

tpSEF Inc.

101 Hudson Street
Jersey City
NJ 07302
USA

tel +1 201 557 5000

fax +1 201 557 5995

web www.tullettprebon.com

January 24, 2020

Submitted via CFTC Portal

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

Re: *tpSEF Inc. – Regulation 40.2 Certification of Equity Index Variance Swaps – MSCI Emerging Markets Index (tpSEF Submission #20-07P)*

Dear Mr. Kirkpatrick:

tpSEF Inc. (“tpSEF”) hereby notifies the Commodity Futures Trading Commission (the “Commission”) of its intent to list Equity Index Variance Swaps – MSCI Emerging Markets Index (the “Contracts”) on its swap execution facility. tpSEF intends to list the Contracts on January 28, 2020.

Pursuant to Commission Regulation 40.2, this submission includes:

- i. The intended listing date – January 28, 2020;
- ii. A certification by tpSEF that: (a) the Contracts comply with the Commodity Exchange Act, as amended, and the Commission regulations thereunder; and (b) concurrent with this submission, tpSEF posted on its website: (i) a notice of pending certification of the Contracts and (ii) a copy of this submission, attached as Exhibit A;
- iii. The terms and conditions of the Contracts, attached as Exhibit B; and
- iv. An explanation and analysis of the Contracts’ compliance with applicable core principles and Commission regulations, attached as Exhibit C.

tpSEF is listing the Contracts by virtue of updating the terms and conditions of Equity Index Variance Swaps submitted to the Commission for self-certification pursuant to Commission Regulation 40.2 on October 8, 2013, and last updated on August 29, 2014. A copy of the terms and conditions marked to show changes from the version submitted on August 29, 2014 is attached as Exhibit D.

Secretary of the Commission
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tpSEF will be separately updating Appendix B to its Rulebook (tpSEF Inc. Swap Specifications) to reflect this change.

Questions regarding this submission should be directed to Brian D. Donnelly, Chief Compliance Officer, at (201) 984-6956 or by email at bddonnelly@tullettprebon.com.

Very truly yours,

tpSEF Inc.

By: _____

Name: Brian D. Donnelly

Title: Chief Compliance Officer

Date: January 24, 2020

Enclosures

cc: CFTC Division of Market Oversight (dmosubmissions@cftc.gov)
Nancy Markowitz, CFTC (nmarkowitz@cftc.gov)

EXHIBIT A

CERTIFICATIONS PURSUANT TO SECTION 5c OF THE COMMODITY EXCHANGE ACT,
7 U.S.C. §7A-2 AND COMMODITY FUTURES TRADING COMMISSION REGULATION 40.2,
17 C.F.R. §40.2

tpSEF Inc. (“tpSEF”) hereby certifies that (i) Equity Index Variance Swaps – MSCI Emerging Markets Index (the “Contract”) complies with the Commodity Exchange Act, 7 U.S.C. §1 *et seq.* and Commodity Futures Trading Commission (“Commission”) regulations thereunder; and (ii) concurrent with this submission, tpSEF posted on its website: (a) a notice of pending certification of the Contract with the Commission and (b) a copy of this submission.

tpSEF Inc.

By: _____

Name: Brian D. Donnelly

Title: Chief Compliance Officer

Date: January 24, 2020

EXHIBIT B

Terms and Conditions

Summary/Contract Description:	This covers equity index variance swaps (each, an “Equity Index Variance Swap”). An Equity Index Variance Swap is a product used to hedge or take a direct view on the volatility of an underlying equity index by paying or receiving an amount based on the difference between the actual realized variance of an index over the life of the contract and the variance strike price agreed at contract inception.
Product Type/ISDA OTC Taxonomy:	
ISDA OTC Asset Class:	Equity
ISDA OTC Base Product:	Swap
ISDA OTC Sub-Product:	Parameter Return Variance
ISDA OTC Transaction type:	Single Index
Available Underlying Indices:	The index specified by the parties from among the indices listed in the table below titled “Equity Index Variance Swap Available Indices.”
Contract Size:	The contracts are quoted in “Vega” amounts. The minimum contract size is 1,000 of the currency of which the underlying index settles in.
Quoting Convention:	The contracts are quoted in volatility percentage points.
Leg Conventions:	Floating Leg Rate – The realized variance rate that is calculated on the Expiration Date. Fixed Leg Rate – The agreed fixed rate of variance (Traded Price).
Tenor:	Tenors of any duration greater than 0 years and less than 50 years.
Trade Types:	Capped – the maximum payout of the contract is capped at an agreed price. Uncapped – there is no maximum payout on the contract.
Trade Start Types:	Immediate – the observation period of the contract begins on the Trade Date. Forward – the observation period of the contract begins on an agreed-upon date after the Trade Date.
Trade Date:	The date on which the contract is entered into.
Observation Start Date:	The Trade Date or, in the case of a forward starting transaction, an agreed-upon date after the Trade Date.
Valuation Date:	The date upon which the final rate of volatility will be calculated on using the “Applicable Formula” below.
Settlement:	The contracts are cash settled. If the difference between the realized variance and the “Variance Strike” (as

	<p>agreed by the parties) is positive the seller pays the difference to the buyer. If the difference between the realized variance and the Variance Strike is negative the buyer pays the difference to the seller.</p> <p>Settlement of the contract occurs after the Valuation Date and in line with the settlement convention of the underlying equity index.</p>
Settlement Payments/Payment Date:	T+2 (adjustments according to following business day convention).
Minimum Price or Incremental Price:	The contracts are quoted in volatility percentage points. There is no minimum price or minimum incremental price for the contract.
Payment Frequency:	One time.
Payment Exchange:	<p>The buyer of a variance swap pays a fixed rate (the Variance Strike) in exchange for a payout based on the daily realized variance.</p> <p>The seller of a variance swap receives a fixed rate (the Variance Strike) in exchange for a payout based on the daily realized variance.</p>
Day Count:	Business Days Per Year = 252
Business Day Convention:	Following business day convention.
Applicable Formula:	<p>The final realized rate of variance will be calculated using the following formula:</p> $100x\sqrt{\frac{252 \times \sum_{i=1}^n (\text{Return}(i))^2}{N}}$ <p>Where:</p> $\text{Return}(i) = \ln\left(\frac{\text{Index}_i}{\text{Index}_{i-1}}\right)$ <p>n = the number of observations excluding the initial observation on the Observation Start Date, but including the Valuation Date;</p> <p>i = the relevant observation day;</p> <p>Index_i = the closing level of the underlying index “i” business days from the Observation Start Date, except for (i) Index₀ which shall equal the initial index level, and (ii) Index_n which shall equal the closing level of the underlying index on the Valuation Date. Index_{i-1} will be modified by deducting the dividend in case it is an ex-date.</p> <p>If applicable, the volatility cap will be set at 2.5x the Volatility Strike.</p> <p>N = Expected number of observations as agreed by the</p>

	parties. ln = the natural logarithm.
Market Disruption:	As specified by the parties.

Equity Index Variance Swap Available Indices

Abbr	Name
DAX	Deutscher Aktien Index
DJITR	Dow Jones Industrial Average Total Return
DJUSRE	Dow Jones U.S. Real Estate Index
FTXIN25	FTSE China 50 Index
GDDLCA	MSCI Canada Index CAD Total Return (Gross Dividends)
GDDUEAFE	MSCI EAFE Index Total Return (Gross Dividends)
GDDUNA	MSCI North American Index USD Total Return (Gross Dividends)
GDDUUS	MSCI US Index Total Return (Gross Dividends)
HSCEI	Hang Seng China Enterprises Index
HSI	Hang Seng Index
IBOV	BOVESPA Index
KOSPI	Korea Composite Stock Price Index
MDCPSPTR	S&P MidCap 400 Total Return
MEXBOL	Mexican IPC index (Indice de Precios y Cotizaciones)
NDDLCA	MSCI Canada Index CAD Total Return (Net Dividends)
NDDUNA	MSCI North American Index USD Total Return (Net Dividends)
NDDUUS	MSCI US Index Total Return (Net Dividends)
NDEUBRAF	MSCI Brazil Index USD Total Return (Net Dividends)
NDEUMXF	MSCI Mexico Index USD Total Return (Net Dividends)
NDEUSCH	MSCI Chile Index Total Return (Net Dividends)
NDEUSCO	MSCI Colombia Index Total Return (Net Dividends)
NDUEEGF	MSCI Emerging Markets Index
NDUEEGFL	MSCI Emerging Markets Latin America USD
NDX	NASDAQ-100
OEXT	S&P 100 Total Return
RGUSFL	Russell 1000 Financial
RU10GRTR	Russell 1000 Growth Total Return
RU10INTR	Russell 1000 Total Return
RU10VATR	Russell 1000 Value Total Return
RU20GRTR	Russell 2000 Growth Total Return
RU20INTR	Russell 2000 Total Return
RU20VATR	Russell 2000 Value Total Return
SMCPSPTR	S&P SmallCap 600 Total Return
SPXT	S&P 500 Total Return
SX5E	Eurostoxx 50 Index
UKX	FTSE 100 Index

EXHIBIT C

EXPLANATION AND ANALYSIS OF THE CONTRACTS' COMPLIANCE WITH APPLICABLE CORE PRINCIPLES AND COMMISSION REGULATIONS

As required by Commodity Futures Trading Commission (“Commission”) Regulation 40.2(a), the following analysis, in narrative form, demonstrates that Equity Index Variance Swaps (the “Contracts”) are consistent with the requirements of the Commodity Exchange Act, as amended (the “Act”), and the Commission regulations and guidance thereunder (in particular, Appendix B to Part 37 and Appendix C to Part 38).

Appendix B to Part 37

CORE PRINCIPLE 3 OF SECTION 5H OF THE ACT—SWAPS NOT READILY SUSCEPTIBLE TO MANIPULATION; CORE PRINCIPLE 4 OF SECTION 5H OF THE ACT—MONITORING OF TRADING AND TRADE PROCESSING

The swap execution facility shall permit trading only in swaps that are not readily susceptible to manipulation.

(a) *Guidance.*

(1) In general, a swap contract is an agreement to exchange a series of cash flows over a period of time based on some reference price, which could be a single price, such as an absolute level or a differential, or a price index calculated based on multiple observations. Moreover, such a reference price may be reported by the swap execution facility itself or by an independent third party. When listing a swap for trading, a swap execution facility shall ensure a swap’s compliance with Core Principle 3, paying special attention to the reference price used to determine the cash flow exchanges. Specifically, Core Principle 3 requires that the reference price used by a swap not be readily susceptible to manipulation. As a result, when identifying a reference price, a swap execution facility should either: Calculate its own reference price using suitable and well-established acceptable methods or carefully select a reliable third-party index.

(2) The importance of the reference price’s suitability for a given swap is similar to that of the final settlement price for a cash-settled futures contract. If the final settlement price is manipulated, then the futures contract does not serve its intended price discovery and risk management functions. Similarly, inappropriate reference prices cause the cash flows between the buyer and seller to differ from the proper amounts, thus benefitting one party and disadvantaging the other. Thus, careful consideration should be given to the potential for manipulation or distortion of the reference price.

A variance swap is a forward contract in which the underlying is the measured or realized variance of the underlying asset, a stock or index of stocks, over the life of the swap. The reference rate is the variance (volatility squared) of the trading day to trading day price change in the closing level of a broadly-traded index over an extended period of time.

The measured or realized variance for a variance swap is calculated by taking daily samples of the underlying asset price. The absolute daily changes in value are calculated over the life of the swap and the value annualized to provide the percentage quotation for volatility.

The Contracts are not susceptible to manipulation for a number of reasons. First, the stocks underlying the indices are numerous and are broadly traded and liquid, and the indices may have futures and exchange traded fund instruments tied to them which make the market for the index itself deep and liquid. Second, tpSEF has established rules and an enforcement infrastructure to prevent manipulation. tpSEF staff conduct real-time market surveillance and the National Futures Association (“NFA”) provides regulatory services on a T+1 basis. NFA’s services include comprehensive trade practice and market surveillance services (the scope of which can be found in the Regulatory Services Agreement between NFA and tpSEF submitted to the Commission as part of tpSEF’s swap execution facility application) (note that this also demonstrates compliance with Core Principle 4).

(3) For swaps that are settled by physical delivery or by cash settlement refer to the guidance in Appendix C to Part 38 of this chapter—Demonstration of Compliance that a Contract is not Readily Susceptible to Manipulation, section b(2) and section c(4), respectively.

Please see below.

Appendix C to Part 38 - Demonstration of Compliance That a Contract Is Not Readily Susceptible to Manipulation

(c) Futures Contracts Settled by Cash Settlement. (1) Cash settlement is a method of settling certain futures or option contracts whereby, at contract expiration, the contract is settled by cash payment in lieu of physical delivery of the commodity or instrument underlying the contract. An acceptable specification of the cash settlement price for commodity futures and option contracts would include rules that fully describe the essential economic characteristics of the underlying commodity (e.g., grade, quality, weight, class, growth, issuer, maturity, source, rating, description of the underlying index and index's calculation methodology, etc.), as well as how the final settlement price is calculated. In addition, the rules should clearly specify the trading months and hours of trading, the last trading day, contract size, minimum price change (tick size) and any limitations on price movements (e.g., price limits or trading halts).

Essential Economic Characteristics of the Contract Terms

The terms and conditions of the Contracts match the terms of equity index variance swaps that are commonly offered in the market and are listed in Exhibit B.

Calculation of Cash Settlement Price

The cash settlement price for the Contracts is the difference between the realized variance and the “Variance Strike” (as agreed by the parties). If such difference is positive, the seller pays the difference to the buyer. If such difference is negative, the buyer pays the difference to the seller. Settlement of the contract occurs after the Valuation Date and in line with the settlement convention of the underlying equity index.

(2) Cash settled contracts may be susceptible to manipulation or price distortion. In evaluating the susceptibility of a cash-settled contract to manipulation, a designated contract market should consider the size and liquidity of the cash market that underlies the listed contract in a manner that follows the determination of deliverable supply as noted above in (b)(1). In particular, situations susceptible to manipulation include those in which the volume of cash market transactions and/or the number of participants contacted in determining the cash-settlement price are very low. Cash-

settled contracts may create an incentive to manipulate or artificially influence the data from which the cash-settlement price is derived or to exert undue influence on the cash-settlement price's computation in order to profit on a futures position in that commodity. The utility of a cash-settled contract for risk management and price discovery would be significantly impaired if the cash settlement price is not a reliable or robust indicator of the value of the underlying commodity or instrument. Accordingly, careful consideration should be given to the potential for manipulation or distortion of the cash settlement price, as well as the reliability of that price as an indicator of cash market values. Appropriate consideration also should be given to the commercial acceptability, public availability, and timeliness of the price series that is used to calculate the cash settlement price. Documentation demonstrating that the settlement price index is a reliable indicator of market values and conditions and is commonly used as a reference index by industry/market agents should be provided. Such documentation may take on various forms, including carefully documented interview results with knowledgeable agents.

The Contracts operate in a very liquid market with numerous participants. Also, the cash settlement price is not easily susceptible to manipulation or distortion as the composition of the index is announced by the index sponsor and the index level by the relevant exchange(s). Each of the available underlying indices is widely accepted by market participants and data is readily accessible through numerous news outlets.

(3) Where an independent, private-sector third party calculates the cash settlement price series, a designated contract market should consider the need for a licensing agreement that will ensure the designated contract market's rights to the use of the price series to settle the listed contract.

(i) Where an independent, private-sector third party calculates the cash settlement price series, the designated contract market should verify that the third party utilizes business practices that minimize the opportunity or incentive to manipulate the cash-settlement price series. Such safeguards may include lock-downs, prohibitions against derivatives trading by employees, or public dissemination of the names of sources and the price quotes they provide. Because a cash-settled contract may create an incentive to manipulate or artificially influence the underlying market from which the cash-settlement price is derived or to exert undue influence on the cash-settlement computation in order to profit on a futures position in that commodity, a designated contract market should, whenever practicable, enter into an information-sharing agreement with the third-party provider which would enable the designated contract market to better detect and prevent manipulative behavior.

As described above, the cash settlement price is calculated through a cash settlement method that is not easily susceptible to manipulation.

(ii) Where a designated contract market itself generates the cash settlement price series, the designated contract market should establish calculation procedures that safeguard against potential attempts to artificially influence the price. For example, if the cash settlement price is derived by the designated contract market based on a survey of cash market sources, the designated contract market should maintain a list of such entities which all should be reputable sources with knowledge of the cash market. In addition, the sample of sources polled should be representative of the cash market, and the poll should be conducted at a time when trading in the cash market is active.

Please see above.

(iii) The cash-settlement calculation should involve computational procedures that eliminate or

reduce the impact of potentially unrepresentative data.

(iv) The cash settlement price should be an accurate and reliable indicator of prices in the underlying cash market. The cash settlement price also should be acceptable to commercial users of the commodity contract. The registered entity should fully document that the settlement price is accurate, reliable, highly regarded by industry/market agents, and fully reflects the economic and commercial conditions of the relevant designated contract market.

Please see above.

(v) To the extent possible, the cash settlement price should be based on cash price series that are publicly available and available on a timely basis for purposes of calculating the cash settlement price at the expiration of a commodity contract. A designated contract market should make the final cash settlement price and any other supporting information that is appropriate for release to the public, available to the public when cash settlement is accomplished by the derivatives clearing organization. If the cash settlement price is based on cash prices that are obtained from non-public sources (e.g., cash market surveys conducted by the designated contract market or by third parties on behalf of the designated contract market), a designated contract market should make available to the public as soon as possible after a contract month's expiration the final cash settlement price as well as any other supporting information that is appropriate or feasible to make available to the public.

Please see above.

(4) Contract terms and conditions requirements for futures contracts settled by cash settlement.

(i) An acceptable specification of the terms and conditions of a cash-settled commodity contract will also set forth the trading months, last trading day, contract size, minimum price change (tick size) and daily price limits, if any.

Please see Exhibit B for the Contracts' terms and conditions.

(A) *Commodity Characteristics*: The terms and conditions of a commodity contract should describe the commodity underlying the contract.

The available underlying indices are included in the terms and conditions set forth in Exhibit B. These are well-established, publicly available third-party equity index market benchmarks and are the timeliest, recognized and reliable benchmarks for equity prices in their respective markets. The index levels are readily available and commercially acceptable as benchmarks for investors, portfolio managers and public policy makers.

(B) *Contract Size and Trading Unit*: An acceptable specification of the trading unit would be a contract size that is consistent with customary transactions in the cash market. A designated contract market may opt to set the contract size smaller than that of standard cash market transactions.

The size of Contracts are consistent with customary transaction sizes in the market.

(C) *Cash Settlement Procedure:* The cash settlement price should be reliable, acceptable, publicly available, and reported in a timely manner as described in paragraphs (c)(3)(iv) and (c)(3)(v) of this appendix C.

The cash settlement procedure and an explanation of how, in the context of these Contracts, it is not readily susceptible to manipulation, is described above.

(D) *Pricing Basis and Minimum Price Fluctuation (Minimum Tick):* The minimum price increment (tick) should be set a level that is equal to, or less than, the minimum price increment commonly observed in cash market transactions for the underlying commodity. Specifying a futures' minimum tick that is greater than the minimum price increment in the cash market can undermine the risk management utility of the futures contract by preventing hedgers from efficiently establishing and liquidating futures positions that are used to hedge anticipated cash market transactions or cash market positions.

The Contracts are quoted in volatility percentage points. There is no minimum price or minimum incremental price for the contract.

(E) *Maximum Price Fluctuation Limits:* Designated contract markets may adopt price limits to: (1) Reduce or constrain price movements in a trading day that may not be reflective of true market conditions but might be caused by traders overreacting to news; (2) Allow additional time for the collection of margins in times of large price movements; and (3) Provide a "cooling-off" period for futures market participants to respond to bona fide changes in market supply and demand fundamentals that would lead to large cash and futures price changes. If price-limit provisions are adopted, the limits should be set at levels that are not overly restrictive in relation to price movements in the cash market for the commodity underlying the futures contract. For broad-based stock index futures contracts, rules should be adopted that coordinate with New York Stock Exchange ("NYSE") declared Circuit Breaker Trading Halts (or other market coordinated Circuit Breaker mechanism) and would recommence trading in the futures contract only after trading in the majority of the stocks underlying the index has recommenced.

The Contracts are quoted in volatility percentage points. There is no minimum price or minimum incremental price for the contract.

(F) *Last Trading Day:* Specification of the last trading day for expiring contracts should be established such that it occurs before publication of the underlying third-party price index or determination of the final settlement price. If the designated contract market chooses to allow trading to occur through the determination of the final settlement price, then the designated contract market should show that futures trading would not distort the final settlement price calculation.

The last trading day will be the maturity date of each Contract, which is set by the individual counterparties.

(G) *Trading Months:* Trading months should be established based on the risk management needs of commercial entities as well as the availability of price and other data needed to calculate the cash settlement price in the specified months. Specification of the last trading day should take into consideration whether the volume of transactions underlying the cash settlement price would be unduly limited by occurrence of holidays or traditional holiday periods in the cash market.

Moreover, a contract should not be listed past the date for which the designated contract market has access to use a proprietary price index for cash settlement.

Payments are settled in accordance with the payment frequency of the particular Contract, which is a flexible term.

(H) *Speculative Limits*: Specific rules and policies for speculative position limits are set forth in part 150 and/or part 151, as applicable, of the Commission's regulations.

None required by Parts 150 or 151.

(I) *Reportable Levels*: Refer to § 15.03 of the Commission's regulations.

tpSEF will adhere to the applicable reporting levels set forth in § 15.03 of the Commission's regulations.

(J) *Trading Hours*: Should be set by the designated contract market to delineate each trading day.

The Contracts are traded twenty-three hours a day from Sunday to Friday. The Contracts are not traded between 5:30 p.m. and 6:30 p.m. Eastern Time.

EXHIBIT D

**Terms and Conditions for Equity Index Variance Swaps
 Marked Against August 29, 2014 Version**

<p>Summary:</p>	<p>This covers equity index variance swaps (each, an “Equity Index Variance Swap”).</p>
<p>Limitations on Available Selections and Default Settings <u>Summary/Contract Description:</u></p>	<p>This covers equity index variance swaps (each, an “Equity Index Variance Swap”). An Equity Index Variance Swap is a product used to hedge or take a direct view on the volatility of an underlying equity index by paying or receiving an amount based on the difference between the actual realized variance of an index over the life of the contract and the variance strike price agreed at contract inception. The terms under which an Equity Index Variance Swap may be traded are shown below or in the attached tables.</p> <p>For amounts or rates, the relevant term cannot be less than the specified Minimum, must represent an even Increment and cannot exceed the Maximum; for a date, the date cannot be earlier than Earliest nor later than Latest.</p> <p>For Business Days, the defaults shall be the locations specified for the relevant currency, any additional locations specified for the relevant Floating Rate Options.</p> <p>The parties may add additional locations from the Available Locations and may eliminate some or all of the other locations, so long as there is at least one location in which payment may be made.</p> <p>For these purposes “TARGET” is considered a location.</p> <p>In many cases there are normal “vanilla” terms on which the parties will transact. These are shown as “Default” and will apply unless the parties vary them.</p> <p>It should be noted that these contracts can be traded in a variety of currencies. Since each national market has its own peculiarities, the “Available Terms” and/or “Default Terms” may vary by currency.</p> <p>In some cases, the same contract might have different terms depending on the market in which it is traded (e.g., London versus NY). In that case the default settings may vary by market.</p>
<p>Incorporated Standards:</p>	<p>This contract description incorporates by reference the</p>

	<p>following industry standard documentation and standards:</p> <p>(a) 2006 ISDA Definitions</p> <p>(b) 2002 ISDA Equity Derivatives Definitions</p> <p>(c) Annex IVS to 2007 Americas Master Variance Swap Confirmation Agreement, to the Revised 2007 AEJ Master Variance Swap Confirmation Agreement for AEJ indices or to the 2007 European Variance Swap Master Confirmation Agreement (as indicated on the Equity Index Available Indices attached)</p> <p>For convenience, certain terms are mapped to their EpML 5.5 equivalent.</p>
Product Type/ISDA OTC Taxonomy:	
ISDA OTC Asset Class:	Equity
ISDA OTC Base Product:	Swap
ISDA OTC Sub-Product:	Parameter Return Variance
ISDA OTC Transaction type:	Single Index
Further Limitations:	None
Terms:	
Trade Date:	As agreed by the parties.
Effective Date (“effectiveDate”):	As per Annex IVS
Termination Date (“terminationDate”):	As per Annex IVS
Exchanges <u>Available Underlying Indices:</u>	As <u>The index specified by the parties: from among the indices listed in the table below titled “Equity Index Variance Swap Available Indices.”</u>
Related Exchanges <u>Contract Size:</u>	As per Annex IVS <u>The contracts are quoted in “Vega” amounts. The minimum contract size is 1,000 of the currency of which the underlying index settles in.</u>
Variance Buyer:	As specified by the parties (other than for an AEJ or EMEA Index).
<u>Quoting Convention:</u>	<u>The contracts are quoted in volatility percentage points.</u>
Variance Seller <u>Leg Conventions:</u>	As specified by the parties (other than for an AEJ or EMEA Index). <u>Floating Leg Rate – The realized variance rate that is calculated on the Expiration Date.</u> <u>Fixed Leg Rate – The agreed fixed rate of variance (Traded Price).</u>
Equity Amounts <u>Tenor:</u>	<u>Tenors of any duration greater than 0 years and less than 50 years.</u>
Equity Amount Payer (“payerPartyReference”) <u>Trade Types:</u>	As per Annex IVS <u>Capped – the maximum payout of the contract is capped at an agreed price.</u> <u>Uncapped – there is no maximum payout on the contract.</u>
Equity Notional Amount <u>Trade Start Types:</u>	As specified by the parties (other than for an EMEA Index). <u>Immediate – the observation period of the contract begins on the Trade Date.</u> <u>Forward – the observation period of the contract begins</u>

	<u>on an agreed-upon date after the Trade Date.</u>
Variance Amount <u>Trade Date:</u>	As specified by the parties (for an EMEA Index) <u>The date on which the contract is entered into.</u>
Equity Notional Reset:	As per Annex IVS
Type of Return:	As per Annex IVS
Initial Price:	As per Annex IVS
Final Price:	As per Annex IVS
Valuation Time:	As per Annex IVS
Observation Start Date:	As specified by the parties or otherwise as per Annex IVS <u>The Trade Date or, in the case of a forward starting transaction, an agreed-upon date after the Trade Date.</u>
Observation End <u>Valuation Date:</u>	As per Annex IVS <u>The date upon which the final rate of volatility will be calculated on using the “Applicable Formula” below.</u>
Observation Day:	As per Annex IVS
Non-Disrupted Observation Day:	As per Annex IVS
Observation Period:	As per Annex IVS
Futures Price Valuation:	As specified by the parties or determined in accordance with Annex IVS.
Default Exchange-traded Contract:	As per Annex IVS
Equity Amount:	As per Annex IVS
Variance Strike Price <u>Settlement:</u>	As specified by the parties and calculated in accordance with Annex IVS. <u>The contracts are cash settled. If the difference between the realized variance and the “Variance Strike” (as agreed by the parties) is positive the seller pays the difference to the buyer. If the difference between the realized variance and the Variance Strike is negative the buyer pays the difference to the seller.</u> <u>Settlement of the contract occurs after the Valuation Date and in line with the settlement convention of the underlying equity index.</u>
Variance Cap <u>Settlement Payments/Payment Date:</u>	As specified by the parties, or otherwise as per Annex IVS <u>T+2 (adjustments according to following business day convention).</u>
Final Realized Volatility:	As per Annex IVS
Initial Index Level:	As specified by the parties.
Closing Index Level <u>Minimum Price or Incremental Price:</u>	If specified by the parties, and determined per Annex IVS <u>The contracts are quoted in volatility percentage points. There is no minimum price or minimum incremental price for the contract.</u>
Expiring Contract Level <u>Payment Frequency:</u>	If specified by the parties or as determined per Annex IVS <u>One time.</u>
Variance Amount:	As specified by the parties.
Volatility Strike Price <u>Payment Exchange:</u>	As specified by the parties if Variance Strike Price is not specified. <u>The buyer of a variance swap pays a fixed rate (the Variance Strike) in exchange for a payout based on the daily realized variance.</u>

	<u>The seller of a variance swap receives a fixed rate (the Variance Strike) in exchange for a payout based on the daily realized variance.</u>
Variance Strike Price <u>Day Count:</u>	As specified by the parties if Volatility Strike Price is not specified, or calculated in accordance with Annex IVS. <u>Business Days Per Year = 252</u>
Variance Cap Amount <u>Business Day Convention:</u>	As specified by the parties or otherwise per Annex IVS. <u>Following business day convention.</u>
Final Realized Volatility (“FRV”):	Per Annex IVS
N <u>Applicable Formula:</u>	<p>As specified by the parties or otherwise per Annex IVS (other than for an AEJ Index). The final realized rate of variance will be calculated using the following formula:</p> $\frac{(Add) \sqrt{252 \times \sum_{i=1}^n (\text{Return}(i))^2}}{N}$ <p><u>Where:</u></p> $\text{Return}(i) = \ln\left(\frac{\text{Index}_i}{\text{Index}_{i-1}}\right)$ <p><u>n = the number of observations excluding the initial observation on the Observation Start Date, but including the Valuation Date;</u></p> <p><u>i = the relevant observation day;</u></p> <p><u>Index_i = the closing level of the underlying index “i” business days from the Observation Start Date, except for (i) Index₀, which shall equal the initial index level, and (ii) Index_n, which shall equal the closing level of the underlying index on the Valuation Date. Index_{i-1} will be modified by deducting the dividend in case it is an ex-date.</u></p> <p><u>If applicable, the volatility cap will be set at 2.5x the Volatility Strike.</u></p> <p><u>N = Expected number of observations as agreed by the parties.</u></p> <p><u>ln = the natural logarithm.</u></p>
ExpectedN <u>Market Disruption:</u>	As specified by the parties or otherwise per Annex IVS (only for an AEJ Index).
Market Disruption Event:	As per Annex IVS
Floating Amount:	
Floating Amount:	As per Annex IVS
Settlement Terms:	
Cash Settlement:	As per Annex IVS
Settlement Currency:	As per Annex IVS
Cash Settlement Payment Date:	As per Annex IVS
Index Adjustment Events:	

Index Cancellation:	As per Annex IVS
Index Modification:	As per Annex IVS
Index Disruption:	As per Annex IVS
IVS Cancellation and Payment:	As per Annex IVS
Additional Disruption Events:	
Change in Law:	As per Annex IVS
Non-Reliance:	As per Annex IS
Agreements and Acknowledgements Regarding Hedging Activities:	As per Annex IS
Additional Acknowledgements:	As per Annex IS
Index Disclaimer:	As per Annex IS
Calculation Agent:	As agreed by the parties.

Equity Index Available Currencies and Required Business Days

Three Letter Currency Code (ISDA/ISO)	Currency Name (ISDA)	Basic Business Day Locations For Currency (FpML Codes)
USD	United States Dollars	USNY
CAD	Canadian Dollars	CATO
EUR	Euro	EUTA
GBP	Pound Sterling	GBLO

Equity Index Variance Swap Available Indices

Abbr	Name
DAX	Deutscher Aktien Index (EMEA)
DJITR	Dow Jones Industrial Average Total Return
DJUSRE	Dow Jones U.S. Real Estate Index
FTXIN25	FTSE China 50 Index
GDDLCA	MSCI Canada Index CAD Total Return (Gross Dividends)
GDDUEAFE	MSCI EAFE Index Total Return (Gross Dividends)
GDDUNA	MSCI North American Index USD Total Return (Gross Dividends)
GDDUUS	MSCI US Index Total Return (Gross Dividends)
HSCEI	Hang Seng China Enterprises Index (AEJ)
HSI	Hang Seng Index (AEJ)
IBOV	BOVESPA Index
KOSPI	Korea Composite Stock Price Index (AEJ)
MDCPSPTR	S&P MidCap 400 Total Return
MEXBOL	Mexican IPC index (Indice de Precios y Cotizaciones)
NDDLCA	MSCI Canada Index CAD Total Return (Net Dividends)
NDDUNA	MSCI North American Index USD Total Return (Net Dividends)
NDDUUS	MSCI US Index Total Return (Net Dividends)
NDEUBRAF	MSCI Brazil Index USD Total Return (Net Dividends)
NDEUMXF	MSCI Mexico Index USD Total Return (Net Dividends)
NDEUSCH	MSCI Chile Index Total Return (Net Dividends)
NDEUSCO	MSCI MSCI Colombia Index Total Return (Net Dividends)
NDUEEGF	MSCI Emerging Markets Index
NDUEEGFL	MSCI Emerging Markets Latin America USD
NDX	NASDAQ-100
OEXT	S&P 100 Total Return
RGUSFL	Russell 1000 Financial
RU10GRTR	Russell 1000 Growth Total Return
RU10INTR	Russell 1000 Total Return

RU10VATR	Russell 1000 Value Total Return
RU20GRTR	Russell 2000 Growth Total Return
RU20INTR	Russell 2000 Total Return
RU20VATR	Russell 2000 Value Total Return
SMCPSPTR	S&P SmallCap 600 Total Return
SPXT	S&P 500 Total Return
SX5E	Eurostoxx 50 Index (EMEA)
UKX	FTSE 100 Index (EMEA)