by this final rule. Furthermore, banks have flexibility in formatting their public disclosures. The agencies are not specifying a fixed format for these disclosures.

The agencies encourage management to provide all of the required disclosures in one place on the entity's public website. The public website addresses are reported in the regulatory reports (for example, the FR Y-9C).¹⁰⁵

Disclosure of tier 1 and total capital ratios must be provided in the footnotes to the year-end audited financial statements.¹⁰⁶ Accordingly, these disclosures must be tested by external auditors as part of the financial statement audit. Disclosures that are not included in the footnotes to the audited financial statements are not subject to external audit reports for financial statements or internal control reports from management and the external auditor.

The preamble to the proposed rule stated that due to the importance of reliable disclosures, the agencies would require the chief financial officer to certify that the disclosures required by the proposed rule were appropriate and that the board of directors and senior management were responsible for establishing and maintaining an effective

¹⁰⁵ Alternatively, banks may provide the disclosures in more than one place, as some of them may be included in public financial reports (for example, in Management's Discussion and Analysis included in SEC filings) or other regulatory reports (for example, FR Y-9C Reports). Banks must provide a summary table on their public website that specifically indicates where all the disclosures may be found (for example, regulatory report schedules or page numbers in annual reports).

¹⁰⁶ These ratios are required to be disclosed in the footnotes to the audited financial statements pursuant to existing GAAP requirements in Chapter 17 of the "AICPA Audit and Accounting Guide for Depository and Lending Institutions: Banks, Savings institutions, Credit unions, Finance companies and Mortgage companies."

internal control structure over financial reporting, including the information required by the proposed rule.

Several commenters expressed uncertainty regarding the proposed certification requirement for the chief financial officer. One commenter asked the agencies to articulate the standard of acceptance required for the certification of disclosure standards compared with what is required for financial reporting purposes. Another commenter questioned whether the chief financial officer would have sufficient familiarity with the risk management disclosures to make such a certification.

To address commenter uncertainty, the agencies have simplified and clarified the final rule's accountability requirements. Specifically, the final rule modifies the certification requirement and instead requires one or more senior officers of the bank to attest that the disclosures meet the requirements of the final rule. The senior officer may be the chief financial officer, the chief risk officer, an equivalent senior officer, or a combination thereof.

Proprietary and confidential information

The agencies stated in the preamble to the proposed rule that they believed the proposed requirements strike an appropriate balance between the need for meaningful disclosure and the protection of proprietary and confidential information.¹⁰⁷ Many commenters, however, expressed concern that the required disclosures would result in the release of proprietary information. Commenters expressed particular concerns about the

¹⁰⁷ Proprietary information encompasses information that, if shared with competitors, would render a bank's investment in these products/systems less valuable, and, hence, could undermine its competitive position. Information about customers is often confidential, in that it is provided under the terms of a legal agreement or counterparty relationship.

granularity of the credit loss history and securitization disclosures, as well as disclosures for portfolios subject to the IRB risk-based capital formulas.

As noted above, the final rule provides banks with considerable discretion with regard to public disclosure requirements. Bank management determines which disclosures are relevant based on a materiality concept. In addition, bank management has flexibility regarding formatting and the level of granularity of disclosures, provided they meet certain minimum requirements. Accordingly, the agencies believe that banks generally can provide these disclosures without revealing proprietary and confidential information. Only in rare circumstances might disclosure of certain items of information required in the final rule compel a bank to reveal confidential and proprietary information. In these unusual situations, the final rule requires that if a bank believes that disclosure of specific commercial or financial information would prejudice seriously the position of the bank by making public information that is either proprietary or confidential in nature, the bank need not disclose those specific items, but must disclose more general information about the subject matter of the requirement, together with the fact that, and the reason why, the specific items of information have not been disclosed. This provision of the final rule applies only to those disclosures required by the final rule and does not apply to disclosure requirements imposed by accounting standards or other regulatory agencies.

3. Summary of specific public disclosure requirements

As in the proposed rule, the public disclosure requirements are comprised of 11 tables that provide important information to market participants on the scope of application, capital, risk exposures, risk assessment processes, and, hence, the capital

adequacy of the institution. The agencies are adopting the tables as proposed, with the exceptions noted below. Again, the agencies note that the substantive content of the tables is the focus of the disclosure requirements, not the tables themselves. The table numbers below refer to the table numbers in the final rule.

Table 11.1 disclosures (Scope of Application) include a description of the level in the organization to which the disclosures apply and an outline of any differences in consolidation for accounting and regulatory capital purposes, as well as a description of any restrictions on the transfer of funds and capital within the organization. These disclosures provide the basic context underlying regulatory capital calculations.

One commenter questioned item (e) in Table 11.1, which would require the disclosure of the aggregate amount of capital deficiencies in all subsidiaries and the name(s) of such subsidiaries. The commenter asserted that the scope of this item should be limited to those legal subsidiaries that are subject to banking, securities, or insurance regulators' capital adequacy rules and should not include unregulated entities that are consolidated into the top corporate entity or unconsolidated affiliate and joint ventures.

As stated in a footnote to Table 11.1 in the proposed rule, the agencies limited the proposed requirement to legal subsidiaries that are subject to banking, securities, or insurance regulators' capital adequacy rules. The agencies are further clarifying this disclosure in Table 11.1.

Table 11.2 disclosures (Capital Structure) provide information on various components of regulatory capital available to absorb losses and allow for an evaluation of the quality of the capital available to absorb losses within the bank.

Table 11.3 disclosures (Capital Adequacy) provide information about how a bank assesses the adequacy of its capital and require that the bank disclose its minimum capital requirements for significant risk areas and portfolios. The table also requires disclosure of the regulatory capital ratios of the consolidated group and each DI subsidiary. Such disclosures provide insight into the overall adequacy of capital based on the risk profile of the organization.

Tables 11.4, 11.5, and 11.7 disclosures (Credit Risk) provide market participants with insight into different types and concentrations of credit risk to which the bank is exposed and the techniques the bank uses to measure, monitor, and mitigate those risks. These disclosures are intended to enable market participants to assess the credit risk exposures under the IRB approach, without revealing proprietary information.

Several commenters made suggestions related to Table 11.4. One commenter addressed item (b), which requires the disclosure of total and average gross credit risk exposures over the period broken down by major types of credit exposure. The commenter asked the agencies to clarify that methods used for financial reporting purposes are allowed for determining averages. Another commenter requested that the agencies clarify what is meant by “gross” in item (b), given that a related footnote describes net credit risk exposures in accordance with GAAP.

As with most of the disclosure requirements, the agencies are not prescriptive regarding the methodologies a bank must use for determining averages. Rather, the bank must choose whatever methodology it believes to be most reflective of its risk position. That methodology may be the one the bank uses for financial reporting purposes. The agencies have deleted “gross” and otherwise simplified the wording of item (b) in Table

11.4 to enhance clarity. Item (b) now reads “total credit risk exposures and average credit risk exposures, after accounting offsets in accordance with GAAP, and without taking into account the effects of credit risk mitigation techniques (for example collateral and netting not included in GAAP for disclosure), over the period broken down by major types of credit exposure.”

In addition, a commenter noted that the requirements in Table 11.4 regarding the breakdown of disclosures by “major types of credit exposure” in items (b) through (e) and by “counterparty type” for items (d) and (f) are unclear. Moreover, with respect to items (d), (e), and (f), the commenter recommended that disclosures should be provided on an annual rather than quarterly basis. The same commenter also asserted that the disclosure of remaining contractual maturity breakdown in item (e) should be required annually. Finally, regarding items (f) and (g), a few commenters wanted clarification of the definition of impaired and past due loans.

The agencies are not prescriptive with regard to what is meant by “major types of credit exposure,” disclosure by counterparty type, or impaired and past due loans. Bank management has the discretion to determine the most appropriate disclosure for the bank’s risk profile consistent with internal practice, GAAP or regulatory reports (such as the FR Y-9C). As noted in the proposal, for major types of credit exposure a bank could apply a breakdown similar to that used for accounting purposes, such as (a) loans, off-balance sheet commitments, and other non-derivative off-balance sheet exposures, (b) debt securities, and (c) OTC derivatives. The agencies do not believe it is appropriate to make an exception to the general quarterly requirement for quantitative disclosures for the disclosure in Table 11.4.

Commenters provided extensive feedback on several aspects of Table 11.5, (Disclosures for Portfolios Subject to IRB Risk-Based Capital Formulas). Several commenters were concerned that the required level of detail may compel banks to disclose proprietary information. With respect to item (c), a couple of commenters noted that the proposal differs from the New Accord in requiring exposure-weighted average capital requirements instead of risk weight percentages for groups of wholesale and retail exposures. One commenter also suggested that the term “actual losses” required in item (d) needs to be defined. Finally, several commenters objected to the proposal in item (e) to disclose backtesting results, asserting that such results would not be understood by the market. Commenters suggested that disclosure of this item be delayed beyond the proposed commencement date of year-end 2010, to commence instead ten years after a bank exits from the parallel run period.

As discussed above, the agencies believe that, in most cases, a bank can make the required disclosures without revealing proprietary information and that the rule contains appropriate provisions to deal with specific bank concerns. With regard to item (c), the agencies agree that there is no strong policy reason to differ from the New Accord and have changed item (c) to require the specified disclosures in risk weight percentages rather than weighted-average capital requirements. With respect to item (d), the agencies are not imposing a prescriptive definition of actual losses and believe that banks should determine actual losses consistent with internal practice. Finally, regarding item (e), the agencies believe that public disclosure of backtesting results provides important information to the market and should not be delayed. However, the agencies have

slightly modified the requirement, consistent with the New Accord, to reinforce that disclosure of individual risk parameter backtesting is not always required.

Commenters provided feedback on a few aspects of Table 11.7 (Credit Risk Mitigation). One commenter asserted that the table appears to overlap with the information on credit risk mitigation required in Table 11.5, item (a) and requested that the agencies consolidate and simplify the requirements. In addition, several commenters objected to Table 11.7 item (b), which would require public disclosure of the risk-weighted asset amount associated with credit risk exposures that are covered by credit risk mitigation in the form of guarantees and credit derivatives. The commenter noted that this requirement is not contained in the New Accord, which only requires the total exposure amount of such credit risk exposures.

The agencies recognize that there is some duplication between Tables 11.7 and 11.5. At the same time, both requirements are part of the New Accord. The agencies have decided to address this issue by inserting in Table 11.5, item (a), a note that the disclosures can be met by completing the disclosures in Table 11.7. With regard to Table 11.7, item (b), the agencies have decided that there is no strong policy reason for requiring banks to disclose risk-weighted assets associated with credit risk exposures that are covered by credit risk mitigation in the form of guarantees and credit derivatives. The agencies have removed this requirement from the final rule, consistent with the New Accord.

Table 11.6 (General Disclosure for Counterparty Credit Risk of OTC Derivative Contracts, Repo-Style Transaction, and Eligible Margin Loans) provides the disclosure requirements related to credit exposures from derivatives. See the July 2005 BCBS

publication entitled “The Application of Basel II to Trading Activities and the Treatment of Double Default Effects.”

Commenters raised a few issues with respect to Table 11.6. One commenter requested that the agencies clarify item (a), which requires a discussion of the impact of the amount of collateral the bank would have to provide given a credit rating downgrade. The commenter asked whether this disclosure refers to credit downgrade of the bank, the counterparty, or some other entity. Another commenter objected to item (b), which would require the breakdown of counterparty credit exposure by type of exposure. The commenter asserted that this proposed requirement is burdensome, infeasible for netted exposures and duplicative of other information generally available in existing GAAP and U.S. bank regulatory financial statements.

The agencies have decided to clarify that item (a) refers in part to the credit rating downgrade of the bank making the disclosure. This is consistent with the intent of this disclosure requirement in the New Accord. With respect to item (b), the agencies recognize that this proposed requirement may be problematic for banks that have implemented the internal models methodology. Accordingly, the agencies have decided to modify the rule to note that this disclosure item is only required for banks not using the internal models methodology in section 32(d).

Table 11.8 disclosures (Securitization) provide information to market participants on the amount of credit risk transferred and retained by the organization through securitization transactions and the types of products securitized by the organization. These disclosures provide users a better understanding of how securitization transactions impact the credit risk of the bank.

One commenter asked the agencies to explicitly acknowledge that they will accept the definitions and interpretations of the components of securitization exposures that a bank uses for financial reporting purposes (FAS 140 reporting disclosures).

Generally, as noted above, the agencies expect that a bank will be able to fulfill some of its disclosure requirements by relying on disclosures made in accordance with accounting standards, SEC mandates, or regulatory reports. In these situations, a bank must explain any material differences between the accounting or other disclosure and the disclosures required under the final rule. The agencies do not believe any changes to the rule are necessary to accommodate the commenter's concern.

Table 11.9 disclosures (Operational Risk) provide insight into the bank's application of the AMA for operational risk and what internal and external factors are considered in determining the amount of capital allocated to operational risk.

Table 11.10 disclosures (Equities Not Subject to Market Risk Rule) provide market participants with an understanding of the types of equity securities held by the bank and how they are valued. The table also provides information on the capital allocated to different equity products and the amount of unrealized gains and losses.

Table 11.11 disclosures (Interest Rate Risk in Non-Trading Activities) provide information about the potential risk of loss that may result from changes in interest rates and how the bank measures such risk.

4. Regulatory reporting

In addition to the public disclosures required by the consolidated banking organization subject to the advanced approaches, the agencies will require certain additional regulatory reporting from BHCs, their subsidiary DIs, and DIs applying the

advanced approaches that are not subsidiaries of BHCs. The agencies believe that the reporting of key risk parameter estimates by each DI applying the advanced approaches will provide the primary Federal supervisor and other relevant supervisors with data important for assessing the reasonableness and accuracy of the bank's calculation of its minimum capital requirements under this final rule and the adequacy of the institution's capital in relation to its risks. This information will be collected through regulatory reports. The agencies believe that requiring certain common reporting across banks will facilitate comparable application of the final rule.

The agencies will publish in the Federal Register reporting schedules based on the reporting templates issued for comment in September 2006. Consistent with the proposed reporting schedules, these reporting schedules will include a summary schedule with aggregate data that will be available to the general public. It also will include supporting schedules that will be viewed as confidential supervisory information. These schedules will be broken out by exposure category and will collect risk parameter and other pertinent data in a systematic manner. Under the final rule, banks must begin reporting this information during their parallel run on a confidential basis. The agencies will share this information with each other for calibration and other analytical purposes.

One commenter expressed concerns that some of the confidential information requested in the proposed reporting templates was also contained in the public disclosure requirements under the proposal. As a result, some information would be classified as confidential in the reporting templates and public under the disclosure requirements in the final rule.

The agencies recognize that there may be some overlap between confidential information required in the regulatory reports and public information required in the disclosure requirements of the final rule. The agencies will address specific comments on the reporting templates separately. In general, the agencies believe that given the different purposes of the regulatory reporting and public disclosure requirements under the final rule, there may be some instances where the same or similar disclosures may be required by both sets of requirements. Many of the public disclosures cover only a subset of the information sought in the proposed regulatory reporting templates. For instance, banks are required only to disclose publicly information “across a sufficient number of PD grades to allow a meaningful differentiation of credit risk,” whereas the proposed reporting templates contemplate a much more granular collection of data by specified PD bands. Such aggregation of data so as to mask the confidential nature of more granular information that is reported to regulators is not unique to the advanced approaches reporting. In addition, the agencies believe that a bank may be able to comply with some of the public disclosure requirements under this final rule by publicly disclosing, at the bank’s discretion and judgment, certain information found in the reporting templates that otherwise would be held confidential by the agencies. A bank could disclose this information on its website (as described in “location and audit requirements” above) if it believes that such disclosures will meet the public disclosure requirements required by the rule.

List of Acronyms

ABCP Asset-Backed Commercial Paper

ALLL Allowance for Loan and Lease Losses

AMA Advanced Measurement Approaches

ANPR Advance Notice of Proposed Rulemaking

AVC Asset Value Correlation

BCBS Basel Committee on Banking Supervision

BHC Bank Holding Company

CCDS Contingent Credit Default Swap

CF Conversion Factor

CEIO Credit-Enhancing Interest-Only Strip

CRM Credit Risk Mitigation

CUSIP Committee on Uniform Securities Identification Procedures

DI Depository Institution

DvP Delivery versus Payment

E Measure of Effectiveness

EAD Exposure at Default

ECL Expected Credit Loss

EE Expected Exposure

EL Expected Loss

ELGD Expected Loss Given Default

EOL Expected Operational Loss

EPE Expected Positive Exposure

EWALGD Exposure-Weighted Average Loss Given Default

FAS Financial Accounting Standard

FDIC Federal Deposit Insurance Corporation

FFIEC Federal Financial Institutions Examination Council

GAAP Generally Accepted Accounting Principles

GAO Government Accountability Office

HELOC Home Equity Line of Credit

HOLA Home Owners' Loan Act

HVCRE High-Volatility Commercial Real Estate

IAA Internal Assessment Approach

ICAAP Internal Capital Adequacy Assessment Process

IMA Internal Models Approach

IRB Internal Ratings-Based

K_{IRB} Capital Requirement for Underlying Pool of Exposures (securitizations)

LGD Loss Given Default

LTV Loan-to-Value Ratio

M Effective Maturity

NRSRO Nationally Recognized Statistical Rating Organization

OCC Office of the Comptroller of the Currency

OTC Over-the-Counter

OTS Office of Thrift Supervision

PCA Prompt Corrective Action

PD Probability of Default

PFE Potential Future Exposure

PMI Private Mortgage Insurance

PvP Payment versus Payment

QIS-3 Quantitative Impact Study 3
QIS-4 Quantitative Impact Study 4
QIS-5 Quantitative Impact Study 5
QRE Qualifying Revolving Exposure
RBA Ratings-Based Approach
RVC Ratio of Value Change
SEC Securities and Exchange Commission
SFA Supervisory Formula Approach
SME Small- and Medium-Size Enterprise
SPE Special Purpose Entity
SRWA Simple Risk-Weight Approach
TFR Thrift Financial Report
UL Unexpected Loss
UOL Unexpected Operational Loss
VaR Value-at-Risk

Regulatory Flexibility Act Analysis

The Regulatory Flexibility Act (RFA) requires an agency that is issuing a final rule to prepare and make available a regulatory flexibility analysis that describes the impact of the final rule on small entities. 5 U.S.C. 603(a). The RFA provides that an agency is not required to prepare and publish a regulatory flexibility analysis if the agency certifies that the final rule will not have a significant economic impact on a substantial number of small entities. 5 U.S.C. 605(b).

Pursuant to section 605(b) of the RFA (5 U.S.C. 605(b)), the agencies certify that this final rule will not have a significant economic impact on a substantial number of small entities. Pursuant to regulations issued by the Small Business Administration (13 CFR 121.201), a “small entity” includes a bank holding company, commercial bank, or savings association with assets of \$165 million or less (collectively, small banking organizations). The final rule requires a bank holding company, national bank, state member bank, state nonmember bank, or savings association to calculate its risk-based capital requirements according to certain internal-ratings-based and internal model approaches if the bank holding company, bank, or savings association (i) has consolidated total assets (as reported on its most recent year-end regulatory report) equal to \$250 billion or more; (ii) has consolidated total on-balance sheet foreign exposures at the most recent year-end equal to \$10 billion or more; or (iii) is a subsidiary of a bank holding company, bank, or savings association that would be required to use the proposed rule to calculate its risk-based capital requirements.

The agencies estimate that zero small bank holding companies (out of a total of approximately 2,934 small bank holding companies), 16 small national banks (out of a total of approximately 942 small national banks), one small state member bank (out of a total of approximately 491 small state member banks), one small state nonmember bank (out of a total of approximately 3,249 small state nonmember banks), and zero small savings associations (out of a total of approximately 419 small savings associations) would be subject to the final rule on a mandatory basis. In addition, each of the small banking organizations subject to the final rule on a mandatory basis is a subsidiary of a bank holding company with over \$250 billion in consolidated total assets or over

\$10 billion in consolidated total on-balance sheet foreign exposure. Therefore, the agencies believe that the final rule will not result in a significant economic impact on a substantial number of small entities.

Paperwork Reduction Act

In accordance with the requirements of the Paperwork Reduction Act of 1995, the agencies may not conduct or sponsor, and respondents are not required to respond to, an information collection unless it displays a currently valid Office of Management and Budget (OMB) control number. OMB assigned the following control numbers to the collections of information: 1557-0234 (OCC), 3064-0153 (FDIC), and 1550-0115 (OTS). The Board assigned control number 7100-0313.

In September 2006 the OCC, FDIC, and OTS submitted the information collections contained in this rule to OMB for review and approval once the proposed rule was published. The Board, under authority delegated to it by OMB, also submitted the proposed information collection to OMB.

The agencies (OCC, FDIC, the Board, and OTS) determined that sections 21-24, 42, 44, 53, and 71 of the final rule contain collections of information. The final rule sets forth a new risk-based capital adequacy framework that would require some banks and allow other qualifying banks to use an internal ratings-based approach to calculate regulatory credit risk capital requirements and advanced measurement approaches to calculate regulatory operational risk capital requirements. The collections of information are necessary in order to implement the proposed advanced capital adequacy framework. The agencies received approximately ninety public comments. None of the comment letters specifically addressed the proposed burden estimates; therefore, the burden

estimates will remain unchanged, as published in the notice of proposed rulemaking (71 FR 55830).

The affected public are: national banks and Federal branches and agencies of foreign banks (OCC); state member banks, bank holding companies, affiliates and certain non-bank subsidiaries of bank holding companies, uninsured state agencies and branches of foreign banks, commercial lending companies owned or controlled by foreign banks, and Edge and agreement corporations (Board); insured nonmember banks, insured state branches of foreign banks, and certain subsidiaries of these entities (FDIC); and savings associations and certain of their subsidiaries (OTS).

Comment Request

The agencies have an ongoing interest in your comments. They should be sent to [Agency] Desk Officer, [OMB No.], by mail to U.S. Office of Management and Budget, 725 17th Street, NW, #10235, Washington, DC 20503, or by fax to (202) 395-6974.

Comments submitted in response to this notice will be shared among the agencies. All comments will become a matter of public record. Written comments should address the accuracy of the burden estimates and ways to minimize burden including the use of automated collection techniques or the use of other forms of information technology as well as other relevant aspects of the information collection request.

OCC Executive Order 12866

Executive Order 12866 requires Federal agencies to prepare a regulatory impact analysis for agency actions that are found to be “significant regulatory actions.”

“Significant regulatory actions” include, among other things, rulemakings that “have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities.”¹⁰⁸ Regulatory actions that satisfy one or more of these criteria are referred to as “economically significant regulatory actions.”

The OCC anticipates that the final rule will meet the \$100 million criterion and therefore is an economically significant regulatory action. In conducting the regulatory analysis for an economically significant regulatory action, Executive Order 12866 requires each Federal agency to provide to the Administrator of the Office of Management and Budget’s (OMB) Office of Information and Regulatory Affairs (OIRA):

- The text of the draft regulatory action, together with a reasonably detailed description of the need for the regulatory action and an explanation of how the regulatory action will meet that need;
- An assessment of the potential costs and benefits of the regulatory action, including an explanation of the manner in which the regulatory action is consistent with a statutory mandate and, to the extent permitted by law, promotes the President's priorities and avoids undue interference with State, local, and tribal governments in the exercise of their governmental functions;

¹⁰⁸ Executive Order 12866 (September 30, 1993), 58 FR 51735 (October 4, 1993), as amended by Executive Order 13258 (February 26, 2002), 67 FR 9385 (February 28, 2002) and by Executive Order 13422 (January 18, 2007), 72 FR 2763 (January 23, 2007). For the complete text of the definition of "significant regulatory action," see E.O. 12866 at § 3(f). A "regulatory action" is "any substantive action by an agency (normally published in the Federal Register) that promulgates or is expected to lead to the promulgation of a final rule or regulation, including notices of inquiry, advance notices of proposed rulemaking, and notices of proposed rulemaking." E.O. 12866 at § 3(e).

- An assessment, including the underlying analysis, of benefits anticipated from the regulatory action (such as, but not limited to, the promotion of the efficient functioning of the economy and private markets, the enhancement of health and safety, the protection of the natural environment, and the elimination or reduction of discrimination or bias) together with, to the extent feasible, a quantification of those benefits;
- An assessment, including the underlying analysis, of costs anticipated from the regulatory action (such as, but not limited to, the direct cost both to the government in administering the regulation and to businesses and others in complying with the regulation, and any adverse effects on the efficient functioning of the economy, private markets (including productivity, employment, and competitiveness), health, safety, and the natural environment), together with, to the extent feasible, a quantification of those costs; and
- An assessment, including the underlying analysis, of costs and benefits of potentially effective and reasonably feasible alternatives to the planned regulation, identified by the agencies or the public (including improving the current regulation and reasonably viable nonregulatory actions), and an explanation why the planned regulatory action is preferable to the identified potential alternatives.

Set forth below is a summary of the OCC's regulatory impact analysis, which can be found in its entirety at [INSERT UPDATED WEB ADDRESS].

I. THE NEED FOR THE REGULATORY ACTION

Federal banking law directs Federal banking agencies including the Office of the Comptroller of the Currency (OCC) to require banking organizations to hold adequate capital. The law authorizes Federal banking agencies to set minimum capital levels to ensure that banking organizations maintain adequate capital. The law also gives Federal banking agencies broad discretion with respect to capital regulation by authorizing them to also use any other methods that they deem appropriate to ensure capital adequacy.

Capital regulation seeks to address market failures that stem from several sources. Asymmetric information about the risk in a bank's portfolio creates a market failure by hindering the ability of creditors and outside monitors to discern a bank's actual risk and capital adequacy. Moral hazard creates market failure in which the bank's creditors fail to restrain the bank from taking excessive risks because deposit insurance either fully or partially protects them from losses. Public policy addresses these market failures because individual banks fail to adequately consider the positive externality or public benefit that adequate capital brings to financial markets and the economy as a whole.

Capital regulations cannot be static. Innovation in and transformation of financial markets require periodic reassessments of what may count as capital and what amount of capital is adequate. Continuing changes in financial markets create both a need and an opportunity to refine capital standards in banking. The Basel Committee on Banking Supervision's "International Convergence of Capital Measurement and Capital Standards: A Revised Framework" (New Accord), and its implementation in the United States, reflects an appropriate step forward in addressing these changes.

II. REGULATORY BACKGROUND

The capital regulation examined in this analysis will apply to commercial banks and savings associations (collectively, banks). Three banking agencies, the OCC, the Board of Governors of the Federal Reserve System (Board), and the FDIC regulate commercial banks, while the Office of Thrift Supervision (OTS) regulates all federally chartered and many state-chartered savings associations. Throughout this document, the four are jointly referred to as the Federal banking agencies.

The New Accord comprises three mutually reinforcing “pillars” as summarized below.

1. Minimum capital requirements (Pillar 1)

The first pillar establishes a method for calculating minimum regulatory capital. It sets new requirements for assessing credit risk and operational risk while retaining the approach to market risk as developed in the 1996 amendments to the 1988 Accord.

The New Accord offers banks a choice of three methodologies for calculating a capital charge for credit risk. The first approach, called the Standardized Approach, essentially refines the risk-weighting framework of the 1988 Accord. The other two approaches are variations on an internal ratings-based (IRB) approach that leverages banks’ internal credit-rating systems: a “foundation” methodology in which banks estimate the probability of borrower or obligor default, and an “advanced” approach in which banks also supply other inputs needed for the capital calculation. In addition, the

new framework uses more risk-sensitive methods for dealing with collateral, guarantees, credit derivatives, securitizations, and receivables.

The New Accord also introduces an explicit capital requirement for operational risk.¹⁰⁹ The New Accord offers banks a choice of three methodologies for calculating their capital charge for operational risk. The first method, called the Basic Indicator Approach, requires banks to hold capital for operational risk equal to 15 percent of annual gross income (averaged over the most recent three years). The second option, called the Standardized Approach, uses a formula that divides a bank's activities into eight business lines, calculates the capital charge for each business line as a fixed percentage of gross income (12 percent, 15 percent, or 18 percent depending on the nature of the business, again averaged over the most recent three years), and then sums across business lines. The third option, called the Advanced Measurement Approaches (AMA), uses a bank's internal operational risk measurement system to determine the capital requirement.

2. Supervisory review process (Pillar 2)

The second pillar calls upon banks to have an internal capital assessment process and banking supervisors to evaluate each bank's overall risk profile as well as its risk management and internal control processes. This pillar establishes an expectation that banks hold capital beyond the minimums computed under Pillar 1, including additional

¹⁰⁹ Operational risk is the risk of loss resulting from inadequate or failed processes, people, and systems or from external events. It includes legal risk, but excludes strategic risk and reputation risk.

capital for any risks that are not adequately captured under Pillar 1. It encourages banks to develop better risk management techniques for monitoring and managing their risks. Pillar 2 also charges supervisors with the responsibility to ensure that banks using advanced Pillar 1 techniques, such as the IRB approach to credit risk and the AMA for operational risk (collectively, advanced approaches), comply with the minimum standards and disclosure requirements of those methods, and take action promptly if capital is not adequate.

3. Market discipline (Pillar 3)

The third pillar of the New Accord sets minimum disclosure requirements for banks. The disclosures, covering the composition and structure of the bank's capital, the nature of its risk exposures, its risk management and internal control processes, and its capital adequacy, are intended to improve transparency and strengthen market discipline. By establishing a common set of disclosure requirements, Pillar 3 seeks to provide a consistent and understandable disclosure framework that market participants can use to assess key pieces of information on the risks and capital adequacy of a bank.

B. U.S. implementation

The rule for implementing the New Accord's advanced approaches in the United States will apply the new framework to the largest and most internationally active banks. All banks will fall into one of three regulatory categories. The first category, called

“mandatory” banks, consists of banks with consolidated assets of at least \$250 billion or consolidated on-balance-sheet foreign exposures of \$10 billion or more. Mandatory banks will have to use the New Accord’s most advanced methods only: the Advanced IRB approach to determine capital for credit risk and the AMA to determine capital for operational risk. A second category of banks, called “opt-in” banks, includes banks that do not meet either size criteria of a mandatory bank but choose voluntarily to comply with the advanced approaches specified under the New Accord. The third category, called “general” banks, encompasses all other banks, and these will continue to operate under existing risk-based capital rules, subject to any amendments.

Various changes to the rules that apply to non-mandatory banks are under consideration. The Federal banking agencies have decided to issue for comment a proposal that would allow the voluntary adoption of the standardized approach for credit risk and the basic indicator approach for operational risk for non-mandatory banks (referred to hereafter as the Standardized Option). Because the Standardized Option would be a separate rulemaking, our analysis will focus just on the implementation of the Advanced Approaches. However, we will note how the Standardized Option might affect the outcome of our analysis if we anticipate the possibility that its adoption could lead to a significantly different outcome.

While introducing many significant changes, the U.S. implementation of the New Accord retains many components of the capital rules currently in effect. For example, it preserves existing Prompt Corrective Action provisions for all banks. The U.S.

implementation of the New Accord also keeps intact most elements of the definition of what comprises regulatory capital.

III. COSTS AND BENEFITS OF THE RULE

This analysis considers the costs and benefits of the fully phased-in rule. Under the rule, current capital rules will remain in effect in 2008 during a parallel run using both old and new capital rules. For three years following the parallel run, the final rule will apply limits on the amount by which minimum required capital may decrease. This analysis, however, considers the costs and benefits of the rule as fully phased in.

Cost and benefit analysis of changes in minimum capital requirements entail considerable measurement problems. On the cost side, it can be difficult to attribute particular expenditures incurred by banks to the costs of implementation because banks would likely incur some of these costs as part of their ongoing efforts to improve risk measurement and management systems. On the benefits side, measurement problems are even greater because the benefits of the rule are more qualitative than quantitative. Measurement problems exist even with an apparently measurable effect such as lower minimum capital because lower minimum requirements do not necessarily mean lower capital levels held by banks. Healthy banks generally hold capital well above regulatory minimums for a variety of reasons, and the effect of reducing the regulatory minimum is uncertain and may vary across regulated banks.

Benefits of the Rule

1. Better allocation of capital and reduced impact of moral hazard through reduction in the scope for regulatory arbitrage: By assessing the amount of capital required for each exposure or pool of exposures, the advanced approaches do away with the simplistic risk buckets of current capital rules. Getting rid of categorical risk weighting and assigning capital based on measured risk instead greatly curtails or eliminates the ability of troubled banks to “game” regulatory capital requirements by finding ways to comply technically with the requirements while evading their intent and spirit.
2. Improved signal quality of capital as an indicator of solvency: The advanced approaches are designed to more accurately align regulatory capital with risk, which should improve the signal quality of capital as an indicator of solvency. The improved signaling quality of capital will enhance banking supervision and market discipline.
3. Encourages banks to improve credit risk management: One of the principal objectives of the rule is to more closely align capital charges and risk. For any type of credit, risk increases as either the probability of default or the loss given default increases. Under the final rule, the capital charge for credit risk depends on these risk parameter measures and consequently capital requirements will more closely reflect risk. This enhanced link between capital requirements and risk will encourage banks to improve credit risk management.
4. More efficient use of required bank capital: Increased risk sensitivity and improvements in risk measurement will allow prudential objectives to be

achieved more efficiently. If capital rules can better align capital with risk across the system, a given level of capital will be able to support a higher level of banking activity while maintaining the same degree of confidence regarding the safety and soundness of the banking system. Social welfare is enhanced by either the stronger condition of the banking system or the increased economic activity the additional banking services facilitate.

5. Incorporates and encourages advances in risk measurement and risk management: The rule seeks to improve upon existing capital regulations by incorporating advances in risk measurement and risk management made over the past 15 years. An objective of the rule is to speed adoption of new risk management techniques and to promote the further development of risk measurement and management through the regulatory process.
6. Recognizes new developments and accommodates continuing innovation in financial products by focusing on risk: The rule also has the benefit of facilitating recognition of new developments in financial products by focusing on the fundamentals behind risk rather than on static product categories.
7. Better aligns capital and operational risk and encourages banks to mitigate operational risk: Introducing an explicit capital calculation for operational risk eliminates the implicit and imprecise “buffer” that covers operational risk under current capital rules. Introducing an explicit capital requirement for operational risk improves assessments of the protection capital provides, particularly at banks where operational risk dominates other risks. The

explicit treatment also increases the transparency of operational risk, which could encourage banks to take further steps to mitigate operational risk.

8. Enhanced supervisory feedback: Although U.S. banks have long been subject to close supervision, aspects of all three pillars of the rule aim to enhance supervisory feedback from Federal banking agencies to managers of banks. Enhanced feedback could further strengthen the safety and soundness of the banking system.
9. Enhanced disclosure promotes market discipline: The rule seeks to aid market discipline through the regulatory framework by requiring specific disclosures relating to risk measurement and risk management. Market discipline could complement regulatory supervision to bolster safety and soundness.
10. Preserves the benefits of international consistency and coordination achieved with the 1988 Basel Accord: An important objective of the 1988 Accord was competitive consistency of capital requirements for banks competing in global markets. The New Accord continues to pursue this objective. Because achieving this objective depends on the consistency of implementation in the United States and abroad, the Basel Committee on Banking Supervision (BCBS) has established an Accord Implementation Group to promote consistency in the implementation of the New Accord.
11. Ability to opt in offers long-term flexibility to nonmandatory banks: The U.S. implementation of the New Accord allows non-mandatory banks to individually judge when the benefits they expect to realize from adopting

the advanced approaches outweigh their costs. Even though the cost and complexity of adopting the advanced methods may present non-mandatory banks with a substantial hurdle to opting in at present, the potential long-term benefits of allowing non-mandatory banks to partake in the benefits described above may be similarly substantial.

Costs of the Rule

Because banks are constantly developing programs and systems to improve how they measure and manage risk, it is difficult to distinguish between expenditures explicitly caused by adoption of this final rule and costs that would have occurred irrespective of any new regulation. In an effort to identify how much banks expect to spend to comply with the U.S. implementation of the New Accord's advanced approaches, the Federal banking agencies included several questions related to compliance costs in the fourth Quantitative Impact Study (QIS-4).¹¹⁰

1. Overall Costs: According to the 19 out of 26 QIS-4 questionnaire respondents that provided estimates of their implementation costs, banks will spend roughly \$42 million on average to adapt to capital requirements implementing the New Accord's advanced approaches. Not all of these respondents are likely mandatory banks. Counting just the likely mandatory

¹¹⁰ For more information on QIS-4, see Office of the Comptroller of the Currency, Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, and Office of Thrift Supervision, "Summary Findings of the Fourth Quantitative Impact Study," February 2006, available online at <http://www.occ.treas.gov/ftp/release/2006-23a.pdf>.

banks, the average is approximately \$46 million, so there is little difference between banks that meet a mandatory threshold and those that do not.

Aggregating estimated expenditures from all 19 respondents indicates that these banks will spend a total of \$791 million over several years to implement the rule. Estimated costs for nine respondents meeting one of the mandatory thresholds come to \$412 million.

2. Estimate of costs specific to the rule: Ten QIS-4 respondents provided estimates of the portion of costs they would have incurred even if current capital rules remain in effect. Those ten indicated that they would have spent 45 percent on average, or roughly half of their advanced approaches expenditures on improving risk management anyway. This suggests that of the \$42 million banks expect to spend on implementation, approximately \$21 million may represent expenditures each bank would have undertaken even without the New Accord. Thus, pure implementation costs may be closer to roughly \$395 million for the 19 QIS-4 respondents.
3. Ongoing costs: Seven QIS-4 respondents were able to estimate what their recurring costs might be under the U.S implementation of the New Accord. On average, the seven banks estimate that annual recurring expenses attributable to the revised capital framework will be \$2.4 million per bank. Banks indicated that the ongoing costs to maintain related technology reflect costs for increased personnel and system maintenance. The larger one-time expenditures to adopt this final rule primarily involve money for system development and software purchases.

4. Implicit costs: In addition to explicit setup and recurring costs, banks may also face implicit costs arising from the time and inconvenience of having to adapt to new capital regulations. At a minimum this involves the increased time and attention required of senior bank management to introduce new programs and procedures and the need to closely monitor the new activities during the inevitable rough patches when the rule first takes effect.
5. Government Administrative Costs: OCC expenditures fall into three broad categories: training, guidance, and supervision. Training includes expenses for AMA and IRB workshops, and other training courses and seminars for examiners. Guidance expenses reflect expenditures on the development of IRB and AMA guidance. Supervision expenses reflect bank-specific supervisory activities related to the development and implementation of the New Accord. The largest OCC expenditures have been on the development of IRB and AMA policy guidance. The \$5.4 million spent on guidance represents 54 percent of the estimated total OCC advanced approaches-related expenditure of \$10.0 million through the 2006 fiscal year. In part, this large share reflects the absence of data for training and supervision costs for several years, but it also is indicative of the large guidance expenses in 2002 and 2003 when the New Accord was in development. To date, New Accord expenditures have not been a large part of overall OCC expenditures. The \$3 million spent on the advanced approaches in fiscal year 2006 represents less than one percent of the OCC's \$579 million budget for the year.

6. Total Cost: The OCC's estimate of the total cost of the rule includes expenditures by banks and the OCC from the present through 2011, the final year of the transition period. Combining expenditures by mandatory banks and the OCC provides a present value estimate of \$498.9 million for the total cost of the rule.
7. Procyclicality: Procyclicality refers to the possibility that banks may reduce lending during economic downturns and increase lending during economic expansions as a consequence of minimum capital requirements. There is some concern that the risk-sensitivity of the Advanced IRB approach may cause capital requirements for credit risk to increase during an economic downturn. Although procyclicality may be inherent in banking to some extent, elements of the advanced approaches could reduce inherent procyclicality. Risk management and information systems may provide bank managers with more forward-looking information about risk that will allow them to adjust portfolios gradually and with more foresight as the economic outlook changes over the business cycle. Regulatory stress-testing requirements included in the rule also will help ensure that banks anticipate cyclical changes in capital requirements to the greatest extent possible, reducing the potential economic impact of changes in capital requirements.

IV. COMPETITION AMONG PROVIDERS OF FINANCIAL SERVICES

One potential concern with any regulatory change is the possibility that it might create a competitive advantage for some banks relative to others, a possibility that certainly applies to a change with the scope of this final rule. However, measurement difficulties described in the preceding discussion of costs and benefits also extend to any consideration of the impact on competition. Despite the inherent difficulty of drawing definitive conclusions, this section considers various ways in which competitive effects might be manifest, as well as available evidence related to those potential effects.

1. Explicit Capital for Operational Risk: Some have noted that the explicit computation of required capital for operational risk could lead to an increase in total minimum regulatory capital for U.S. "processing" banks, generally defined as banks that tend to engage in a variety of activities related to securities clearing, asset management, and custodial services. Some have suggested that the increase in required capital could place such firms at a competitive disadvantage relative to competitors that do not face a similar capital requirement. A careful analysis by Fontnouvelle *et al*¹¹¹ considers the potential competitive impact of the explicit capital requirement for operational risk. Overall, the study concludes that competitive effects from an explicit operational risk capital requirement should be, at most, extremely modest.

¹¹¹ Patrick de Fontnouvelle, Victoria Garrity, Scott Chu, and Eric Rosengren, "The Potential Impact of Explicit Basel II Operational Risk Capital Charges on the Competitive Environment of Processing Banks in the United States," manuscript, Federal Reserve Bank of Boston, January 12, 2005. Available at www.federalreserve.gov/generalinfo/basel2/whitepapers.htm.

2. Residential Mortgage Lending: The issue of competitive effects has received substantial attention with respect to the residential mortgage market. The focus on the residential mortgage market stems from the size and importance of the market in the United States, and the fact that the rule may lead to substantial reductions in credit-risk capital for residential mortgages. To the extent that corresponding operational-risk capital requirements do not offset these credit-risk-related reductions, overall capital requirements for residential mortgages could decline under the rule. Studies by Calem and Follain¹¹² and Hancock, Lennert, Passmore, and Sherlund¹¹³ suggest that banks operating under rules based on the New Accord's advance approaches may increase their holdings of residential mortgages. Calem and Follain argue that the increase would be significant and come at the expense of general banks. Hancock *et al* foresee a more modest increase in residential mortgage holdings at banks operating under the advanced approaches rule, and they see this increase primarily as a shift away from the large government sponsored mortgage enterprises.
3. Small Business Lending: One potential avenue for competitive effects is small-business lending. Smaller banks – those that are less likely to adopt the advanced approaches to regulatory capital under the rule – tend to rely more heavily on smaller loans within their commercial loan portfolios. To

¹¹² Paul S. Calem and James R. Follain, "Regulatory Capital Arbitrage and the Potential Competitive Impact of Basel II in the Market for Residential Mortgages", *The Journal of Real Estate Finance and Economics*, Vol. 35, pp. 197-219, August 2007.

¹¹³ Diana Hancock, Andreas Lennert, Wayne Passmore, and Shane M. Sherlund, "An Analysis of the Potential Competitive Impact of Basel II Capital Standards on U.S. Mortgage Rates and Mortgage Securitization", manuscript, Federal Reserve Board, April 2005. Available at www.federalreserve.gov/generalinfo/basel2/whitepapers.htm.

the extent that the rule reduces required capital for such loans, general banks not operating under the rule might be placed at a competitive disadvantage. A study by Berger¹¹⁴ finds some potential for a relatively small competitive effect on smaller banks in small business lending. However, Berger concludes that the small business market for large banks is very different from the small business market for smaller banks. For instance, a “small business” at a larger bank is usually much larger than small businesses at community banks.

4. Mergers and Acquisitions: Another concern related to potential changes in competitive conditions under the rule is that bifurcation of capital standards might change the landscape with regard to mergers and acquisitions in banking and financial services. For example, banks operating under this final rule might be placed in a better position to acquire banks operating under the old rules, possibly leading to an undesirable consolidation of the banking sector. Research by Hannan and Pilloff¹¹⁵ suggests that the rule is unlikely to have a significant impact on merger and acquisition activity in banking.
5. Credit Card Competition: The U.S. implementation of the New Accord might also affect competition in the credit card market. Overall capital requirements for credit card loans could increase under the rule. This raises

¹¹⁴ Allen N. Berger, “Potential Competitive Effects of Basel II on Banks in SME Credit Markets in the United States,” *Journal of Financial Services Research*, 29:1, pp. 5-36, 2006. Also available at www.federalreserve.gov/generalinfo/basel2/whitepapers.htm.

¹¹⁵ Timothy H. Hannan and Steven J. Pilloff, “Will the Proposed Application of Basel II in the United States Encourage Increased Bank Merger Activity? Evidence from Past Merger Activity,” Federal Reserve Board Finance and Economics Discussion Series, 2004-13, February 2004. Available at www.federalreserve.gov/generalinfo/basel2/whitepapers.htm.

the possibility of a change in the competitive environment among banks subject to the new rules, nonbank credit card issuers, and banks not subject to this final rule. A study by Lang, Mester, and Vermilyea¹¹⁶ finds that implementation of a rule based on the New Accord will not affect credit card competition at most community and regional banks. The authors also suggest that higher capital requirements for credit cards may only pose a modest disadvantage to banks that are subject to this final rule.

Overall, the evidence regarding the impact of this final rule on competitive equity is mixed. The body of recent economic research discussed in the body of this report does not reveal persuasive evidence of any sizeable competitive effects. Nonetheless, the Federal banking agencies recognize the need to closely monitor the competitive landscape subsequent to any regulatory change. In particular, the OCC and other Federal banking agencies will be alert for early signs of competitive inequities that might result from this final rule. A multi-year transition period before full implementation of this final rule should provide ample opportunity for the Federal banking agencies to identify any emerging problems. In particular, after the end of the second transition year, the agencies will conduct and publish a study that evaluates the advanced approaches to determine if there are any material deficiencies.¹¹⁷ The Federal banking agencies will consider any egregious competitive effects associated with New Accord implementation, whether domestic or international in context, to be a material deficiency. To the extent

¹¹⁶ William W. Lang, Loretta J. Mester, and Todd A. Vermilyea, "Potential Competitive Effects on U.S. Bank Credit Card Lending from the Proposed Bifurcated Application of Basel II," manuscript, Federal Reserve Bank of Philadelphia, December 2005. Available at <http://www.philadelphiafed.org/files/wps/2005/wp05-29.pdf>

¹¹⁷ The full text of the Regulatory Impact Analysis describes the factors that the interagency study will consider.

that undesirable competitive inequities emerge, the agencies have the power to respond to them through many channels, including but not limited to suitable changes to the capital adequacy regulations.

V. ANALYSIS OF BASELINE AND ALTERNATIVES

In order to place the costs and benefits of the rule in context, Executive Order 12866 requires a comparison between this final rule, a baseline of what the world would look like without this final rule, and several reasonable alternatives to the rule. In this regulatory impact analysis, we analyze a baseline and three alternatives to the rule. The baseline analyzes the situation where the Federal banking agencies do not adopt this final rule, but other countries with internationally active banks do adopt the New Accord.¹¹⁸

1. Baseline Scenario: Current capital standards based on the 1988 Basel Accord continue to apply to banks operating in the United States, but the rest of the world adopts the New Accord: Abandoning the New Accord in favor of current capital rules would eliminate essentially all of the benefits of the rule described earlier. In place of these lost or diminished benefits, the only advantage of continuing to apply current capital rules to all banks is that maintaining the *status quo* should alleviate concerns regarding competition among domestic financial service providers. Although the effect of the rule on competition is uncertain in our estimation, staying with current capital rules (or universally applying a revised rule that might

¹¹⁸ In addition to the United States, members of the BCBS implementing Basel II are Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Spain, Sweden, Switzerland, and the United Kingdom.

emerge from the Standardized Option) eliminates bifurcation. Concerns regarding competition usually center on this characteristic of the rule. However, the emergence of different capital rules across national borders would at least partially offset this advantage. Thus, while concerns regarding competition among U.S. financial service providers might diminish in this scenario, concerns regarding cross-border competition would likely increase. While continuing to use current capital rules eliminates most of the benefits of adopting the capital rule, it does not eliminate many costs associated with the New Accord. Because the New Accord-related costs are difficult to separate from the bank's ordinary development costs and ordinary supervisory costs at the Federal banking agencies, not implementing the New Accord would reduce but not eliminate many of these costs associated with the final rule.¹¹⁹ Furthermore, because banks in the United States would be operating under a set of capital rules different from the rest of the world, U.S. banks that are internationally active may face higher costs because they will have to track and comply with more than one set of capital requirements.

2. Alternative A: Permit U.S. banks to choose among all three New Accord credit risk approaches: The principal benefit of Alternative A that the rule does not achieve is the increased flexibility of the regulation for banks that would be mandatory banks under the final rule. Banks that are not prepared for the adoption of the advanced approach to credit risk under the final rule

¹¹⁹ Cost estimates for adopting a rule that might result from the Standardized Option are not currently available.

could choose to use the Foundation IRB methodology or even the Standardized Approach. How Alternative A might affect benefits depends entirely on how many banks select each of the three available options. The most significant drawback to Alternative A is the increased cost of applying a new set of capital rules to all U.S. banks. The vast majority of banks in the United States would incur no direct costs from new capital rules. Under Alternative A, direct costs would increase for every U.S. bank that would have continued with current capital rules. Although it is not clear how high these costs might be, general banks would face higher costs because they would be changing capital rules regardless of which option they choose under Alternative A.

3. Alternative B: Permit U.S. banks to choose among all three New Accord operational risk approaches: The operational risk approach that banks ultimately selected would determine how the overall benefits of the new capital regulations would change under Alternative B. Just as Alternative A increases the flexibility of credit risk rules for mandatory banks, Alternative B is more flexible with respect to operational risk. Because the Standardized Approach tries to be more sensitive to variations in operational risk than the Basic Indicator Approach and AMA is more sensitive than the Standardized Approach, the effect of implementing Alternative B depends on how many banks select the more risk sensitive approaches. As was the case with Alternative A, the most significant drawback to Alternative B is the increased cost of applying a new set of capital rules to all U.S. banks.

Under Alternative B, direct costs would increase for every U.S. bank that would have continued with current capital rules. It is not clear how much it might cost banks to adopt these capital measures for operational risk, but general banks would face higher costs because they would be changing capital rules regardless of which option they choose under Alternative B.

4. Alternative C: Use a different asset amount to determine a mandatory bank:

The number of mandatory banks decreases slowly as the size thresholds increase, and the number of banks grows more quickly as the thresholds decrease. Under Alternative C, the framework of the final rule would remain the same and only the number of mandatory banks would change. Because the structure of the implementation would remain intact, Alternative C would capture all of the benefits of the final rule. However, because these benefits derive from applying the final rule to individual banks, changing the number of banks affected by the rule will change the cumulative level of the benefits achieved. Generally, the benefits associated with the rule will rise and fall with the number of mandatory banks. Because Alternative C would change the number of mandatory banks subject to the rule, aggregate costs will also rise or fall with the number of mandatory banks.

Overall Comparison of the Rule with Baselines and Alternatives

The New Accord and its U.S. implementation seek to incorporate risk measurement and risk management advances into capital requirements. Risk-

sensitive capital requirements are integral to ensuring an adequate capital cushion to absorb financial losses at large complex financial banks. In implementing the New Accord's advanced approaches in the United States, the agencies' intent is to achieve risk-sensitivity while maintaining a regulatory capital regime that is as rigorous as the current system. Total capital requirements under the advanced approaches, including capital for operational risk, will better allocate capital in the system. This will occur regardless of whether the minimum required capital at a particular bank is greater or less than it would be under current capital rules. In order to ensure that we achieve our goal of increased risk sensitivity without loss of rigor, the final rule provides a means for the agencies to identify and address deficiencies in the capital requirements that may become apparent during the transition period.

Although the anticipated benefits of the final rule are difficult to quantify in dollar terms because of measurement problems, the OCC is confident that the anticipated benefits will exceed the anticipated costs of this regulation. On the basis of our analysis, we believe that the benefits of the final rule are significant, durable, and hold the potential to increase with time. The offsetting costs of implementing the final rule are also significant, but appear to be largely because of considerable start-up costs. However, much of the apparent start-up costs reflect activities that the banks would undertake as part of their ongoing efforts to improve the quality of their internal risk measurement and management, even in the absence of the New Accord and this final rule. The advanced approaches seem to have fairly modest ongoing expenses. Against these costs, the significant

benefits of the New Accord suggest that the final rule offers an improvement over the baseline scenario.

(1) With regard to the three alternative approaches we consider, the final rule offers an important degree of flexibility while significantly restricting costs by limiting its application to large, internationally active banks. Alternatives A and B introduce more flexibility from the perspective of the large mandatory banks, but each is less flexible with respect to other banks. Either Alternative A or B would compel these non-mandatory banks to select a new set of capital rules and require them to undertake the time and expense of adjusting to this final rule. Alternative C would change the number of mandatory banks. If the number of mandatory banks increases, then the new rule would lose some of the flexibility it achieves with the opt-in option. Furthermore, costs would increase as the final rule would compel more banks to incur the expense of adopting the advanced approaches. Decreasing the number of mandatory banks would decrease the aggregate social good of each benefit achieved with the final rule. The final rule offers a better balance between costs and benefits than any of the three alternatives.

OTS Executive Order 12866 Determination

OTS commented on the development of, and concurs with, OCC's RIA. Rather than replicate that analysis, OTS drafted an RIA incorporating OCC's analysis by reference and adding appropriate material reflecting the unique aspects of the thrift industry. The full text of OTS's RIA is available at the locations for viewing the OTS docket indicated in the ADDRESSES section above. OTS believes that its analysis meets the requirements of Executive Order 12866.

The following discussion supplements OCC's summary of its RIA.

The final rule will apply to approximately six mandatory and potential opt-in savings associations representing approximately 52 percent of total thrift industry assets. Approximately 76 percent of the total assets in these six institutions are concentrated in residential mortgage-related assets. By contrast, national banks tend to concentrate their assets in commercial loans and other kinds of non-mortgage loans. Only about 35 percent of national bank's total assets are residential mortgage-related assets. As a result, the costs and benefits of the final rule for OTS-regulated savings associations will differ in important ways from OCC-regulated national banks. These differences are the focus of OTS's analysis.

Benefits. Among the benefits of the final rule, OCC cites: (i) Better allocation of capital and reduced impact of moral hazard through reduction in the scope for regulatory arbitrage; (ii) improved signal quality of capital as an indicator of institution solvency; and (iii) more efficient use of required bank capital. From OTS's perspective, however, the final rule may not provide the degree of benefits anticipated by OCC from these sources.

Because of the typically low credit risk associated with residential mortgage-related assets, OTS believes that the risk-insensitive leverage ratio, rather than the risk-based capital ratio, may be more binding on savings association institutions.¹²⁰ As a result, these institutions may be required to hold more capital than would be required under Basel II risk-based standards alone. Therefore, the final rule may cause these

¹²⁰ The leverage ratio is the ratio of core capital to adjusted total assets. Under prompt corrective action requirements, savings associations must maintain a leverage ratio of at least five percent to be well capitalized and at least four percent to be adequately capitalized. Basel II will primarily affect the calculation of risk-weighted assets, rather than the calculation of total assets and will have only a modest impact on the calculation of core capital. Thus, the proposed Basel II changes should not significantly affect the calculated leverage ratio and a savings association that is currently constrained by the leverage ratio would not significantly benefit from the Basel II changes.

institutions to incur much the same implementation costs as banks with riskier assets, but with reduced benefits.

Costs. OTS adopts the OCC cost analysis with the following supplemental information on OTS's administrative costs. OTS did not incur a meaningful amount of direct expenditures until 2002 when it transitioned from a monitoring role to active involvement in Basel II. Thereafter, expenditures increased rapidly. The OTS expenditures fall into two broad categories: policymaking expenses incurred in the development of the ANPR, the NPR, the final rule and related guidance; and supervision expenses that reflect institution-specific supervisory activities. OTS estimates that it incurred total expenses of \$6,420,000 for fiscal years 2002 through 2006, including \$4,080,000 in policymaking expenses and \$2,340,000 in supervision expenses. OTS anticipates that supervision expenses will continue to grow as a percentage of the total expense as it moves from policy development to implementation and training. To date, Basel II expenditures have not been a large part of overall expenditures.

Competition. OTS agrees with OCC's analysis of competition among providers of financial services. OTS adds, however, that some institutions with low credit risk portfolios face an existing competitive disadvantage because they are bound by a non-risk-based capital requirement – the leverage ratio. Thus, the agencies regulate a class of institutions that currently receive fewer capital benefits from risk-based capital rules because they are bound by the risk-insensitive leverage ratio. This anomaly will likely continue under the final rule.

In addition, the results from QIS-3 and QIS-4 suggest that the largest reductions in regulatory credit-risk capital requirements from the application of revised rules would

occur in the residential mortgage loan area. Thus, to the extent regulatory credit-risk capital requirements affect pricing of such loans, it is possible that core and opt-in institutions who are not constrained by the leverage ratio may experience an improvement in their competitive standing vis-à-vis non-adopters and vis-à-vis adopters who are bound by the leverage ratio. Two research papers – one by Calem and Follain,¹²¹ and another by Hancock, Lenhart, Passmore, and Sherlund¹²² addressed this topic. The Calem and Follain paper argues that Basel II will significantly affect the competitive environment in mortgage lending; Hancock, et al. argue that it will not. Both papers are predicated, however, on the current capital regime for non-adopters. The agencies recently announced that they have agreed to issue a proposed rule that would provide non-core banks with the option to adopt an approach consistent with the standardized approach included in the Basel II framework. The standardized proposal will replace the earlier proposed rule (the Basel IA proposed rule), and would be available as an alternative to the existing risk-based capital rules for all U.S. banks other than banks that adopt the final Basel II rule. Such modifications, if implemented, would likely reduce the competitive advantage of Basel II adopters.

The final rule also has a ten percent floor on loss given default parameter estimates for residential mortgage segments that persists beyond the two-year period articulated in the international Basel II framework, providing a disincentive for core institutions to hold the least risky residential mortgages. This may have the effect of

¹²¹ Paul S. Calem and James R. Follain, “An Examination of How the Proposed Bifurcated Implementation of Basel II in the U.S. May Affect Competition Among Banking Organizations for Residential Mortgages,” manuscript, January 14, 2005.

¹²² Diana Hancock, Andreas Lenhart, Wayne Passmore, and Shane M Sherlund, “An Analysis of the Competitive Impacts of Basel II Capital Standards on U.S. Mortgage Rates and Mortgage Securitization, March 7, 2005, Board of Governors of the Federal Reserve System, working paper.

reducing the core banks' advantage vis-à-vis both non-adopters and their international competitors.

Further, residential mortgages are subject to substantial interest rate risk. The agencies will retain the authority to require additional capital to cover interest rate risk. If regulatory capital requirements affect asset pricing, a substantial regulatory capital interest rate risk component could mitigate any competitive advantages of the proposed rule. Moreover, the capital requirement for interest rate risk would be subject to interpretation by each agency. A consistent evaluation of interest rate risk by the supervisory agencies would present a level playing field among the adopters -- an important consideration given the potential size of the capital requirement.

OCC Unfunded Mandates Reform Act of 1995 Determination

The Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4) (UMRA) requires cost-benefit and other analyses for a rule that would include any Federal mandate that may result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector of \$100 million or more (adjusted annually for inflation) in any one year. The current inflation-adjusted expenditure threshold is \$119.6 million. The requirements of the UMRA include assessing a rule's effects on future compliance costs; particular regions or State, local, or tribal governments; communities; segments of the private sector; productivity; economic growth; full employment; creation of productive jobs; and the international competitiveness of U.S. goods and services. The final rule qualifies as a significant regulatory action under the UMRA because its Federal mandates may result in the expenditure by the private sector of \$119.6 million or more in any one year. As permitted by section 202(c) of the UMRA, the required analyses have been

prepared in conjunction with the Executive Order 12866 analysis document titled Regulatory Impact Analysis for Risk-Based Capital Standards: Revised Capital Adequacy Guidelines. The analysis is available on the Internet at <http://www.occ.treas.gov/law/basel.htm> under the link of “Regulatory Impact Analysis for Risk-Based Capital Standards: Revised Capital Adequacy Guidelines (Basel II), Office of the Comptroller of the Currency, International and Economic Affairs (2006)”.

OTS Unfunded Mandates Reform Act of 1995 Determination

The Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4) (UMRA) requires cost-benefit and other analyses for a rule that would include any Federal mandate that may result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector of \$100 million or more (adjusted annually for inflation) in any one year. The current inflation-adjusted expenditure threshold is \$119.6 million. The requirements of the UMRA include assessing a rule’s effects on future compliance costs; particular regions or State, local, or tribal governments; communities; segments of the private sector; productivity; economic growth; full employment; creation of productive jobs; and the international competitiveness of U.S. goods and services. The final rule qualifies as a significant regulatory action under the UMRA because its Federal mandates may result in the expenditure by the private sector of \$119.6 or more in any one year. As permitted by section 202(c) of the UMRA, the required analyses have been prepared in conjunction with the Executive Order 12866 analysis document titled Regulatory Impact Analysis for Risk-Based Capital Standards: Revised Capital Adequacy Guidelines. The analysis is available at the locations for viewing the OTS docket indicated in the ADDRESSES section above.