

all relevant jurisdictions, including in the event of bankruptcy, insolvency, or a similar proceeding.

(d) Notwithstanding paragraph (c)(1) of this section, a custody agreement may permit the posting party to substitute or direct any reinvestment of posted collateral held by the custodian, provided that, with respect to collateral collected by a covered swap entity pursuant to §237.3(a) or posted by a covered swap entity pursuant to §237.3(b), the agreement requires the posting party to:

(1) Substitute only funds or other property that would qualify as eligible collateral under §237.6, and for which the amount net of applicable discounts described in appendix B of this subpart would be sufficient to meet the requirements of §237.3; and

(2) Direct reinvestment of funds only in assets that would qualify as eligible collateral under §237.6, and for which the amount net of applicable discounts described in appendix B of this subpart would be sufficient to meet the requirements of §237.3.

#### §237.8 Initial margin models and standardized amounts.

(a) *Standardized amounts.* Unless a covered swap entity's initial margin model conforms to the requirements of this section, the covered swap entity shall calculate the amount of initial margin required to be collected or posted for one or more non-cleared swaps or non-cleared security-based swaps with a given counterparty pursuant to §237.3 on a daily basis pursuant to appendix A of this subpart.

(b) *Use of initial margin models.* A covered swap entity may calculate the amount of initial margin required to be collected or posted for one or more non-cleared swaps or non-cleared security-based swaps with a given counterparty pursuant to §237.3 on a daily basis using an initial margin model only if the initial margin model meets the requirements of this section.

(c) *Requirements for initial margin model.* (1) A covered swap entity must obtain the prior written approval of the Board before using any initial margin model to calculate the initial margin required in this subpart.

(2) A covered swap entity must demonstrate that the initial margin model satisfies all of the requirements of this section on an ongoing basis.

(3) A covered swap entity must notify the Board in writing 60 days prior to:

(i) Extending the use of an initial margin model that the Board has approved under this section to an additional product type;

(ii) Making any change to any initial margin model approved by the Board under this section that would result in a material change in the covered swap entity's assessment of initial margin requirements; or

(iii) Making any material change to modeling assumptions used by the initial margin model.

(4) The Board may rescind its approval of the use of any initial margin model, in whole or in part, or may impose additional conditions or requirements if the Board determines, in its sole discretion, that the initial margin model no longer complies with this section.

(d) *Quantitative requirements.* (1) The covered swap entity's initial margin model must calculate an amount of initial margin that is equal to the potential future exposure of the non-cleared swap, non-cleared security-based swap or netting portfolio of non-cleared swaps or non-cleared security-based swaps covered by an eligible master netting agreement. Potential future exposure is an estimate of the one-tailed 99 percent confidence interval for an increase in the value of the non-cleared swap, non-cleared security-based swap or netting portfolio of non-cleared swaps or non-cleared security-based swaps due to an instantaneous price shock that is equivalent to a movement in all material underlying risk factors, including prices, rates, and spreads, over a holding period equal to the shorter of ten business days or the maturity of the non-cleared swap, non-cleared security-based swap or netting portfolio.

(2) All data used to calibrate the initial margin model must be based on an equally weighted historical observation period of at least one year and not more than five years and must incorporate a period of significant financial stress for each broad asset class that is

appropriate to the non-cleared swaps and non-cleared security-based swaps to which the initial margin model is applied.

(3) The covered swap entity's initial margin model must use risk factors sufficient to measure all material price risks inherent in the transactions for which initial margin is being calculated. The risk categories must include, but should not be limited to, foreign exchange or interest rate risk, credit risk, equity risk, and commodity risk, as appropriate. For material exposures in significant currencies and markets, modeling techniques must capture spread and basis risk and must incorporate a sufficient number of segments of the yield curve to capture differences in volatility and imperfect correlation of rates along the yield curve.

(4) In the case of a non-cleared cross-currency swap, the covered swap entity's initial margin model need not recognize any risks or risk factors associated with the fixed, physically-settled foreign exchange transaction associated with the exchange of principal embedded in the non-cleared cross-currency swap. The initial margin model must recognize all material risks and risk factors associated with all other payments and cash flows that occur during the life of the non-cleared cross-currency swap.

(5) The initial margin model may calculate initial margin for a non-cleared swap or non-cleared security-based swap or a netting portfolio of non-cleared swaps or non-cleared security-based swaps covered by an eligible master netting agreement. It may reflect offsetting exposures, diversification, and other hedging benefits for non-cleared swaps and non-cleared security-based swaps that are governed by the same eligible master netting agreement by incorporating empirical correlations within the following broad risk categories, provided the covered swap entity validates and demonstrates the reasonableness of its process for modeling and measuring hedging benefits: Commodity, credit, equity, and foreign exchange or interest rate. Empirical correlations under an eligible master netting agreement may be recognized by the initial mar-

gin model within each broad risk category, but not across broad risk categories.

(6) If the initial margin model does not explicitly reflect offsetting exposures, diversification, and hedging benefits between subsets of non-cleared swaps or non-cleared security-based swaps within a broad risk category, the covered swap entity must calculate an amount of initial margin separately for each subset within which such relationships are explicitly recognized by the initial margin model. The sum of the initial margin amounts calculated for each subset of non-cleared swaps and non-cleared security-based swaps within a broad risk category will be used to determine the aggregate initial margin due from the counterparty for the portfolio of non-cleared swaps and non-cleared security-based swaps within the broad risk category.

(7) The sum of the initial margin amounts calculated for each broad risk category will be used to determine the aggregate initial margin due from the counterparty.

(8) The initial margin model may not permit the calculation of any initial margin collection amount to be offset by, or otherwise take into account, any initial margin that may be owed or otherwise payable by the covered swap entity to the counterparty.

(9) The initial margin model must include all material risks arising from the nonlinear price characteristics of option positions or positions with embedded optionality and the sensitivity of the market value of the positions to changes in the volatility of the underlying rates, prices, or other material risk factors.

(10) The covered swap entity may not omit any risk factor from the calculation of its initial margin that the covered swap entity uses in its initial margin model unless it has first demonstrated to the satisfaction of the Board that such omission is appropriate.

(11) The covered swap entity may not incorporate any proxy or approximation used to capture the risks of the covered swap entity's non-cleared swaps or non-cleared security-based swaps unless it has first demonstrated to the satisfaction of the Board that

such proxy or approximation is appropriate.

(12) The covered swap entity must have a rigorous and well-defined process for re-estimating, re-evaluating, and updating its internal margin model to ensure continued applicability and relevance.

(13) The covered swap entity must review and, as necessary, revise the data used to calibrate the initial margin model at least annually, and more frequently as market conditions warrant, to ensure that the data incorporate a period of significant financial stress appropriate to the non-cleared swaps and non-cleared security-based swaps to which the initial margin model is applied.

(14) The level of sophistication of the initial margin model must be commensurate with the complexity of the non-cleared swaps and non-cleared security-based swaps to which it is applied. In calculating an initial margin collection amount, the initial margin model may make use of any of the generally accepted approaches for modeling the risk of a single instrument or portfolio of instruments.

(15) The Board may in its sole discretion require a covered swap entity using an initial margin model to collect a greater amount of initial margin than that determined by the covered swap entity's initial margin model if the Board determines that the additional collateral is appropriate due to the nature, structure, or characteristics of the covered swap entity's transaction(s), or is commensurate with the risks associated with the transaction(s).

(e) *Periodic review.* A covered swap entity must periodically, but no less frequently than annually, review its initial margin model in light of developments in financial markets and modeling technologies, and enhance the initial margin model as appropriate to ensure that the initial margin model continues to meet the requirements for approval in this section.

(f) *Control, oversight, and validation mechanisms.* (1) The covered swap entity must maintain a risk control unit that reports directly to senior management and is independent from the business trading units.

(2) The covered swap entity's risk control unit must validate its initial margin model prior to implementation and on an ongoing basis. The covered swap entity's validation process must be independent of the development, implementation, and operation of the initial margin model, or the validation process must be subject to an independent review of its adequacy and effectiveness. The validation process must include:

(i) An evaluation of the conceptual soundness of (including developmental evidence supporting) the initial margin model;

(ii) An ongoing monitoring process that includes verification of processes and benchmarking by comparing the covered swap entity's initial margin model outputs (estimation of initial margin) with relevant alternative internal and external data sources or estimation techniques. The benchmark(s) must address the chosen model's limitations. When applicable, the covered swap entity should consider benchmarks that allow for non-normal distributions such as historical and Monte Carlo simulations. When applicable, validation shall include benchmarking against observable margin standards to ensure that the initial margin required is not less than what a derivatives clearing organization or a clearing agency would require for similar cleared transactions; and

(iii) An outcomes analysis process that includes backtesting the initial margin model. This analysis must recognize and compensate for the challenges inherent in back-testing over periods that do not contain significant financial stress.

(3) If the validation process reveals any material problems with the initial margin model, the covered swap entity must promptly notify the Board of the problems, describe to the Board any remedial actions being taken, and adjust the initial margin model to ensure an appropriately conservative amount of required initial margin is being calculated.

(4) The covered swap entity must have an internal audit function independent of business-line management and the risk control unit that at least annually assesses the effectiveness of

the controls supporting the covered swap entity's initial margin model measurement systems, including the activities of the business trading units and risk control unit, compliance with policies and procedures, and calculation of the covered swap entity's initial margin requirements under this subpart. At least annually, the internal audit function must report its findings to the covered swap entity's board of directors or a committee thereof.

(g) *Documentation.* The covered swap entity must adequately document all material aspects of its initial margin model, including the management and valuation of the non-cleared swaps and non-cleared security-based swaps to which it applies, the control, oversight, and validation of the initial margin model, any review processes and the results of such processes.

(h) *Escalation procedures.* The covered swap entity must adequately document internal authorization procedures, including escalation procedures, that require review and approval of any change to the initial margin calculation under the initial margin model, demonstrable analysis that any basis for any such change is consistent with the requirements of this section, and independent review of such demonstrable analysis and approval.

**§ 237.9 Cross-border application of margin requirements.**

(a) *Transactions to which this rule does not apply.* The requirements of §§ 237.3 through 237.8 and §§ 237.10 through 237.12 shall not apply to any foreign non-cleared swap or foreign non-cleared security-based swap of a foreign covered swap entity.

(b) For purposes of this section, a *foreign non-cleared swap* or *foreign non-cleared security-based swap* is any non-cleared swap or non-cleared security-based swap with respect to which neither the counterparty to the foreign covered swap entity nor any party that provides a guarantee of either party's obligations under the non-cleared swap or non-cleared security-based swap is:

(1) An entity organized under the laws of the United States or any State (including a U.S. branch, agency, or subsidiary of a foreign bank) or a nat-

ural person who is a resident of the United States;

(2) A branch or office of an entity organized under the laws of the United States or any State; or

(3) A swap entity that is a subsidiary of an entity that is organized under the laws of the United States or any State.

(c) For purposes of this section, a *foreign covered swap entity* is any covered swap entity that is not:

(1) An entity organized under the laws of the United States or any State, including a U.S. branch, agency, or subsidiary of a foreign bank;

(2) A branch or office of an entity organized under the laws of the United States or any State; or

(3) An entity that is a subsidiary of an entity that is organized under the laws of the United States or any State.

(d) *Transactions for which substituted compliance determination may apply—(1) Determinations and reliance.* For non-cleared swaps and non-cleared security-based swaps entered into by covered swap entities described in paragraph (d)(3) of this section, a covered swap entity may satisfy the provisions of this subpart by complying with the foreign regulatory framework for non-cleared swaps and non-cleared security-based swaps that the prudential regulators jointly, conditionally or unconditionally, determine by public order satisfy the corresponding requirements of §§ 237.3 through 237.8 and §§ 237.10 through 237.12.

(2) *Standard.* In determining whether to make a determination under paragraph (d)(1) of this section, the prudential regulators will consider whether the requirements of such foreign regulatory framework for non-cleared swaps and non-cleared security-based swaps applicable to such covered swap entities are comparable to the otherwise applicable requirements of this subpart and appropriate for the safe and sound operation of the covered swap entity, taking into account the risks associated with non-cleared swaps and non-cleared security-based swaps.

(3) *Covered swap entities eligible for substituted compliance.* A covered swap entity may rely on a determination under paragraph (d)(1) of this section only if: