

**SUBMISSION COVER SHEET**

**IMPORTANT:** Check box if Confidential Treatment is requested

Registered Entity Identifier Code (optional): 24-425

Organization: Chicago Mercantile Exchange Inc. ("CME")

Filing as a:  DCM  SEF  DCO  SDR

Please note - only ONE choice allowed.

Filing Date (mm/dd/yy): October 2, 2024 Filing Description: Application of SPAN 2 Framework to Equity Product Group

**SPECIFY FILING TYPE**

Please note only ONE choice allowed per Submission.

**Organization Rules and Rule Amendments**

- Certification § 40.6(a)
- Approval § 40.5(a)
- Notification § 40.6(d)
- Advance Notice of SIDCO Rule Change § 40.10(a)
- SIDCO Emergency Rule Change § 40.10(h)

Rule Numbers: See filing.

**New Product**

Please note only ONE product per Submission.

- Certification § 40.2(a)
- Certification Security Futures § 41.23(a)
- Certification Swap Class § 40.2(d)
- Approval § 40.3(a)
- Approval Security Futures § 41.23(b)
- Novel Derivative Product Notification § 40.12(a)
- Swap Submission § 39.5

Official Product Name:

**Product Terms and Conditions (product related Rules and Rule Amendments)**

- Certification § 40.6(a)
- Certification Made Available to Trade Determination § 40.6(a)
- Certification Security Futures § 41.24(a)
- Delisting (No Open Interest) § 40.6(a)
- Approval § 40.5(a)
- Approval Made Available to Trade Determination § 40.5(a)
- Approval Security Futures § 41.24(c)
- Approval Amendments to enumerated agricultural products § 40.4(a), § 40.5(a)
- "Non-Material Agricultural Rule Change" § 40.4(b)(5)
- Notification § 40.6(d)

Official Name(s) of Product(s) Affected:

Rule Numbers:

October 2, 2024

**VIA ELECTRONIC PORTAL**

Mr. Christopher J. Kirkpatrick  
Office of the Secretariat  
Commodity Futures Trading Commission  
Three Lafayette Centre  
1155 21<sup>st</sup> Street, N.W.  
Washington, D.C. 20581

**Re: CFTC Regulation 40.6(a) Certification. Application of SPAN 2 Framework to  
Equity Product Group.  
CME Submission No. 24-425**

Dear Mr. Kirkpatrick:

The clearing house division of the Chicago Mercantile Exchange Inc. (“CME” or the “Clearing House”), in its capacity as a registered derivatives clearing organization (“DCO”), hereby certifies to the Commodity Futures Trading Commission (“CFTC” or “Commission”) the application of its SPAN 2 framework for calculating initial margin (performance bond) requirements<sup>1</sup> (the “SPAN 2 framework”) for certain CME-cleared products in the equity product group, effective October 18, 2024.<sup>2</sup>

On May 28, 2019, CME submitted advance notice to the CFTC and the Board of Governors of the Federal Reserve regarding its intended adoption of the SPAN 2 framework. On July 5, 2019, CME submitted an amended advance notice. On July 19, 2019, CME received notice of non-objection to its proposed adoption of the SPAN 2 framework. In July 2023, CME began its phased migration of the initial set of energy products to the SPAN 2 framework from the legacy Standard Portfolio Analysis of Risk (“SPAN”) initial margining framework (“SPAN framework”). The SPAN framework and SPAN 2 framework were both used as active production margin models for migrated energy products until the migration process was complete, at which point CME ceased using the SPAN framework for the migrated products.

As indicated in CME Submission No. 19-213R (“19-213R”),<sup>3</sup> CME intends to adopt the SPAN 2 framework for all CME Base Guaranty Fund Products, as defined in CME Rule 802.A, with the exception of cleared foreign exchange swaps. Pursuant to this certification, CME is extending application of the SPAN 2 framework to the majority of futures and options on futures within CME’s equity product group. While the SPAN 2 framework is designed to be product agnostic and contains a variety of different risk calculation features, the implementation of the SPAN 2 framework varies across product groups and consistent with this approach, CME is now extending the application of the SPAN 2 framework to the equity product group.

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<sup>1</sup> The initial margin requirements discussed in this certification refer to the actual risk performance bond amounts calculated by the Clearing House. Such amounts, commonly known as the maintenance portion of an initial performance bond requirement, coincide with the minimum amount of performance bond equity that must be maintained in any account with open positions.

<sup>2</sup> This certification is accompanied by supporting documentation and analysis for which confidential treatment has been requested.

<sup>3</sup> Available at: <https://www.cmegroup.com/content/dam/cmegroup/market-regulation/rule-filings/2019/7/19-213R.pdf>.

Initially, CME will apply the SPAN 2 framework to all CME-cleared equity products,<sup>4</sup> except crypto products, commodity index products, legacy total return futures, real estate products, and event contracts. Thereafter, CME will migrate additional equity products to the SPAN 2 framework at a later date unless they are being delisted.<sup>5</sup> Products that have not yet been migrated to the SPAN 2 framework will continue to be margined under the legacy SPAN framework throughout the implementation phase.<sup>6</sup> Migration of equity products will begin with the end-of-day settlement cycle for trade date October 18, 2024. Clearing Members may elect to migrate on specified dates following the effective date.

Pursuant to this certification, CME is implementing the SPAN 2 framework to calculate initial margin (including intraday initial margin calls and any potential *ad hoc* initial margin calls) for the equity product group. The adoption of the SPAN 2 framework for the equity product group will not require the Clearing House to amend: (1) its methodology for calculating settlement variation or options premiums; (2) the types of assets accepted by the Clearing House as performance bond; (3) the manner by which the Clearing House collects and/or holds initial margin and settlement variation; (4) the methodology for assessing the adequacy of Clearing House financial resources; or (5) the Clearing House's default management rules or procedures.

## **1. Background**

### **a. Overview of CME's SPAN Framework**

CME developed and implemented the SPAN framework in 1988 and has since used it to determine margin requirements for its listed futures and options on futures products. The SPAN framework was the first margining framework to calculate margins based on the overall risk of a portfolio across clearing houses and exchanges.

The SPAN framework uses a representative number of market simulations of underlying price, volatility and implied volatility shocks, along with time to expiration reductions, to arrive at appropriate margin levels. More specifically, the SPAN framework applies 16 hypothetical scenarios representing different maximum price and volatility changes to compartmentalized groupings of related products held in a given portfolio during a given time frame, while discounting basis risk across related products. The largest loss from these 16 scenarios represents each grouping's maximum potential loss, and, when aggregated, the maximum potential loss that the portfolio could sustain over the applicable time frame. The shock magnitudes for both price and volatility parameters, as well as changes in the time to expiry parameter, can be calibrated through the SPAN framework to cover a myriad of potential market moves.

The SPAN framework continues to be a highly effective risk management tool for the Clearing House. Among other things, it "provides transparency and replicability, as well as increased flexibility in determining margin requirements."<sup>7</sup> However, the SPAN framework was developed when there were far fewer futures and options products and less diversity in those products, and when portfolio risk calculations required less cross-product risk analysis. The derivatives markets have evolved significantly since the SPAN framework was initially implemented.

### **b. Overview of CME's SPAN 2 Framework**

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<sup>4</sup> Available at <https://www.cmegroup.com/clearing/files/span2-equity-products-in-scope.xlsx>.

<sup>5</sup> Available at <https://www.cmegroup.com/content/dam/cmegroup/notices/ser/2022/10/SER-9079.pdf>.

<sup>6</sup> Phased product migration to the SPAN 2 framework and the recognition of offsets during implementation are discussed further in Section 5 below.

<sup>7</sup> See Committee on Payments and Market Infrastructures-Board of International Organization of Securities Commissions, Implementation monitoring of PFMI: Level 3 assessment Report on the financial risk management and recovery practices of 10 derivatives CCPs at 67 (Aug. 2016).

The SPAN 2 framework uses a filtered historical value-at-risk (“FHVaR”) methodology that closely tracks the risk posed by a portfolio of products cleared by the Clearing House by accounting for prevailing market conditions, and through margin requirements that are tailored for specific products and portfolios based on a variety of risk factors.<sup>8</sup>

This FHVaR methodology filters historical data based on its sophisticated command of the relationships between various products as well as the conditions that existed at the time the prices were observed and utilizes that market knowledge in applying the historical data to a given portfolio. By normalizing historical returns and scaling these returns considering current market conditions, the SPAN 2 framework produces prudent risk assessments and margin requirements.

The SPAN 2 framework calculates a tail loss with a pre-determined confidence level that could be incurred by a specific portfolio by: (1) analyzing the actual losses that would have been incurred by that portfolio over a given historical period of time, and (2) normalizing the resulting historical data to take into account the conditions existing during that period (e.g., high volatility) and scaling the historical price change data in comparison to the market conditions that exist today. The SPAN 2 framework thus prudently calculates initial margin requirements during both times of stressed and normal market conditions. In a highly volatile period, the SPAN 2 framework scales up the returns that were obtained during historical periods of lower volatility, and it does the opposite in low volatility periods. In this way, the SPAN 2 framework conservatively yields prudent initial margin calculations in differing market environments.

In addition, the SPAN 2 framework offers additional transparency to Clearing Members by providing reports with a comprehensive breakdown of margin requirements and the sources for those margin requirements.

Please refer to 19-213R for additional details and information regarding the SPAN 2 framework.<sup>9</sup>

## **2. SPAN 2 Framework – Specific Attributes for Equity Product Group**

Applying the SPAN 2 framework to the equity product group will not impact the Clearing House’s risk appetite. Impacts to initial margin requirements for individual accounts upon migrating the equity product group to the SPAN 2 framework will continue to depend on a variety of market- and portfolio-specific factors and aggregate impacts to total initial margin requirements across all futures and options are expected to decrease less than 1%. Backtesting for the SPAN 2 framework continues to target a 99% coverage standard on an ex post basis. Backtesting has demonstrated the SPAN 2 framework’s robust coverage across trading strategies and actual portfolios for equity products.

As indicated in 19-213R, and consistent with the Clearing House’s obligation to continuously and actively manage risk, the Clearing House has identified and will utilize a combination of attributes and risk calculation features that are specific to the equity product group. Their applicability was determined and validated by analyzing a comprehensive suite of backtesting results on trading strategies and actual portfolios through periods of extreme volatility as well as calmer markets.

The SPAN 2 framework consists of three components, which measure different types of risk posed by a given portfolio. Specifically, the three components in the SPAN 2 framework include:

- 1. Market Risk Component:** The market risk component is designed to capture the potential losses a portfolio could incur due to daily price movements and includes a FHVaR methodology as well

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<sup>8</sup> Risk factors are a set of factors that impact price changes for a given product. For example, the risk factors for a prompt month E-mini S&P 500 futures contract under the SPAN 2 framework are derived from E-mini S&P 500 futures contracts with expiries beyond the front month (i.e., dozens of other futures contracts beyond the front month that comprise the relevant forward pricing curve).

<sup>9</sup> See *supra*, note 4.

as a stress VaR (“**SVaR**”) sub-component that measures the potential losses a portfolio could incur under historical or hypothetical stressed conditions;

2. **Liquidity Risk Component:** The liquidity risk component is designed to capture the liquidation costs for a portfolio; and
3. **Concentration Risk Component:** The concentration risk component is designed to capture the additional costs to liquidate a large portfolio.

Each component contains certain modules, which are the analytical or mathematical steps necessary to calculate risk in a given component. For example, as set out below, the market risk component includes modules that, among other things, apply relevant risk factors for a portfolio to historical data and separately normalize and scale the historical data based on current market conditions.

When integrated, these components (and the modules that make up the components) cohesively produce a margin calculation that reflects the combination of the market risk, liquidity risk, and concentration risk of a portfolio. Each of the three components, including their respective key modules, is described, in turn, below with respect to the SPAN 2 framework’s adoption for equity products. The implementation for equity products leverages slightly different parametrizations than energy products, mainly to reflect the differences in risks between them (e.g., equity products are not exposed to seasonal risk). While the below describes CME’s implementation of the SPAN 2 framework for equity products, as compared to energy products, CME’s implementation for any group of products may be adjusted based on its ongoing monitoring of the appropriateness and suitability of the SPAN 2 framework to margin the products cleared by CME.

#### a. Market Risk Component: FHVaR

- *Lookback period.* The SPAN 2 framework’s implementation for equity products will use at least a 5-year lookback period for the FHVaR methodology. While the FHVaR methodology for energy products uses a 10-year lookback period, backtesting results for the SPAN 2 framework’s implementation for equity products, which includes the use of at least a 5-year lookback period, demonstrated sufficient margin coverage that made a 10-year lookback period unnecessary. Similarly, CME uses at least a 5-year lookback period in the FHVaR component for its IRS products’ margin methodology, further supporting its appropriateness for financial products. The 10-year lookback will be preserved in the SVaR sub-component. As part of CME’s ongoing model monitoring, CME will continue to evaluate the appropriateness of the selected lookback period for the FHVaR methodology.

Within the FHVaR methodology for both energy and equity products, historical returns are scaled (i.e., filtered) using an exponentially weighted moving average volatility method (“EWMA”). EWMA is an industry standard that incorporating weighted volatility information and volatility estimation within a lookback window.

The SPAN 2 framework’s implementation for equity products will not utilize correlation scaling, which is a feature used for certain energy products. Correlation scaling is generally used for products with complex term structures that have experienced or are experiencing correlation changes, like certain energy products that may exhibit a change in the correlation regime over time. Given the term structure for equity products, which demonstrate a consistent correlation structure, CME has determined that correlation scaling is unnecessary.

- *Sampling Percentiles.* The SPAN 2 framework’s implementation for equity products will use at least a 99.5%, as compared to 99% for energy products, confidence interval on an *ex ante* basis for the FHVaR methodology. Using a 99.5% confidence interval for equity products supports CME’s overall objective of achieving the sufficient margin coverage on an *ex post* basis.

- *Principal Component Analysis (“PCA”)*. When implementing the SPAN 2 framework for equity products, performing dimensionality reduction using PCA is unnecessary because a significant majority of volume and open interest in equity products is concentrated within the first few contract months.<sup>10</sup> Backtesting results for the SPAN 2 framework’s implementation for equity products, which did not include dimensionality reduction using PCA, demonstrated sufficient margin coverage. As a result, the SPAN 2 framework’s implementation for equity products will not include PCA.
- *Samuelson Adjustment*. For products demonstrating a strong Samuelson effect (i.e., “maturity effect”), the SPAN 2 framework leverages a Samuelson adjustment to calculate the risk for those products. The Samuelson effect refers to contracts exhibiting higher volatility when closer to expiry, where the proximity of expiration of contracts impacts the expiring contract's behavior which affects the correlation in movement between the front month and the second month. The Samuelson effect is most pronounced for contracts that settle through physical delivery as opposed to those that settle financially off an index or other price series (i.e., cash-settled). Given the cash-settled nature of equity products, the Samuelson adjustment will not be applied under the SPAN 2 framework’s implementation for equity products.
- *Volatility floors*. The SPAN 2 framework’s implementation for equity products, like energy products, will utilize volatility floors. Volatility floors are, in part, used to reduce reactivity in margin requirements while maintaining conservative margin levels in low volatility regimes.
- *Volatility Surface*. Given the dense set of expiries and strikes for equity options, the SPAN 2 framework’s implementation for equity products leverages SABR (i.e., stochastic alpha beta rho) to represent the volatility surface for generating scenarios for skew and to interpolate the volatility surface at strike dimension. This is a well-established technique to represent the different skews on the volatility surface using a limited set of parameters. The approach for pricing (i.e., converting from volatility to price) continues to leverage the existing pricing models.

#### **i. Market Risk Component: SVaR Sub-Component**

The SPAN 2 framework’s implementation for equity products, like energy products, includes the use of historical and hypothetical scenarios within the SVaR sub-component. As an initial matter, CME notes that the goal for scenario selection is to avoid using redundant scenarios where there is no benefit to including them.

- *Historical Scenarios*. While the determination of historical scenarios is largely similar between equity and energy products, there are some differences in implementation of the SPAN 2 framework’s SVaR sub-component. In particular, since, as noted above, a large majority of volume and open interest in equity products is concentrated within the first few contract months, including a rank VaR for defining higher order and more targeted scenarios within the SVaR sub-component is unnecessary. Additionally, the SVaR component, as implemented for equity products, does not include a short-term loss component, which, in the case of energy products, incorporates additional historical scenarios from a predetermined shorter lookback period. This is primarily due to the fairly conservative hypothetical scenarios included in the SPAN 2 framework’s implementation for equity products. Backtesting results for the SPAN 2 framework’s implementation for equity products, which did not include the use of rank VaR or a short-term loss component, demonstrated sufficient margin coverage.

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<sup>10</sup> See <https://www.cmegroup.com/markets/equities/sp/e-mini-sandp500.volume.html> (noting, the open interest in the front month E-mini S&P 500 contract).

- *Hypothetical Scenarios.* The SPAN 2 framework’s implementation for equity products, like energy products, will continue to include the use of hypothetical scenarios within the SVaR sub-component. The use of hypothetical scenarios is designed, in part, to include extreme but plausible scenarios that may not have occurred in history.

## ii. Additional Market Risk Components

The SPAN 2 framework’s implementation for equity options includes short option minimum (“SOM”) and valuation uncertainty margin (“VUM”) within the market risk component. The SOM acts as a margin floor for deep out-of-the money options portfolios, while VUM accounts for potential pricing discrepancies between theoretical options prices and actual settlement prices. The SPAN 2 framework’s implementation for equity options is slightly modified for SOM, as compared to energy options, in that limited offsets are provided between short and long positions for certain style options. Providing these limited offsets more appropriately recognizes the risk profile of these types of equity options portfolios, while continuing to provide an appropriate margin floor.

### b. Liquidity and Concentration Risks Components

As noted above, the liquidity and concentration risk components under the SPAN 2 framework are designed to capture the costs to close-out a portfolio, including a concentrated portfolio. These components leverage market-based information, such as open interest, bid-ask spread, and average daily volume data, as well as other alternative data sources, such as information from market surveys. The liquidity and concentration risk components generate margin requirements at an individual portfolio level (i.e., each house and individual customer account of a Clearing Member). The implementation of the SPAN 2 framework’s liquidity and concentration risk components are largely consistent between energy and equity products. However, the implementation for energy products includes more granular liquidity groups and thresholds for triggering the liquidity and concentration risk components because energy products have more significant trading and open interest across the term structure, while the significant majority of volume and open interest in equity products is concentrated within the first few contract months. For both energy and equity products, the liquidity and concentration risk components also effectively self-adjust and scale with changing trading patterns and liquidity profiles.

### c. Cross-Model Offset

As part of the migration to the SPAN 2 framework for energy products, margin offsets are provided under the SPAN 2 framework’s cross-model offset where energy products that are margined in the SPAN 2 framework (i.e., in a single product group or pod) and products margined in the SPAN framework demonstrate a significant and reliable correlation (i.e., there is a conceptual basis for the correlation).<sup>11</sup> Where the Clearing House determines *ex ante* that there is a conceptual basis for a margin offset, the SPAN 2 framework uses a scenario driven methodology to determine these offsets, based on historically observed correlations. There are currently two products groups (or pods) for margining purposes within the SPAN 2 framework, which are the crude pod and natural gas pod, and no margin offsets are provided between these two product groups. The SPAN 2 framework’s implementation for equity products, will allow for margin offsets under the cross-model offset between products in two different products groups within the SPAN 2 framework, preserving the current margin offsets provided (e.g., between certain energy products and equity products) and supporting appropriate margin offsets for the migration of future product groups to the SPAN 2 framework. These margin offsets will be provided in the same manner as the margin offsets provided between certain energy products margined in the SPAN 2 framework and products margined in the SPAN framework. The Clearing House will also continue to determine *ex ante* that there is a conceptual basis for any margin offset provided under the SPAN 2 framework’s cross-model offset.

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<sup>11</sup> Please refer to Section 5 that describes the approach to providing margin offsets between equity products that are margined in the SPAN 2 framework and products margined in the SPAN framework.

#### **d. Cross Margining Program with The Options Clearing Corporation**

CME maintains a cross margining program with The Options Clearing Corporation (“OCC”) for purposes of offsetting risks in certain CME listed equity futures and options on futures against cleared OCC equity option cash positions. Clearing Members that participate in this program have positions in eligible products held in a joint OCC/CME cross-margin account. Under this program, positions in the cross-margin account are margined as a single portfolio with resulting margin offsets. OCC calculates margins for all positions in the program. Under the cross margining program with OCC, customer accounts are margined using the greater of OCC’s System for Theoretical Analysis and Numerical Simulations (“STANS”) methodology and SPAN framework and house accounts are margined using the STANS methodology. As part of the migration of equity products to the SPAN 2 framework, CME will be updating the parameters which are used as inputs into the aforementioned SPAN framework (e.g., price scan range parameters contained with the cross-margin SPAN file), resulting in margin requirements which are generally consistent with margin requirements for equity products that are margined at CME under the SPAN 2 framework. On a collective basis, margin requirements for customer accounts under the cross margining program with OCC currently account for approximately \$700 million (as a point of comparison, this figure is 0.3% of the total margin requirements at CME). Margin impacts resulting from these parameter changes are expected to be less than \$35 million across all customer accounts, representing a de minimis impact.

#### **e. Ongoing Commitment to Continuous and Active Risk Management**

As noted in 19-213R, the SPAN 2 framework’s implementation for equity products, like its implementation for energy products, will continue to facilitate the Clearing House’s ability to effectively manage risk because it: (1) produces margin requirements that dynamically assess a portfolio’s risk exposures; (2) supports growth and change in the markets cleared by CME by reducing reliance on manual involvement required with the current margin calculation process; and (3) facilitates additional transparency to the marketplace through granular and customizable risk reports (e.g., reports showing a breakdown of margin requirements by various components of the SPAN 2 framework). The product agnostic nature of the SPAN 2 framework also allows CME to tailor its implementation to the unique risk characteristics of the given product group.

As noted in 19-213R, the SPAN 2 framework is designed to provide for appropriately anti-procyclical margin requirements. For example, including an SVaR sub-component within the market risk component controls for procyclicality by incorporating into estimates of maximum potential losses the market moves and portfolio returns associated with stressed periods, both observed historically and those that may be observed in the future. Similarly, the inclusion of volatility floors in the FHVaR methodology of the market risk component also supports anti-procyclical margin requirements by yielding higher margin requirements during periods of lower volatility. By analyzing a wide variety of risk factors simultaneously, the SPAN 2 framework’s implementation for equity products is designed to ensure that margin calculations will not over-react to the current volatility or market conditions (whether positive or negative) and will foster overall stability in margin calculations.

### **3. Application of the SPAN 2 Framework to the Equity Product Group Meets CFTC Requirements**

#### **a. CFTC Regulation 39.13(g)**

CFTC Regulation 39.13(g)(2)(i) requires a DCO to establish initial margin requirements that are commensurate with the risks of each product and portfolio. CFTC Regulation 39.13(g)(2)(ii) expands upon this requirement, specifying that a DCO’s initial margin requirements must provide sufficient initial margin to cover the DCO’s potential future exposures to clearing members based on price movements in the estimated time it would take to liquidate a defaulting clearing member’s positions. That regulation also specifically requires a DCO’s initial margin model to utilize a minimum liquidation time of one day for futures and options and one or five days for swaps (depending on the underlying reference asset). CFTC



Regulation 39.13(g)(2)(iii) requires a margin model to meet at least 99% *ex post* coverage standard, using data from an appropriate historic time period.

- The SPAN 2 framework is designed to produce initial margin requirements that are commensurate with the risks of each product and portfolio in the equity product group, including distinct characteristics or risks associated with particular portfolios (such as market, liquidity and concentration risks). Initial margin requirements for equity products under the SPAN 2 framework will be closely tailored to the risks posed by each product and portfolio because: (1) they will be derived from risk simulations based on historical data; (2) the SPAN 2 framework is self-adaptive to changes in volatility, appropriately reacting to abrupt increases or decreases in such volatilities; and (3) the SPAN 2 framework controls for procyclicality through a variety of mechanisms, as described in Section 2.e.
- The SPAN 2 framework is designed to produce initial margin requirements commensurate with the risks for a given set of products (and all portfolios consisting of those products). Application of the SPAN 2 framework as detailed in this submission appropriately recognizes and considers the risk factors relevant to each equity product and portfolios containing such products.
- The SPAN 2 framework leverages historical data as the primary source of data for calculating margin requirements (i.e., historical scenarios), but also uses hypothetical scenarios in appropriate circumstances. Using actual historical scenarios is effective in predicting potential market moves during most potential liquidation periods, while using specific hypothetical scenarios enables the SPAN 2 framework to produce margin requirements that are commensurate with relevant risks (both observable and unobservable). Adjustments based on the market knowledge are also built into the SPAN 2 framework, leveraging the Clearing House's risk management expertise in accordance with the Clearing House's current practices.
- Application of the SPAN 2 Framework allows CME to readily adjust the risk horizon for closing out defaulted portfolios from one day to multiple days as appropriate. Consistent with this flexibility, CME will calibrate the SPAN 2 framework using a robust time series that is designed to ensure a targeted coverage level of at least 99% on an *ex post* basis, as assessed through backtesting.

CFTC Regulation 39.13(g)(3) requires a DCO's systems for generating initial margin requirements, including its theoretical models, to be reviewed and validated by a qualified and independent party, on a regular basis.

- Consistent with CME's current practices, qualified parties independent from development and use of the SPAN 2 framework have validated and will continue to periodically validate the SPAN 2 framework, including as it applies to the equity product group. The validation process is overseen by CME Clearing and the Clearing House Oversight Committee ("CHOC") (i.e., committee established by the Board).
- Validations cover, but may not be limited to, the appropriateness of the SPAN 2 framework for the products covered, review of backtesting results to ensure that the desired coverage standard is achieved, and review of the SPAN 2 framework's theory and assumptions, including parameter settings.
- Validation results, including the remediation of any observations and findings, are overseen by the Model Risk Committee (i.e., internal committee established by the Clearing House).

CFTC Regulation 39.13(g)(4) permits a DCO to provide for reductions in initial margin requirements for related positions if the price risks of such positions are significantly and reliably correlated.

- Margin offsets are provided for within the SPAN 2 framework where the price risks of positions within a given portfolio are significantly and reliably correlated. The SPAN 2 framework achieves this by employing a structure that limits what products are available for margin offsets. In particular, the SPAN 2 framework provides for margin offsets between products within a given product group (or pod) and the equity product group will be another pod. Additionally, within the SPAN 2 framework, margin offsets may be provided between products in different product groups (or pods) that meet this correlation standard, where the Clearing House determined *ex ante* that there is a conceptual basis for the margin offset.
- The SPAN 2 framework's use of a scenario driven methodology takes the current portfolio and subjects it to the actual market forces experienced during prior relevant periods. As such, any correlation observed and experienced for spreads and multi-product equity portfolios in the past will be inherently incorporated into the distribution of profits and losses of the current portfolio. In terms of margin offsets across product groups (or pods), the SPAN 2 framework also leverages a scenario driven methodology to determine the appropriate offsets, where a conceptual basis to provide such offsets exists.

#### **b. CFTC Regulation 39.33**

CFTC Regulation 39.33(a) establishes enhanced financial resource requirements for systemically important DCOs ("SIDCOs"). Specifically, Regulation 39.33(a)(1) requires a SIDCO to maintain financial resources sufficient to cover defaults by the two clearing members creating the largest combined loss to the SIDCO in extreme but plausible market conditions.

- CME Rule 828 implements the CFTC requirement that CME maintain financial resources for its Base Guaranty Fund Products sufficient to enable it to meet its financial obligations to its Base Clearing Members notwithstanding a default by the two Base Clearing Members creating the largest combined loss to CME in extreme but plausible market conditions.
- CME maintains and will continue to maintain such financial resources through its Base financial safeguards package, which includes performance bond funds and other resources of the defaulting Base Clearing Member(s), the CME Contribution (as defined in CME Rule 802.B.1), Base Guaranty Fund contributions of non-defaulting Clearing Members, and assessments. Performance bond requirements will continue to be established at levels that are consistent with the prevailing risks of CME-cleared contracts across the SPAN and SPAN 2 frameworks, while migrating to the SPAN 2 framework will enable more tailored adjustments of performance bond requirements based on a holistic view of those risks.
- The SPAN 2 framework sets and adjusts margin requirements corresponding to the risk posed to the Clearing House by using a filtered historical simulation approach that will comprehensively address risk factors and their impact on current and anticipated market conditions. CME's financial resources will be calculated in light of these enhanced risk simulations and will appropriately and prudently cover CME's financial obligations and costs.
- The SPAN 2 framework will not result in changes to the methodology used for calculating the size of the Base Guaranty Fund or to CME's stress testing methodology, nor will it impact the methodology for calculating the stress shortfall margin add-on, which is a function of the stress testing methodology. The Base Guaranty Fund size is driven primarily by changes in exposures and stress test scenarios and the stress test scenarios will not be impacted by the migration of the equity product group to the SPAN 2 framework. Changes in the absolute size of the Base Guaranty Fund will reflect the shortfalls beyond the SPAN 2 framework's calculation of margin for portfolios based on their risk profiles.

CFTC Regulation 39.33(c)(1)(i) establishes enhanced liquidity standards for SIDCOs by (among other things) requiring each SIDCO to maintain eligible liquidity resources that, “at a minimum, will enable it to meet its intraday, same-day, and multiday obligations to perform settlements . . . with a high degree of confidence under a wide range of stress scenarios that should include, but not be limited to, a default but plausible market conditions.” Adoption of the SPAN 2 Framework for the equity product group will not require changes to CME’s liquidity risk management practices, including liquidity stress testing.

#### **4. Core Principle Analysis**

CME has reviewed the DCO core principles (“Core Principles”) set forth in the Commodity Exchange Act (“CEA”) and identified the following Core Principles as potentially being impacted by the implementation of the SPAN 2 framework to the equity product group.

- **Core Principle B - Financial Resources:** As described above, and in accordance with CFTC Regulation 39.33, CME maintains financial resources for its Base Guaranty Fund Products sufficient to enable it to meet its financial obligations to its Base Clearing Members notwithstanding a default by the two Base Clearing Members creating the largest combined loss to CME in extreme but plausible market conditions.<sup>12</sup> CME maintains such financial resources through its Base financial safeguards package, which includes performance bond funds and other resources of the defaulting Base Clearing Member(s), the CME Contribution, Base Guaranty Fund contributions of non-defaulting Clearing Members, and assessments. Performance bond requirements for the equity product group, under the SPAN 2 framework, will continue to be established at levels that are consistent with observed levels applied to all CME-cleared contracts. If, after applying the prefunded layers of the Base financial safeguards package, the funds available to CME are insufficient to cover a loss associated with a Base Clearing Member default, CME can resort to recovery tools that are designed to ensure that CME can continue to operate its clearing services and avoid an insolvency or wind-down.

The SPAN 2 framework provides for sufficient margin coverage, while accounting for the risks posed to the Clearing House by the growing number of products cleared and diversity of risk profiles in current portfolios, and seamlessly adapts to current as well as anticipated market conditions. CME’s financial resources will thus be informed by the SPAN 2 framework’s enhanced risk simulations and will therefore appropriately and accurately continue to cover CME’s financial obligations and costs.

- **Core Principle C - Participant and Product Eligibility:** CME has established: (1) appropriate admission and continuing eligibility standards (including appropriate minimum financial requirements) for its members and participants; and (2) appropriate standards for determining eligibility of agreements, contracts, or transactions submitted to CME.
- **Core Principle D - Risk Management:** As described above, and consistent with the requirements of CFTC Regulation 39.13(g)(2)(i), the SPAN 2 framework establishes margin requirements that are commensurate with the risks of each product and portfolio, including unique characteristics or risks associated with particular portfolios (such as liquidity and concentration). The SPAN 2 framework utilizes a minimum liquidation time consistent with CFTC Regulation 39.13(g)(2)(ii) and meets an established coverage standard of at least 99%, using data from appropriate historic time periods, as specified under CFTC Regulation 39.13(g)(2)(iii).

For the avoidance of doubt, migrating to the SPAN 2 framework will not affect CME’s risk management program other than to change the methodology by which initial margin requirements for the equity product group are calculated. Among other things, CME will continue to:

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<sup>12</sup> See CME Rule 828.

- Apply the same default management rules (for example, CME Rule 802);
  - Utilize the same methodology for calculating the Base Guaranty Fund's size;
  - Calculate settlement variation and options premiums in the same manner;
  - Comply with the CFTC's Regulation 39.11(b) requirements for permissible types of financial resources (including liquidity requirements);
  - Treat funds held by the Clearing House in the manner required by CFTC Regulation 39.15;
  - Review and backtest its initial margin methodologies as required by CFTC Regulation 39.13(g);
  - Collect initial margin in the manner required by CFTC Regulation 39.13(g)(8);
  - Impose time deadlines for initial margin payments in the manner required by CFTC Regulation 39.13(g)(9); and
  - Accept only the types of assets, and apply valuations and haircuts as appropriate, as set forth in CFTC Regulations 39.13(g)(10)-(12).
- Core Principle E - Settlement Procedures: Under the SPAN 2 framework, CME will continue to have the ability to: (1) complete settlements on a timely basis under varying circumstances; (2) maintain an adequate record of the movement of funds associated with each cleared transaction; and (3) comply with the terms and conditions of any permitted netting or offset arrangements with other clearing organizations for the equity product group. The Clearing House manages the daily requirements to evaluate appropriate daily marks to market for all CME-cleared products and will continue to do so during and after migration to the SPAN 2 framework.
  - Core Principle F - Treatment of Funds: CME has standards and procedures designed to protect and ensure the safety of member and participant funds, which will continue to be applied after the equity product group migrates to the SPAN 2 framework for margining such members' or participants' portfolios.
  - Core Principle G - Default Rules and Procedures: CME has rules and procedures designed to allow for efficient, fair and safe management of events when members or participants become insolvent or otherwise default on their obligations to the Clearing House. These rules and procedures will continue to apply in the same manner and degree following the migration of the equity product group to the SPAN 2 framework.
  - Core Principle I - System Safeguards: CME has: (1) established and will maintain a program of oversight and risk analysis to ensure that its automated systems function properly and have adequate capacity and security; and (2) established and will maintain emergency procedures and a plan for disaster recovery and will periodically test backup facilities sufficient to ensure daily processing, clearing, and settlement of transactions. These standard oversight, risk analysis and emergency systems apply to all listed products cleared by CME, regardless of whether they are margined under the SPAN 2 framework or SPAN framework.

## **5. Implementation and Transition to the SPAN 2 Framework**

As indicated in 19-213R, CME is utilizing a phased approach to transition to and implement the SPAN 2 framework for different product groups.

#### **a. Parallel Production Phase**

With respect to the equity product group, CME has operated in a parallel production phase for several weeks before migrating the equity product group to the SPAN 2 framework. This period allowed CME to collaboratively prepare for the migration of the equity product group to the SPAN 2 framework by undertaking the following activities:

- Ensure that the SPAN 2 framework is operational for calculating initial margin requirements for equity products;
- Calculate the margin requirements using both the SPAN and the SPAN 2 frameworks for each house and customer portfolio; for avoidance of doubt, during this time actual margin requirements continue to be determined according to the calculations performed under SPAN framework;
- Compare the live operation of the SPAN framework to the in-test operation of the SPAN 2 framework for the equity product group;
- Monitor for margin differences for portfolios containing equity products to ensure that margin differences can be reconciled and are appropriate in terms of the risk;
- Share and discuss with market participants the margin requirements calculated under the SPAN 2 framework, including relative to the SPAN framework, with respect to the equity product group;
- Work collaboratively with Clearing Members and service providers to ensure their ability to replicate margin calculations using deployable libraries and other margin replication tools provided by the Clearing House; and
- Deploy mandatory upgrades to and provide support for replication tool software.

#### **b. Migration Phase**

In connection with the phased migration of product groups to the SPAN 2 framework, any portfolio containing positions in equity, energy, and other products will be split into three sub-portfolios: (1) Portfolio Set A, containing all positions in the equity and energy products that have migrated to the SPAN 2 framework and represented by different pods; (2) Portfolio Set B, containing positions in selected products within Portfolio Set A and other positions in selected products that have offsets to the corresponding equity and energy products (and equivalent contracts); and (3) Portfolio Set C, containing the positions of products that remain in the existing SPAN framework.

A preliminary margin requirement (i.e., without any offsets) will be calculated by applying the SPAN 2 framework to Portfolio Set A, SPAN framework to Portfolio Set C, and adding them together. Thereafter, an offset amount will be calculated which will account for any risk correlations between the equity and energy products in Portfolio Set A and Portfolio Set C; for this purpose, Portfolio Set B will be used and the offset computation will utilize the SPAN 2 framework. The final margin requirement will then be the sum of margins for Portfolio Sets A and C, less the offset amount that is computed using Portfolio Set B (provided that the offset amount will only reflect residual risk to obviate double counting after accounting for SPAN framework's offsets within Portfolio Set C).

The offsets described above will only be applied to certain products. For example, offsets across energy, equity and other products may only be permitted if there is a significant and reliable correlation between the relevant products. Additionally, risk offsets will continue to be backtested to monitor the appropriateness

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of margin offsets. Specifically, the margin requirement, following the calculated offset, for a given portfolio will continue to be subject to backtesting to ensure the 99% coverage standard is met.

Pursuant to Section 5c(c) of the CEA and CFTC Regulation 40.6(a), CME hereby certifies that the Rule Amendments comply with the CEA, including regulations under the CEA. There were no substantive opposing views to the proposal.

CME certifies that this submission has been concurrently posted on the CME Group website at <http://www.cmegroup.com/market-regulation/rule-filings.html>.

Should you have any questions concerning the above, please contact the undersigned at (312) 466-7478 or via e-mail at [CEGSubmissionInquiry@cmegroup.com](mailto:CEGSubmissionInquiry@cmegroup.com).

Sincerely,

/s/ Timothy Elliott  
Managing Director and Chief Regulatory Counsel