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DIVISION OF BANKING
SUPERVISION AND REGULATION

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**TO THE OFFICER IN CHARGE OF SUPERVISION AND TO APPROPRIATE
SUPERVISORY AND EXAMINATION STAFF AT EACH FEDERAL RESERVE
BANK AND TO BANKING ORGANIZATIONS SUPERVISED BY THE
FEDERAL RESERVE THAT REPORT TRADING ASSETS OR LIABILITIES.**

SUBJECT: Application of the Market Risk Rule in Bank Holding Companies and State Member Banks

Introduction

The Federal Reserve's market risk rule (MRR)¹ establishes regulatory capital requirements for bank holding companies (BHCs) and state member banks (collectively, banking organizations) with significant exposure to certain market risks.² The MRR also sets out certain key market-risk management requirements for banking organizations subject to the rule, including the need for appropriate stress testing and independent market risk management. This SR letter reiterates some of the MRR's core requirements, provides guidance on certain technical aspects of the rule, and addresses several issues where the Federal Reserve has identified the need for clarification. This enhanced guidance should aid MRR-subject banking organizations, particularly those that have recently become subject to the MRR, in appropriate and consistent implementation of the rule.

Significantly, the MRR requirements alone, even when robustly implemented, do not ensure sound market-risk management. Each banking organization subject to the MRR (a subject banking organization) is responsible for identifying its trading and other market risks and for implementing a sound risk-management program commensurate with those risks. Such programs should include an appropriate suite of quantitative metrics as well as ongoing

¹ The MRR implements the *Amendment to the Capital Accord to incorporate market risks* (Market Risk Amendment, or MRA) issued by the Basel Committee on Banking Supervision (BCBS) in 1996 and modified in 1997 and 2005. Currently, the BCBS is in the process of further modifying the MRA. Once finalized, the Federal Reserve will work with the other banking agencies to implement a revised U.S. rule. However, many aspects of the core rule which are addressed in this letter will be retained. The MRR is set forth at 12 CFR part 208, Appendix E for state member banks and 12 CFR part 225, Appendix E for BHCs.

² Banking organizations not subject to the MRR may nonetheless be subject to significant market risks, for example, interest-rate risk in the banking book.

qualitative analysis performed by competent, independent risk-management staff. Critical qualitative analysis should consider the incentives (e.g., compensation) and constraints (e.g., quantitative trading limits) of position takers. Banking organizations should periodically reassess and adjust their market-risk management programs, taking into account changing firm strategies, market developments, organizational incentive structures, and evolving risk-management techniques.³

Background

The MRR applies to each banking organization that has gross trading assets and liabilities equal to \$1 billion or more, or gross trading assets and liabilities equal to 10 percent or more of total consolidated assets.⁴ Under the MRR, a subject banking organization must determine a capital charge for its exposure to general market risk, which includes the risk of loss resulting from broad market movements such as changes in the general level of interest rates, equity prices, foreign exchange rates, credit spreads, or commodity prices. For purposes of the MRR, general market risk also encompasses all other significant price risks other than issuer-related risks. The capital charge for general market risk is determined based on all of a banking organization's "covered positions" (discussed below). Further, the banking organization must calculate capital charges for specific risk defined as potential changes in the market value of certain positions due to issuer-related risks, including default, event, and idiosyncratic spread risks. Specific-risk charges apply to all covered positions that entail issuer risk (e.g., bonds, equities, hybrids, or derivatives referencing issuer risks).

The MRR requires a subject banking organization to use an internal value-at-risk (VaR) model that has been approved by the Federal Reserve as the basis for determining its general market-risk capital charges. A banking organization may use the same model or a separate, internal VaR model for determining specific-risk capital charges, subject to written supervisory approval. For covered positions that are not modeled, an organization must apply standard specific-risk capital charges to those positions as set forth in the rule. In all cases, internal models must meet the quantitative requirements set forth in the MRR and be approved by the Federal Reserve.

In addition to the risk-based capital computation requirements, banking organizations must meet all of the qualitative requirements described in the rule.⁵ These include the need for appropriate programs of stress testing and VaR backtesting, an annual independent review of risk-measurement and risk-management systems, and an independent risk-control unit that reports directly to senior management.⁶ Given the known limitations of VaR models for market-risk measurement, robust implementation of the MRR's qualitative requirements, as well as other supervisory guidance related to market-risk management, is essential.

³ Additional supervisory guidance on market-risk management is contained in the Federal Reserve's *Trading and Capital-Markets Activities Manual*.

⁴ See 12 CFR parts 208 and 225, Appendix E, section 1(b)(1).

⁵ See 12 CFR parts 208 and 225, Appendix E, section 4.

⁶ See 12 CFR parts 208 and 225, Appendix E, section 4(b).

Upon request, subject banking organizations should provide relevant materials and data to Federal Reserve staff, including, for example, VaR development and validation documentation, backtests and supporting materials, workpapers supporting independent reviews of measurement and management systems, documentation supporting liquidity facility determinations, and any other materials or data used to calculate a banking organization's market-risk capital requirement.

Core Requirements of the Market Risk Rule

Required Application of Market-Risk Capital Processes to all Covered Positions

As noted above, the MRR requires a banking organization to capture all of its covered positions within its internal VaR model. For this purpose, covered positions include all positions in a banking organization's trading account,⁷ and all foreign-exchange and commodities positions, whether or not in the trading account.⁸ Covered positions include both on-balance-sheet assets and liabilities and off-balance-sheet items.

In certain instances, banking organizations have failed to properly identify and incorporate all covered positions into regulatory VaR and other required MRR processes. Banking organizations are reminded of the following:

- Covered positions characterized as deep out-of-the-money options or “event-risk” exposures, where potential changes in value are initially beyond the modeled 99-percent confidence level, are not exempt from normal MRR processes (e.g., VaR modeling, backtesting).
- Securities subject to repurchase and lending agreements should be included within covered positions as if still owned by the lender.
- Deposit liabilities with yields tied to foreign-exchange or commodities indices or risk factors should be captured within covered positions.

Further, a banking organization's determination of whether a position should be booked as a trading-book position or banking-book position should be based on documented procedures that are applied consistently and objectively across all business lines.⁹ The booking determination process should be subject to appropriate control processes. A banking organization should not make a booking determination based on the applicable regulatory capital methodology or its

⁷ The trading account is defined in the instructions for the Consolidated Reports of Condition and Income (Call Reports) for state member banks. Except as noted in footnote 8, any position categorized as a trading asset or liability, regardless of value, in the regulatory reports (i.e., balance sheet) or which results in trading income or loss, regardless of amount (e.g., 0) in the regulatory reports (i.e., income statement) is considered a trading-account position for purposes of the MRR.

⁸ However, covered positions do not include positions in a banking organization's trading account that, in form or in substance, act as liquidity facilities that support asset-backed commercial paper (ABCP).

⁹ General procedures which state, for example, that an organization complies with generally accepted accounting principles (GAAP), or some other set of accounting principles, are not adequate to describe the booking-determination process.

associated capital charge; that is, booking determinations should not be based on minimizing regulatory capital. Booking determinations that are inconsistent or not well-supported can result in regulatory reporting errors for which banking organizations may be subject to reporting restatements and penalties.

Required Capture of Significant Price Risks within VaR

For regulatory capital purposes, a banking organization subject to the MRR must capture all significant price risks within its approved VaR model(s).¹⁰ This includes basis risks, as well as directional market risks. For banking organizations with a greater breadth and sophistication of trading activities, this requires a high level of model complexity and utilization of numerous data series to minimize proxy and other estimation errors. Banking organizations should map or reference each covered-position type to appropriate and sufficiently granular historical data series to ensure proper estimation of potential price volatilities and correlations with other positions. Proxy time series utilized in VaR modeling should reflect all significant sources of price risk, including potential price moves driven by changes in market liquidity. Proxy choices should be supported by documented analysis and reassessed periodically for continued appropriateness.¹¹

Banking organizations can reduce VaR-model complexity and the number of time-series drivers by establishing formal prohibitions or strict limits on certain position types or risk exposures. For example, a documented and well-enforced program of trader, desk, and business limits that prohibits certain potential covered-position exposures naturally reduces the exposure types that need to be reflected within the regulatory VaR model.

When a banking organization plans to assume certain significant risk(s) within a covered-position portfolio but is unable to robustly reflect such risk(s) through an internal VaR model due to modeling or data limitations, or other circumstances, management should consult with the Federal Reserve prior to initiating the activity. In such cases, adjustments to internal models may be required to appropriately reflect risks within the market-risk capital measure. A banking organization's failure to appropriately capture significant price risks within its internal VaR model may result in required restatements of reported regulatory capital ratios.

Trading Position VaR Backtesting

Under the MRR, all trading positions must be incorporated in the daily VaR backtesting requirement.¹² Backtesting requires a banking organization to compare its daily net profit or loss (P&L) from all trading positions with the corresponding one-day total VaR model estimate(s). As part of this requirement, on a daily basis qualified firm personnel must estimate a value for each retained trading position to determine unrealized trading P&L. For purposes of MRR backtesting, this value should represent the price or cost at which an individual trading position

¹⁰ However, as noted earlier, when specific risk is not captured within a Federal Reserve-approved VaR model, a standardized specific-risk capital charge must be substituted.

¹¹ See the Appendix to this letter for a list of some potentially significant basis risks and related VaR-model proxy errors.

¹² In practice, banking organizations with limited trading activity and non-complex portfolios may update backtests less frequently than each day, but should perform updates at least every five business days.

could be liquidated through a transaction with an unrelated party within a single business day, given all current market information at the close of the business day.¹³ The estimate should assume that market conditions remain constant over the next business day (i.e., the close of the current business day until the close of the next business day).¹⁴ Values for MRR backtesting purposes may differ from fair value estimates derived under financial accounting standards in some cases.¹⁵ In the event that there is no change in a trading position's value from one day to the next, a mark reflecting no change still should be recorded. The following should be considered when determining daily trading-position values for MRR backtesting purposes:

- Changes in market liquidity, as well as other relevant risk factors and information impacting value, should be reflected within daily trading P&L.
- Individual trading positions held for securitization purposes should be valued in their current form, not as-if-securitized.¹⁶ Although using a relevant securitization as a benchmark or starting point in valuation may be reasonable, for MRR backtesting purposes, differences in liquidity, external rating status, guarantee status, and other factors must be appropriately reflected in the daily value estimate.
- With respect to determining the daily MRR backtest values for unique positions or structures (e.g., bespoke collateralized debt obligations, or CDOs), while market indices or other proxies may be used as benchmarks for valuation, differentiating characteristics need to be appropriately reflected in final values. For example, the reduced marketability inherent in a unique position may result in a value that is much less than that of a similar, more standardized position.

A comprehensive, independent daily price-validation process is not required as a control over daily backtesting values. However, banking organizations should perform periodic, independent testing of these values as part of an overall program to ensure compliance with MRR requirements. Other key control expectations not specifically required by the MRR but

¹³ The close of the business day is the time that an organization's books and records are officially closed for the day; closing times should be consistent from day to day, though legitimate reasons may support closing times that vary by trading desk (e.g., time differences across regions).

¹⁴ The MRR backtest value should reflect the relative size of a given position (e.g., a particular security) in relation to the current market; the fact that a larger trading position may realize a lower average value-per-tradable unit than a smaller position should be recognized. However, each MRR backtest value estimate should be performed at the individual position level, and therefore not reflect potential environmental impacts that may result if an organization were to actually liquidate its entire trading portfolio within a single business day.

¹⁵ Though differences between backtest values and values used for financial reporting may be reasonable, explanations for significant differences should be documented and reported to senior management.

¹⁶ An as-if-securitized approach is sometimes referred to as "mock securitization," where existing proxy securitizations are used to determine the financial value of groups of individual assets that are not securitized. Though in some cases such approaches may be allowed to derive financial reporting values, such results may not represent the value obtained from liquidation in a single business day.

applicable to daily trading-position valuation include P&L attribution¹⁷ and off-market trade identification.¹⁸

Large changes in the MRR backtest values of a particular position may occur during a single day—for example, on days in which key market or economic data is released. However, significant write-downs/write-ups on a single day (e.g., at period-end) that effectively consolidate actual value deterioration/appreciation over time are not appropriate for MRR backtest purposes and indicate deficiencies with a banking organization’s valuation processes.

The MRR requires that backtesting be performed at the aggregate trading-portfolio level for a banking organization. However, beyond firmwide backtesting, banking organizations with a variety of trading products should generally produce backtesting reports at meaningful lower levels of aggregation to assist management in product and business-line risk assessment. Banking organizations should frequently review backtest results as part of an overall risk management program and should maintain policies and procedures to follow in response to backtesting results.

Appropriate Update Frequency for VaR Lookback Data Sets

Because VaR is a backward-looking measure, frequent updates to VaR data sets are critical to ensure that VaR output reflects recent market conditions. Though the MRR requires VaR lookback data to be updated at least quarterly, banking organizations engaging in more significant or sophisticated trading activities should update data more frequently, even daily, with a lag of no more than ten business days in incorporating new data sets into VaR production systems.

Additionally, the MRR requires more frequent data set updates when market conditions warrant. A rapid, significant change of values in a particular market or a significant increase in realized or implied market volatilities are examples that would likely warrant increased lookback-data updates.¹⁹ Commensurate with this requirement, banking organizations that choose to update data sets on a less-frequent basis (e.g., monthly for an institution with significant trading activity) should maintain the capacity to increase the frequency of updates when market conditions warrant, fully considering other resource demands that may exist during stressed market conditions. These banking organizations should at least annually test their ability to increase update frequency.

Finally, lookback-data update frequency is a key consideration in the Federal Reserve’s evaluation of specific-risk models proposed for regulatory capital purposes. Since the MRR requires specific-risk models to be “robust to an adverse environment,” infrequent updates or significant lags in incorporating lookback data may preclude supervisory approval of modeled specific risk.

¹⁷ See section 2100.1 of the Federal Reserve’s *Trading and Capital-Markets Activities Manual* for additional guidance on P&L attribution.

¹⁸ See section 2050.1 of the Federal Reserve’s *Trading and Capital-Markets Activities Manual* for additional guidance on off-market trade controls.

¹⁹ When it is unclear if market conditions warrant an increased update frequency, the Federal Reserve should be contacted as soon as possible for guidance.

Required Annual Independent Review of Market-Risk Measurement and Management Systems

The MRR requires each subject banking organization to perform an independent review of its market-risk measurement and management systems at least annually. This requirement is not limited to VaR and stress-testing processes; the review should incorporate the full array of systems, processes, and reporting used in the risk measurement and management of covered positions.

At a minimum, the annual review should incorporate the following:²⁰

- Adequacy of documentation of risk-management systems and processes;
- Organization of the risk-control unit (e.g., independence, effectiveness);
- Integration of risk measures into daily risk management (i.e., the “use test”);
- Approval process for risk-pricing models and valuation systems used by front- and back-office personnel;
- Validation of any significant changes in the risk-measurement process;
- Scope of market risks captured by the risk-measurement model;
- Integrity of management information systems;
- Accuracy and completeness of covered-position data;
- Verification of consistency, timeliness, and reliability of data sources used to run internal models, including the independence of such data sources;
- Accuracy and appropriateness of volatility and correlation assumptions;
- Accuracy of valuation and risk-transformation calculations; and
- Verification of the model’s accuracy through backtesting at a daily level.

The review’s independence requirement may be met through various approaches, provided that those assessing a given system are independent of the activity which the system is used to assess, those who designed the system, and those who utilize the system in a risk-management capacity. Examples of sufficiently independent reviewers may include:

- Qualified, independent internal audit or compliance staff;
- Qualified risk-management staff or front-office personnel without any duties or responsibilities in the area of assessment; or
- Qualified external firms or consultants.

The annual review requirement may be met through a set of separately conducted reviews provided that management maintains documentation demonstrating that all components of a full review are completed within a twelve-month period.

Stress-Testing Expectations

²⁰ See MRA, section B.2(h), available at <http://www.bis.org/publ/bcbs24.pdf>.

A key requirement of the MRR is that banking organizations must conduct appropriate stress tests on covered positions and identify procedures to follow in response to the results of such tests.²¹ In identifying appropriate stress tests, a banking organization should take into account the following characteristics, which are important for the design of a satisfactory stress-testing program:

- Stress testing should capture significant non-linearities within relevant covered positions.
- Stress tests should consider the nature of the individual organization's portfolios and strategies. Certain historical or hypothetical market-stress scenarios may not result in significant downside financial risk to a particular organization.²²
- All covered positions should be included within the banking organization's market risk stress-testing program.²³ In addition, the program should incorporate any explicit contractual exposures that are treated for financial accounting purposes as off-balance sheet, including obligations that are equivalent to deep out-of-the-money puts or second loss positions.²⁴
- Stress tests should consider an organization's potential need to liquidate positions during periods of reduced market liquidity.
- Where actual positions are simplified or mapped to proxies for purposes of stress modeling, banking organizations should maintain documented analysis supporting the appropriateness of such techniques.²⁵ Stress test reporting distributed to senior management should convey potential weaknesses associated with simplifications or use of proxies so that results can be properly interpreted.
- Banking organizations with significant amounts of structured, tranching, or leveraged positions should ensure that stresses are applied to relevant underlying positions and/or factors (i.e., bottom-up stress). This is necessary to ensure that the price behavior of such positions is not inappropriately scaled or extrapolated in the estimation of potential stress losses.
- Stress-testing programs should not overly rely on unstressed or historical-based correlations across product types when estimating potential downside financial results; tail dependence should be considered.

Stress-testing programs should vary in sophistication commensurate with the size and complexity of a banking organization's exposures. Regardless of the specific methodologies

²¹ The MRR notes that stress tests provide information about the impact of adverse market events on a banking organization's covered positions. More generally, banking organizations should conduct appropriate stress tests incorporating exposures beyond the MRR covered-position portfolio. See section 2010.1 of the Federal Reserve's *Trading and Capital-Markets Activities Manual*.

²² Although utilizing a fixed series of market-stress scenarios can be useful in reflecting certain exposure trends, such testing alone is generally insufficient.

²³ Not every covered position must be captured within each individual stress test.

²⁴ Market risk stress tests may or may not incorporate counterparty credit-risk assumptions. However, any assumptions with regard to counterparty credit risk should be clearly documented.

²⁵ A strong positive correlation between a particular position/factor and a proxy under normal conditions may be insufficient to support the use of the proxy within a stress test.

used, stress tests should appropriately reflect severe potential downside financial risk within covered portfolios. The frequency of stress testing may also vary depending on the significance of exposures along with the dynamism of the relevant portfolios and markets. However, at a minimum, all banking organizations subject to the MRR should conduct a meaningful degree of quantitative stress testing at least monthly, with more frequent testing generally expected for larger trading organizations. Institutions with more significant exposure to market risk should also maintain the ability to quickly adjust stress tests or conduct ad hoc stress testing in response to rapidly changing market conditions.

As highlighted above, it is important that banking organizations consider the potential for historical correlations among asset classes or risk factors to break down during stressful periods. Because such correlations under stress are difficult to predict, firms with significant exposure in multiple products or asset classes should perform stress tests, not only at the aggregate covered-position level, but also at meaningful lower levels of aggregation. The use of such granular stress tests can help reduce overreliance on potentially tenuous diversification estimates.

Finally, in traditional stress-testing programs, banking organizations typically attempt to identify reasonably feasible but severe market scenarios and apply estimated risk-factor moves to current portfolios. Although such testing is clearly useful, banking organizations with larger and more-sophisticated trading activities should develop and utilize processes that empirically identify combinations of factor moves that would result in the greatest market-value losses within existing portfolios. Such empirical stress-loss estimation techniques, sometimes termed “reverse stress-testing,” complement loss estimates derived from a limited number of foreseeable stress scenarios.

MRR Capital Computation Requirements

The MRR sets out requirements for market-risk capital calculations. Since the rule’s issuance, rapid growth and evolution in markets and in the scope of covered positions has increased the importance of appropriate rule interpretation. As a standard practice, institutions should contact the Federal Reserve for guidance whenever there is uncertainty with respect to MRR capital computation requirements. Certain market-risk capital requirements that have received increased supervisory focus are discussed below.

Liquidity Facility Determination and Expectations

Liquidity facilities providing liquidity support to ABCP are excluded from MRR covered positions regardless of whether they are booked in the trading account. Such liquidity facilities are subject to the capital requirements for liquidity facilities under the credit-risk capital rules.²⁶

Subject banking organizations should determine whether a specific position is an ABCP liquidity facility or a traditional covered position for purposes of the MRR upon origination or acquisition of the position. Individual determinations should not change over time.

²⁶ See 12 CFR part 208, Appendices A and F, and 12 CFR part 225, Appendices A and G. See also SR letter 05-13, “Interagency Guidance on the Eligibility of Asset-Backed Commercial Paper Program Liquidity Facilities and the Resulting Risk-Based Capital Treatment.”

Standard Specific-Risk Treatments for Equity and Credit Portfolios

For covered positions subject to specific-risk charges where the Federal Reserve has not approved the use of an internal model, banking organizations must apply the MRR standard specific-risk charges. The standard rules are intentionally simple and designed to result in conservative capital charges in relation to a portfolio's price risk. This conservatism provides an incentive for institutions with significant issuer-sensitive portfolios to move to more robust internal model-based approaches. SR letter 97-18, "Application of Market Risk Capital Requirements to Credit Derivatives," provides guidance on capital benefits allowed for certain types of credit hedges under standard specific-risk rules. The MRR itself describes equity-instrument hedge benefits allowable for standard specific risk calculations. Banking organizations should seek guidance from the Federal Reserve when application of standard specific-risk rules to a particular circumstance is unclear or requires interpretation.

In all cases, banking organizations should maintain well-documented systems and processes for all standard specific-risk calculations. The determinations and calculations with respect to matching, offsetting, and other hedge treatments, as well as the derivation of deltas for relevant option positions, should be supported and reconcilable. If a banking organization fails to maintain sufficient systems and documentation with respect to standard specific-risk calculations, supervisors may prohibit the recognition of capital benefits derived from the application of matching and offsetting treatments or may require other capital adjustments.

Multiplier Requirements for General and Specific Risk

Under the MRR, for each backtest day where net realized and unrealized losses on aggregate trading positions exceed the relevant one-day VaR estimate, a firm-level backtest exception must be recorded.²⁷ For capital calculation purposes, the multiplier that must be applied to the general ten-day VaR estimate is typically based on the number of firm-level daily backtesting exceptions recorded during the prior 250 business days in accordance with the table listed within the MRR.²⁸ However, the multiplier applicable to modeled specific-risk estimates may need to be increased from this level in some cases.

When a comprehensive VaR model incorporating both general and specific risk for a particular product set has been approved by the Federal Reserve, a single multiplier may be applied to the unified VaR model when calculating capital charges. However, when differing VaR model methodologies are used to determine general and specific risk (e.g., historical simulation for general risk and Monte Carlo for specific risk), or when only partial specific-risk models have been approved for product sets,²⁹ the multiplier that must be applied to the specific-risk VaR is typically +1.0 greater than that applied to the general market-risk VaR (e.g., if the multiplier for general market-risk VaR is 3.0, the specific-risk VaR multiplier should be 4.0).

²⁷ See 12 CFR parts 208 and 225, Appendix E, section 4(e). Sources of P&L such as fee income and commissions may be included in daily backtest P&L if such sources are appropriately modeled within the VaR estimate.

²⁸ The Federal Reserve may adjust multipliers as a result of other relevant qualitative factors. See 12 CFR parts 208 and 225, Appendix E, section 4(e)(3).

²⁹ A partial specific-risk model is one that captures idiosyncratic spread or price risk, but does not sufficiently capture event and/or default risk to the satisfaction of the Federal Reserve.

Furthermore, when separate VaR models are used to determine general- and specific-risk VaR, banking organizations should justify the appropriateness of methods used to calculate aggregate VaR and, when necessary, justify the bifurcation of aggregate VaR into general- and specific-risk VaR subcomponents. The acceptability of such techniques is case-dependent, and multiple appropriate techniques may exist. As with all significant modeling choices, any aggregation or disaggregation technique should be well-supported by documented analysis.

Credit-Risk Capital “Substitution Approach” Restriction

As described in SR letter 96-17, “Supervisory Guidance for Credit Derivatives,” under certain circumstances institutions that purchase credit derivatives to hedge credit exposures may substitute the risk weight of the protection provider (e.g., 20 percent risk weight for an OECD bank) for that of the hedged credit exposure (e.g., 100 percent risk weight for a corporate loan) when calculating risk-weighted assets. However, this form of credit risk-weight substitution is only allowable when both the credit and relevant credit derivative positions are subject to the credit-risk capital framework. As such, derivatives booked as trading positions, which are subject to the MRR, are not eligible for use in the type of credit risk-weight substitution described in SR letter 96-17.³⁰ This prohibition prevents an inappropriate double-impact to risk-based capital that would occur if select credit derivative positions were reflected within both market-risk and credit-risk capital computations.

MRR Communication and Approval Requirements

Notification and Approval Requirement for use of Regulatory VaR Models

Banking organizations applying the MRR must demonstrate to the Federal Reserve (e.g., with documented approval from the Federal Reserve) that their VaR models meet the requirements of the MRR for risk-based capital purposes. This requirement is applicable at the individual product/model level. For example, a high-level VaR model methodology utilized for the calculation of general market-risk capital for cash equities may not be utilized for the calculation of general market-risk capital for commodity positions without explicit supervisory approval of the commodities model itself.

The approval of any particular VaR model for computing regulatory capital is based on the relevant facts and circumstances at the time of a banking organization’s request for model approval; approvals therefore should not be considered permanent. Multiple backtest failures represent one, though not the only, signal that a particular VaR model may no longer be appropriate for regulatory capital use. Failure of a banking organization to appropriately update previously approved capital models given significant changes in trading strategy, evolution in markets, or advancement in industry model methodologies, can result in revocation of approvals.³¹ Finally, despite the best efforts of banking organizations, it may not be possible for

³⁰ Although derivatives are typically marked-to-market through earnings under financial accounting standards, there is no requirement that derivatives be booked as trading. Credit default swap positions are sometimes booked within the “other asset” or “other liability” accounts.

³¹ In certain cases, despite a banking organization’s best efforts, a previously approved VaR model may no longer satisfy the requirements of the MRR. This could result from a notable reduction in market liquidity or other significant market shifts.

certain nascent or illiquid products to qualify for fully modeled (i.e., modeled general and specific risk) capital treatment until ample market data becomes available and banking organizations gain additional experience with such products.

To expedite model approvals, banking organizations should notify the Federal Reserve in writing as soon as possible when a new VaR model is being developed or the organization seeks to apply an existing VaR model methodology to a new product for risk-based capital purposes. Any significant change to an existing VaR model should be considered a new model for notification and approval purposes.³² One indication of a significant model change is if the revised model, as applied to relevant current and potential portfolios or subportfolios, generates a material difference in results.

Although determining if a product is new requires judgment, the following circumstances generally indicate the need for Federal Reserve notification:

- The product is subject to the organization's internal new product review or approval process;
- Any risk factor required for product pricing differs from an existing product;
- The product's market liquidity differs substantially from that of an existing but related product;
- The product is a derivative structure not previously traded by the organization, even if referencing an existing product(s);³³ or
- The product embeds structural or other forms of leverage beyond that embedded in existing products.

When it is unclear if a model change should be considered significant, or if a variation from an existing product results in a new product, the banking organization should contact the Federal Reserve for guidance.

Conclusion

Reserve Banks are asked to distribute this SR letter to all supervised banking organizations reporting trading assets or liabilities on the FR Y9-C or Call Reports. Questions regarding this letter may be directed to Christopher Laursen, Manager, Risk Policy and Guidance, at 202-452-2478; Anna Lee Hewko, Senior Project Manager, Supervisory Policy and Guidance, at 202-530-6260; James Embersit, Deputy Associate Director, Market and Liquidity Risk, at 202-452-5249; or David Lynch, Senior Supervisory Financial Analyst, at 202-452-2081. In addition, questions may be sent via the Board's public website³⁴.

³² Standard data input updates (e.g., portfolio position information and lookback data from an unchanged source) are not considered model changes and do not require approval.

³³ Institutions should not assume capital model approval for simple derivative structures (e.g., total return swaps) that reference pre-existing products for which capital models have been approved.

³⁴ See <http://www.federalreserve.gov/feedback.cfm>.

Signed by

Roger T. Cole
Director

Cross References:

- SR letter 05-13, “Interagency Guidance on the Eligibility of Asset-Backed Commercial Paper Program Liquidity Facilities and the Resulting Risk-Based Capital Treatment”
- SR letter 97-18, “Application of Market Risk Capital Requirements to Credit Derivatives”
- SR letter 96-17, “Supervisory Guidance for Credit Derivatives”

Appendix

PROXY ERROR DISCUSSION:

Certain potentially significant basis risks and related proxy errors are identified below. The use of overly broad proxies that fail to capture potentially significant price risks within regulatory VaR models is inconsistent with MRR requirements. Furthermore, proxy errors within stress-testing programs can result in significant misestimation of extreme downside risk. The list below should be considered illustrative but not comprehensive.

- **Structured-Linear Basis Risk.** Mapping a structured or leveraged position, such as a CDO tranche, to the time-series data of a linear or unleveraged position, such as a corporate bond.
- **Cash-Synthetic Basis Risk.** Mapping a derivative position, such as a credit default swap, to the time-series data of a cash credit position, such as a corporate bond (or the reverse).
- **Overly Broad Credit Rating-based Bucketing.** Use of data series on specific product type, bucketed by credit rating, as proxy for price risk of differing products, for example, mapping a portfolio of “BBB”-rated leveraged loans to the time-series data of “BBB”-rated corporate bonds.
- **Product/Grade, Location, and Delivery/Expiration Date Basis Risk in Commodities.**³⁵ Mapping a futures position in a specific commodity product to be delivered at a specific date and location (e.g., November, Brent Oil, London) to a more general proxy contract where grade, location, and/or delivery date do not match (e.g., December, West Texas Intermediate Oil, Oklahoma).

³⁵ Proper VaR modeling of commodities exposures can be particularly challenging given the multitude of basis risks, as well as event risks and seasonality.