

**The Morgan Stanley Precious Metal Currency Hedged
(MSPM) Indices Gold Manual**

September 2022 Edition

Updated September 15, 2022

The data and information (the “Information”) presented in this MSPM Indices Manual reflect the methodology (the “MSPM Indices Methodology”) for calculating and determining the level of each of the MSPM Indices (the “MSPM Indices” or individually, an “MSPM Index”). Upon launch in 2013, this MSPM Indices Manual and the MSPM Indices Methodology were created, compiled, and published, by the Morgan Stanley Institutional Research Department. As of April 10, 2017, the Morgan Stanley Fixed Income Sales and Trading Department took the role of index sponsor (the “Index Sponsor”) and Morgan Stanley India Financial Services Private Limited took the role of compiling and publishing all the MSPM Indices (the “Index Calculation Agent”). As of October 14th, 2020 the Morgan Stanley & Co. LLC took the role of index sponsor (the “Index Sponsor”) and compiling and publishing all the MSPM Indices (the “Index Calculation Agent”). This MSPM Indices Manual and the MSPM Indices Methodology are the exclusive property of Morgan Stanley & Co. LLC (“Morgan Stanley”).

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This edition of the MSPM Indices Manual reflects the methodology that will be utilized with respect to the determination and calculation of the MSPM Indices as of September 23rd, 2022, unless amended in accordance with the provisions herein. After September 23rd, 2022, the methodology shall remain in effect until amended or replaced by an updated version. However, the MSPM Methodology is subject to revision and adjustment by the Index Sponsor, as described herein.

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I. Introduction

I.1 Overview of the MSPM Indices

The MSPM Indices suite consists of tradable indices relating to one Precious Metal (an “MSPM Precious Metal”) with Currency Hedges (an “MSPM Currency”) for investors based in a number of different currencies. The MSPM Indices were designed as benchmarks for long investments in a wide range of precious metals with an FX overlay. Each index consists of a position in metal and a position in an FX forward. The FX forwards are settled daily in metal quantities. Hence, the index values are always expressed in metal quantities. The FX overlay aims to hedge the dollar exposure in the Precious Metal for an investor based in another Currency.

The MSPM Indices were created, and are calculated and disseminated daily on a real time basis (though delayed), by or for the Index Sponsor using an objective and systematic methodology that uses publicly available data sources that reflect actual quotes or trades by market participants.

The indices are total return long indices.

The Index Sponsor first began publishing certain of the MSPM indices in August 2012 and will continue to roll out publication and calculation of new MSPM Indices in its sole discretion. In addition, the Index Sponsor has calculated historical levels for each of the MSPM Indices being published using the methodology contained herein; provided however, that historical levels published may have been calculated using generic Bloomberg mid level data sources rather than the actual reference sources set forth under “The MSPM Indices Methodologies” herein. Each of the MSPM Indices will be set to a value of 10000 as of the date of its initial calculation. Levels for the MSPM Indices may be affected by modifications to the relevant MSPM Index in accordance with this MSPM Indices Manual.

Levels for each of the MSPM Indices will be published daily, by or for the Index Sponsor, between 8:00 a.m. (London Time) and 4:30 p.m. (London Time) on each day which constitutes an Index Business Day (as defined below) for the related MSPM Currency, with such levels being updated on a “delayed” basis approximately every 15 seconds based on the related reference sources set forth herein. An official closing level will be published for each of the MSPM Indices on any day which constitutes an Index Business Day for that index (see methodology herein for description of Index Business Day).

I.2 The MSPM Indices Manual

This MSPM Indices Manual describes the current MSPM Indices Methodology used by the Index Sponsor in determining and calculating the MSPM Indices levels on any given day. The Index Sponsor is committed to using commercially reasonable efforts to maintain the MSPM Indices as liquid, tradable indices that serve as benchmarks for a currency hedged investment in the MSPM Precious Metals. As a result, modifications or refinements to the MSPM Indices Methodology, and consequently this MSPM Indices Manual, may be necessary from time to time. The Index Sponsor reserves the right to make such modifications or refinements, after consultation with the Index Committee (as defined below) as it believes necessary in order to preserve and enhance the utility and tradability of the MSPM Indices as benchmarks for currency hedged investing in the MSPM Precious Metals.

Neither this MSPM Indices Manual nor any set of procedures, however, are capable of anticipating all possible circumstances and events that may affect the MSPM Indices and their respective calculation methodologies. The detailed rules-based approach contained in this MSPM Indices Manual may not at all times be able to reflect the underlying liquidity and condition of a specific market, particularly in periods of extraordinary market volatility or rapid technological change. Accordingly, the Index Sponsor, after consultation with the Index Committee (as defined below), may make certain determinations that cannot be adequately reflected in

this MSPM Indices Manual with regard to a currency used for the hedge, the underlying precious metals, the related exchange rate or the related MSPM Index, should conditions exist (as described herein) or upon the occurrence of certain extraordinary market events and market emergencies, that in the discretion of the Index Sponsor and Index Committee (as defined below), would undermine the effectiveness of the relevant MSPM Index as a measure for the related currency hedged precious metal investment performance or as a tradable index.

All questions of interpretation with respect to the application of the provisions of this MSPM Indices Manual, including any determinations that need to be made in the event of the occurrence of an adjustment event, market disruption, discontinuance or other circumstances or events that affect the MSPM Indices, will be resolved in a commercially reasonable manner by the Index Sponsor after consultation with the Index Committee (as defined below). The compositions of the MSPM Indices, and the value of the MSPM Indices on any given day, as determined and published by the Index Sponsor, are dispositive.

Wherever practicable, any modifications, adjustments or actions with respect to the MSPM Indices will be publicly announced by the Index Sponsor prior to their effective date.

I.3 Currency Conventions

As defined in Annex I which may, as required from time to time, be amended or updated.

I.4 Metal Conventions

<u>Metal (vs. USD)</u>	<u>Standard Quotation</u>
Gold	USD per 1 Gold oz.

MSPM Indices and Related Bloomberg Index Tickers

A list of all of the MSPM Indices is contained in Annex II, as amended or updated from time to time, and can also be accessed on Bloomberg using its respective Bloomberg Index Ticker.

I.5 Certain Basic Foreign Exchange Market and Metals Concepts and Definitions

Currency Investment

The FX overlay are done in “deliverable currencies”, which means that a “spot transaction” will result in an actual exchange of currencies.

In order to avoid physical delivery of the MSPM Currency, the related MSPM Indices will be rebalanced daily on each Index Business Day (as defined below) via a “Spot Next” or “Tom Next” transaction (as defined below). For some currencies, the appropriate forward tenors may be different from Spot Next or Tom Next.

Spot Transaction

In a **Spot** currency transaction, a counterparty agrees to exchange some amount “A” of currency “X” against another currency “Y” at a certain rate. Generally, the actual exchange occurs T+2 from the transaction date (with the exception of CAD, which settles T+1).

Spot Next Transaction

In a **Spot Next** transaction, a counterparty agrees to exchange some amount “A” of currency “X” against another currency “Y” at a certain rate two Index Business Days (as defined below) from the transaction date and receive back the same amount “A” of currency “Y” against currency “X” at the same rate plus a spread three Index Business Days (as defined below) from the transaction date. The spread is generally quoted in the market.

Tom Next Transaction

In a **Tom Next** transaction, a counterparty agrees to exchange some amount “A” of currency “X” against another currency “Y” at a certain rate one Index Business Day (as defined below) from the transaction date and receive back the same amount “A” of currency “Y” against currency “X” at the same rate plus a spread two Index Business Days (as defined below) from the transaction date. This spread is quoted in the market.

Physical (Spot Price);

- In order to close our index daily we need a Spot reference price for the metal in order to convert the proceeds from the FX forward in quantities of metal. Metal Spot price is based on data provided by the London Bullion Market Association (“LBMA”).

I.6 Governance & Index Committee

Morgan Stanley has adopted the “Principles for Financial Benchmarks” published by the International Organization of Securities Commissions (“**IOSCO**”) on 17 July 2013 (the “**Principles**”) on a proportionate basis.

The MSPM Indices and the Rules have been approved in accordance with and are subject to the internal governance procedures implemented by Morgan Stanley in compliance with the Principles and managed by an internal oversight committee (the “**Index Committee**”).

The Index Committee will review the MSPM Indices and the Rules on an annual basis or more frequently in accordance with Morgan Stanley internal policies applicable to the relevant Index, to ensure that the Index still continues to reflect the economic interests it intends to measure.

Information on the systems and controls applied by Morgan Stanley in relation to financial benchmarks is available on request.

I.7 Morgan Stanley Conflicts of Interest

Morgan Stanley may from time to time engage in transactions involving the underlying components of the MSPM Indices to facilitate client business or in response to a direct client instruction and may act as market-maker in such underlying components of the MSPM Indices. Such activities may not be for the benefit of the holders of financial products linked to the Index and may have a positive or negative effect on the levels for the MSPM Indices and consequently on the value and performance of any financial products linked to the MSPM Indices. In addition, Morgan Stanley may from time to time have other roles in relation to the Index such as acting as the issuer of, or counterparty to, financial products linked to the MSPM Indices and acting as calculation agent for such products. Morgan Stanley may also issue derivative instruments in respect of the underlying components of the MSPM Indices and the use of such derivatives may affect the value of the underlying components of the MSPM Indices.

The MSPM Indices reflect the performance of the underlying components of the MSPM Indices but there is no requirement that the Index Sponsor purchase or sell the underlying components of the MSPM Indices in order to calculate the MSPM Indices. However, in its role in relation to financial products linked to the MSPM Indices, Morgan Stanley may enter into hedging transactions in respect of the underlying components of the MSPM Indices which may or may not affect the value of the underlying components of the MSPM Indices and/or the MSPM Indices. In addition, the unwinding of such hedging transactions may also affect the value of such underlying components of the MSPM Indices, which may in turn affect the value of the MSPM Indices and any financial products linked to the MSPM Indices.

These and other activities carried out by Morgan Stanley may present conflicts of interest and may affect the levels for the MSPM Indices in ways detrimental to investors in financial products linked to the MSPM Indices.

II. Index Rules

II.1 Calculation and Publication of the MSPM Indices

The Index Sponsor will itself or through its calculation agent (if any) use commercially reasonable efforts to calculate and publish delayed and closing levels for the MSPM Indices from 8:00 a.m. to 4:30 p.m. London Time on any Index Business Day (as defined below).

Published levels for the MSPM Indices will be rounded to three (3) decimals. Closing levels for the MSPM Indices for purposes of the Index Methodology calculations will be rounded to seven (7) decimals.

II.2 Data Sources

Refinitiv will be the primary source used to obtain the relevant foreign exchange data used in the calculation of the MSPM Indices. The London Bullion Market Association (“LBMA”) will be the primary source used to obtain the relevant gold prices. To the extent possible, the underlying rates represent those sources that are commonly used by market participants when executing foreign investment transactions. Where available, multi-contributor rate sources are used over single contributor rate sources, with the exception of official fixing rates.

Reference sources for any of the rates or inputs in the methodology may be changed by the Index Sponsor, if after consultation with the Index Committee, the Index Sponsor determines that (i) the reference source is no longer available, (ii) the reference source has been replaced by another source or (iii) in its reasonable judgment, the source is manifestly incorrect and no longer reflects accurate market data. In the event of any such determination, and wherever practicable, any such source change will be publicly announced prior to its effective date.

II.3 The Morgan Stanley Precious Metal Currency Hedged Indices Methodology

The methodology applicable to the computation of the level for each of the MSPM Indices is defined in Annex III, as amended and updated from time to time.

III. Adjustments, Market Disruption Events and Discontinuance

III.1 Adjustments to the MSPM Indices

While the methodologies, composition and calculations described herein to calculate the MSPM Indices are currently in use by the Index Sponsor, it is possible that market, regulatory, judicial, financial, fiscal or other circumstances (including, but not limited to, any adjustment events as described below) may arise that would, in the opinion of the Index Sponsor, necessitate a modification or adjustment to such methodologies, composition or calculation. In such event, the Index Sponsor, after consultation with the Index Committee, will make such modifications or adjustments based on market conditions and other relevant factors, as in the judgment of the Index Sponsor, are necessary to maintain such index as a tradable benchmark for investments in Precious Metals with an FX overlay (hedge). Wherever practicable, any adjustments will be publicly announced as soon as is reasonably practicable and prior to the effective date.

An “**adjustment event**” with respect to any MSPM Index includes, but is not limited to, any of the following:

- the related exchange rate splits into dual or multiple exchange rates; or
- the related currency has been removed from circulation or otherwise discontinued and banks dealing in foreign exchange and foreign currency deposits in the MSPM Currency commence trading a successor or substitute currency substantially similar to the MSPM Currency that the Index Sponsor determines is comparable to the discontinued MSPM Currency;

III.2 Market Disruption Events

The occurrence or existence of any of the below, as determined by the Index Sponsor:

- any event or any condition (including without limitation any event or condition that occurs as a result of the enactment, promulgation, execution, ratification, change in any application or official interpretation of, or any change in or amendment to, any law (including those laws or regulations that relate to taxation), rule or regulation by any applicable governmental authority) that (i) results in a lack of, or a material decline in, liquidity in the market for trading in any MSPM Currency that generally makes it impossible, illegal or impracticable for market participants, or hinders, disrupts or impairs their abilities, (a) to convert from one foreign currency to another through customary commercial channels, (b) to effect currency transactions in, or to obtain market values of, such currency, (c) to obtain a firm quote for the related exchange rate or (d) to obtain the relevant exchange rate by reference to the applicable price source; or (ii) leads to or may lead to a currency peg regime;
- (i) the declaration of a banking moratorium or the suspension of payments by banks, in either case, in the country of any currency used to determine the MSPM Currency exchange rate or (ii) the declaration of capital and/or currency controls (including without limitation any restriction placed on assets in or transactions through any account through which a non-resident of the country of any currency used to determine the currency exchange rate may hold assets or transfer monies outside the country of that currency, and any restriction on the transfer of funds, securities or other assets of market participants from, within or outside of the country of any currency used to determine the applicable exchange rate);
- an event or circumstance (including without limitation, a systems failure, natural or man-made disaster, act of God, armed conflict, act of terrorism, riot or labor disruption or any similar intervening circumstance) that is beyond the reasonable control of the Index Sponsor and that the Index Sponsor determines affects the related MSPM Index in any fashion;
- the method of calculating the value of the MSPM Currency is changed in a material respect, or is in any other way modified so that the conventional market quotation does not, in the opinion of the Index Sponsor, fairly represent the value of such MSPM Currency; or

- the Index Sponsor determines that there is a material difference in a relevant MSPM Currency exchange rate, as determined by reference to the rate source for the related MSPM Index and any other market source.
- In addition to these Market Disruption Events, there may be additional market disruption events (“Additional Market Disruption Events”) applicable to certain indices relating to particular precious metals and/or currencies.
- **III.3 Discontinuance of the MSPM Indices**

The Index Sponsor may, in its sole discretion, after consultation with the Index Committee, discontinue calculating and publishing any MSPM Index at any time upon the occurrence of, but not limited to, any of the following:

- if as a result of a market disruption event or an adjustment event, an adjustment to and/or calculation of the related MSPM Index is no longer reasonably possible or practical, in the determination of the Index Sponsor;
- the Index Sponsor or its successor terminates its index publication business operations, is declared insolvent or is subject to winding-up proceedings; or
- the Index Sponsor or its successor determines that it is no longer in its commercial interest to continue publishing the index.

Upon any such discontinuance, the Index Sponsor will use commercially reasonable efforts to publicly announce such discontinuance as soon as is reasonably practicable prior to the effective date.

Additional Market Disruption Events for MSCEGLDE (EUR/GOLD), MSCEGLDG (GBP/GOLD)

The occurrence or existence of any of the following events, as determined by the Index Sponsor, shall constitute a Market Disruption Event:

- The failure of Refinitiv to announce or publish the relevant foreign exchange data or the temporary or permanent discontinuance or unavailability of Refinitiv service;
- The failure of Bloomberg to announce or publish the LBMA Gold Price, being the official PM auction price for trading in gold, administered by ICE Benchmark Administration on behalf of London Bullion Market Association (“LBMA”) or the temporary or permanent discontinuance or unavailability of the Bloomberg service or the LBMA Gold Price;
- Any material suspension of, or material limitation imposed on, trading in gold either on-exchange or on an OTC basis; the imposition of, change in or removal of an excise, severance, sales, use value-added, transfer, stamp, documentary, recording or similar tax on, or measured by reference to gold (other than a tax on, or measured by reference to, overall gross or net income) by any government or taxation authority; any event beyond the control of the Index Sponsor as a result of which delivery of gold bullion cannot be effected by crediting an LPMCL Unallocated Account; or any other event or condition that results in the restriction of the market participants ability to receive, deliver or hold gold.

Annex I
 Currency Conventions

<u>Currencies (vs. USD)</u>	<u>Standard Quotation</u>
British pound (GBP)	USD per 1 GBP
European Union euro (EUR)	USD per 1 EUR

Annex II
 MSPM Indices

<u>Morgan Stanley Precious Metal Currency Hedged Indices</u>			
<u>Index Name</u>	<u>Precious Metal Denomination</u>	<u>MSPM Currency</u>	<u>Bloomberg Index Ticker</u>
Morgan Stanley EUR Gold Index	GOLD	EUR	MSCEGLDE
Morgan Stanley GBP Gold Index	GOLD	GBP	MSCEGLDG

Annex III
Index Methodology Description

Morgan Stanley Precious Metal Index Methodology for MSCEGLDE (EUR/GOLD), MSCEGLDG (GBP/GOLD)

“**Index Business Day**” means a day on which commercial banks and foreign exchange markets settle payments and are open for general business (including dealings in foreign exchange and foreign currency deposits) in London and the LBMA Afternoon Auction (3:00 PM London time) is scheduled to occur. For example the LBMA Afternoon Auction typically does not occur on the 24th December and 31st December.

On any Index Business Day (“D”) the related MSPM Index closing level (“I”) will be computed as follows:

$$I_D = I_{D-1} + \frac{I_{D-2} \times [LNPM_{D-2}]}{[LNPM_D] \times FX_{mid,D-2}} \times [FX_{bid,D} - FW(D-1, S_{FX,D})]$$

where

$$FW(T1, T2) = FX_{ask,T1} + \left[\frac{Pts_{SN,FX,T1}}{10000} + \frac{(Pts_{1w,FX,T1} - Pts_{SN,FX,T1}) \times (T2 - SN_{FX,T1})}{10000 \times (1W_{FX,T1} - SN_{FX,T1})} \right] \times 1(T2 - SN_{FX,T1})$$

where:

- “I” is the related Index closing level;
- “D-1” is the first Index Business Day preceding day D;
- “D-2” is the first Index Business Day preceding D-1;
- “1(X)” is 1 if X ≥ 0 and 0 otherwise.
- “FX_{mid,D}” is the exchange rate fixing based on the FX Spot Source for the FX Roll Time on D.
- “FX_{bid,D}” is the exchange rate fixing using WM rates calculated as FX_{mid,D} * (1-C)
- “FX_{ask,D}” is the exchange rate fixing using WM rates calculated as FX_{mid,D} * (1+C)
- “Pts_{Mat,FX,t}” refers to the ask side of the points for term Mat, for currency FX on day t.
- “S_{FX,T}” is the Spot Settlement date of FX on date T according to usual convention.
- “SN_{FX,T}” is the Spot Next Settlement date of FX on date T according to usual conventions.
- “1W_{FX,T}” is the 1 week Settlement date of FX on date T according to usual conventions.
- LNPM means the precious metal price of the 3pm LBMA Afternoon Auction, as per the Bloomberg Index Ticker referenced in Annex IV.
- “C” is 0.0000049603 for MSCEGLDE and 0.0000059524 for MSCEGLDG

Annex IV
Data Sources

<u>Precious Metal Denomination</u>	<u>LBMA Bloomberg Index Ticker</u>
GOLD	GOLDLNPM

<u>MSPM Index</u>	<u>FX</u>	<u>FX Roll Time</u>	<u>FX Spot Source (Mid) (Refinitiv)</u>	<u>S/N, T/N, 1W Source (Refinitiv) (1)</u>	<u>Live Source (Mid) (Refinitiv)</u>
MSCEGLDE	EUR	4:00 p.m. London	WMRSPOT05	EURFWD = TTKL	EUR=
MSCEGLDG	GBP	4:00 p.m. London	WMRSPOT07	GBPFWD = TTKL	GBP=

- (1) The “=TTKL” notation signifies that the source of the data is obtained via Tullett, Prebon inter-dealer brokers based in London.

Note: For full Methodology details prior to 23-Sep-2022 please refer to the October 2020 Edition of the Manual