

## PRICING SUPPLEMENT

**MiFID II product governance / Professional investors and ECPs only target market** – Solely for the purposes of the manufacturer's product approval process, the target market assessment in respect of the Securities has led to the conclusion that: (i) the target market for the Securities is eligible counterparties and professional clients only, each as defined in Directive 2014/65/EU (as amended, "MiFID II"); and (ii) all channels for distribution of the Securities to eligible counterparties and professional clients are appropriate. Any person subsequently offering, selling or recommending the Securities (a "distributor") should take into consideration the manufacturer's target market assessment; however, a distributor subject to MiFID II is responsible for undertaking its own target market assessment in respect of the Securities (by either adopting or refining the manufacturer's target market assessment) and determining appropriate distribution channels.

**UK MiFIR product governance / Professional investors and ECPs only target market** – Solely for the purposes of the manufacturer's product approval process, the target market assessment in respect of the Securities has led to the conclusion that: (i) the target market for the Securities is only eligible counterparties, as defined in the FCA Handbook Conduct of Business Sourcebook ("COBS"), and professional clients as defined in Regulation (EU) No 600/2014 as it forms part of UK domestic law by virtue of the European Union (Withdrawal) Act 2018 (as amended, "UK MiFIR"); and (ii) all channels for distribution of the Securities to eligible counterparties and professional clients are appropriate. Any person subsequently offering, selling or recommending the Securities (a "distributor") should take into consideration the manufacturer's target market assessment; however, a distributor subject to the FCA Handbook Product Intervention and Product Governance Sourcebook (the "UK MiFIR Product Governance Rules") is responsible for undertaking its own target market assessment in respect of the Securities (by either adopting or refining the manufacturer's target market assessment) and determining appropriate distribution channels.

**PROHIBITION OF SALES TO EEA RETAIL INVESTORS:** The Securities are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the European Economic Area ("EEA"). For these purposes, a retail investor means a person who is one (or more) of: (i) a retail client as defined in point (11) of Article 4(1) of MiFID II; (ii) a customer within the meaning of Directive (EU) 2016/97 (as amended, the "Insurance Distribution Directive"), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or (iii) not a qualified investor as defined in the EU Prospectus Regulation (as defined below). Consequently, no key information document required by Regulation (EU) No 1286/2014 (as amended, the "EU PRIIPs Regulation") for offering or selling the Securities or otherwise making them available to retail investors in the EEA has been prepared and therefore offering or selling the Securities or otherwise making them available to any retail investor in the EEA may be unlawful under the EU PRIIPs Regulation. Notwithstanding the above, if the Dealer subsequently prepares and publishes a key information document under the EU PRIIPs Regulation in respect of the Securities, then the prohibition on the offering, sale or otherwise making available the Securities to a retail investor in the EEA as described above shall no longer apply.

**PROHIBITION OF SALES TO UK RETAIL INVESTORS:** The Securities are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the United Kingdom. For these purposes, a retail investor means a person who is one (or more) of: (i) a retail client, as defined in point (8) of Article 2 of Regulation (EU) No 2017/565 as it forms part of UK domestic law by virtue of the European Union (Withdrawal) Act 2018 (as amended, the "EUWA"); (ii) a customer within the meaning of the provisions of the Financial Services and Markets Act 2000 (as amended, the "FSMA") and any rules or regulations made under the FSMA to implement Directive (EU) 2016/97, where that customer would not qualify as a professional client, as defined in point (8) of Article 2(1) of Regulation (EU) No 600/2014 as it forms part of UK domestic law by virtue of the EUWA; or (iii) not a qualified investor as defined in the UK Prospectus Regulation (as defined below). Consequently, no key information document required by Regulation (EU) No 1286/2014 as it forms part of UK domestic law by virtue of the EUWA (as amended, the "UK PRIIPs Regulation") for offering or selling the Securities or otherwise making them

available to retail investors in the United Kingdom has been prepared and therefore offering or selling the Securities or otherwise making them available to any retail investor in the United Kingdom may be unlawful under the UK PRIIPs Regulation. Notwithstanding the above, if the Dealer subsequently prepares and publishes a key information document under the UK PRIIPs Regulation in respect of the Securities, then the prohibition on the offering, sale or otherwise making available the Securities to a retail investor in the United Kingdom as described above shall no longer apply.

Pricing Supplement dated 14 September 2021

**JPMorgan Chase Bank, N.A.**

**Legal Entity Identifier (LEI): 7H6GLXDRUGQFU57RNE97**

**Structured Products Programme for the issuance of Notes, Warrants and Certificates**

**USD 1,240,000 Certificates linked to the J.P. Morgan Millennials Fund Market Navigator 5% VT  
Decrement 3% Index, due September 2028 (the "Securities")**

The offering circular dated 22 April 2021 and the Supplement(s) to the offering circular listed in Annex D hereto (as so supplemented, the "**Offering Circular**") (as completed and (if applicable) amended by this Pricing Supplement) has been prepared on the basis that:

- (a) any offer of Securities in any Member State of the EEA will be made pursuant to an exemption under the EU Prospectus Regulation from the requirement to publish a prospectus for offers of the Securities. The expression "**EU Prospectus Regulation**" means Regulation (EU) 2017/1129, as amended. Accordingly any person making or intending to make an offer in that Member State of the Securities may only do so in circumstances in which no obligation arises for the Issuer or any Dealer to publish a prospectus pursuant to Article 3 of the EU Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the EU Prospectus Regulation, in each case, in relation to such offer; and
- (b) any offer of Securities in the United Kingdom will be made pursuant to an exemption under the UK Prospectus Regulation from the requirement to publish a prospectus for offers of the Securities. The expression "**UK Prospectus Regulation**" means Regulation (EU) 2017/1129 as it forms part of UK domestic law by virtue of the EUWA. Accordingly any person making or intending to make an offer in the United Kingdom of the Securities may only do so in circumstances in which no obligation arises for the Issuer or any Dealer to publish a prospectus pursuant to section 85 of Financial Services and Markets Act 2000 (as amended, the "**FSMA**") or supplement a prospectus pursuant to Article 23 of the UK Prospectus Regulation, in each case, in relation to such offer.

Neither the Issuer nor any Dealer has authorised, nor do they authorise, the making of any offer of Securities in any other circumstances.

The Securities may only be offered and the Offering Circular and this Pricing Supplement as well as any other offering or marketing material relating to the Securities may only be offered to investors in Switzerland pursuant to an exception from the prospectus requirement under the Swiss Financial Services Act ("**FinSA**"), as such terms are defined under the FinSA. Neither this document nor the Offering Circular nor any other document related to the Securities constitute a prospectus within the meaning of the FinSA and no prospectus pursuant to the FinSA will be prepared in connection with such offering of the Securities.

**If you purchase the Securities described in this Pricing Supplement after the date hereof, you should review the most recent version (if any) of the Offering Circular and each supplement thereafter up to (and including) the date of purchase to ensure that you have the most up to date information on the Issuer on which to base your investment decision (note that the terms and conditions of the Securities will remain as described in this Pricing Supplement and the version of the Offering Circular described above,**

subject to any amendments notified to Holders). Each supplement and replacement version (if any) to the Offering Circular can be found on ([www.bourse.lu](http://www.bourse.lu)) and ([www.euronext.com/en/markets/dublin](http://www.euronext.com/en/markets/dublin)).

## RISK FACTORS

### Purchase of these Securities involves substantial risks

Investors should ensure that they understand the nature of the risks posed by, and the extent of their exposure under, the Securities. Investors should make all pertinent inquiries they deem necessary without relying on the Issuer or the Dealer. Investors should consider the suitability of the Securities as an investment in light of their own circumstances, investment objectives, tax position and financial condition. Investors should consider carefully all the information set forth in this Pricing Supplement along with all the information set forth in the Offering Circular. Investors should pay particular attention to the section entitled "Risk Factors" in the Offering Circular (pages 34 to 131 inclusive) together with Annex A (*Risk Factors*), Annex B (*Disclaimers and Potential Conflicts of Interest*) and Annex C (*J.P. Morgan Millennials Fund Market Navigator 5% VT Decrement 3% Index – Index Rules*).

Investors should also take note of the section headed "Notices, Disclaimers and Conflicts" on pages 2 to 4 of the *J.P. Morgan Millennials Fund Market Navigator 5% VT Decrement 3% Index – Index Rules* as set out in Annex C (*J.P. Morgan Millennials Fund Market Navigator 5% VT Decrement 3% Index – Index Rules*).

*The value of the Securities will vary with the level of the J.P. Morgan Millennials Fund Market Navigator 5% VT Decrement 3% Index (the "Index"). The value of the Index is determined in accordance with its rules as set out in Annex C (J.P. Morgan Millennials Fund Market Navigator 5% VT Decrement 3% Index – Index Rules) (the "Index Rules"). Economic, market, regulatory, legal, financial or other circumstances may arise that may necessitate or make desirable an amendment of the Index Rules. Notwithstanding the foregoing, the Index Sponsor (as defined in the Index Rules) (the "Index Sponsor") may amend the Index Rules as it deems appropriate. Such amendments may include (without limitation): (a) correcting or curing any errors, omission or contradictory provisions; (b) modifications to the methodology described in the Index Rules (including, without limitation, a change in the frequency of the calculation of the Index Level) that are necessary or desirable in order for the calculation of the Index to continue notwithstanding any economic, market, regulatory, legal, financial or other circumstances as of the Index Base Date (as defined in the Index Rules) of the Index; or (c) modifications of a formal, minor or technical nature. Following any amendment of the Index Rules, the Index Sponsor will make available (as soon as reasonably practicable) the amended version of the Index Rules and will include the effective date of such amendment in the new version of the Index Rules. However, the Index Sponsor is under no obligation to inform any person about any amendments to the Index (except as required by law). Copies of the Index Rules may be obtained by holders (including Holders of the Securities) or potential holders of investments linked to the Index free of charge on request from the Index Sponsor at its principal office in London against such proof of status as the Index Sponsor may in its reasonable discretion require. If such an amendment or adjustment is effected, the composition of the Index, the manner in which such composition is determined, and/or the calculation methodology used to determine the value of the Index from time to time, may be changed, and this in turn may affect, possibly adversely, the return on and value of the Securities.*

*Subsidiaries and affiliates of JPMorgan Chase & Co., in their various roles as Issuer, Dealer, Calculation Agent, Index Sponsor and Index Calculation Agent (as defined in the Index Rules) are subject to various potential conflicts of interest in respect of the Securities – see Annex B (*Disclaimers and Potential Conflicts of Interest*).*

## PART A - CONTRACTUAL TERMS

Terms used herein shall be deemed to be defined as such for the purposes of the General Conditions and the Specific Product Provisions (as may be amended and/or supplemented up to, and including, 15 September 2021) set forth in the Offering Circular. Full information on the Issuer and the offer of the Securities is only

available on the basis of the combination of this Pricing Supplement and the Offering Circular (including all documents incorporated by reference). The Offering Circular (including all documents incorporated by reference) is available from The Bank of New York Mellon S.A./N.V., Luxembourg Branch, at Vertigo Building, Polaris, 2-4 rue Eugène Ruppert, L-2453, Luxembourg, and The Bank of New York Mellon S.A./N.V., Dublin Branch, at Riverside 2, Sir John Rogerson's Quay, Grand Canal Dock, Dublin 2, Ireland, and in electronic form on the Luxembourg Stock Exchange's website ([www.bourse.lu](http://www.bourse.lu)).

1.	(i)	Issuer:	JPMorgan Chase Bank, N.A.
2.	(i)	Series Number:	2021-15642
	(ii)	Tranche Number:	One
3.		<b>Specified Currency or Currencies:</b>	United States dollars ("USD" or "U.S.\$")
4.		<b>Notes, Warrants or Certificates:</b>	Certificates
5.		<b>Aggregate Notional Amount:</b>	
	(i)	Series:	USD 1,240,000
	(ii)	Tranche:	USD 1,240,000
6.		<b>Issue Price:</b>	3.60 per cent. of the Aggregate Notional Amount

The Issue Price specified above may be more than the market value of the Securities as at the Issue Date, and the price, if any, at which the Dealer or any other person is willing to purchase the Securities in secondary market transactions is likely to be lower than the Issue Price. In particular, where permitted by applicable law and subject to any additional *ex ante* cost disclosure required by such, the Issue Price may take into account amounts with respect to commissions relating to the issue and sale of the Securities as well as amounts relating to the hedging of the Issuer's obligations under the Securities and secondary market prices may exclude such amounts.

If any commissions or fees relating to the issue and sale of the Securities have been paid or are payable by the Dealer to an intermediary, then such intermediary may be obliged to fully disclose to its clients the existence, nature and amount of any such commissions or fees (including, if applicable, by way of discount) as required in accordance with laws and regulations applicable to such intermediary, including any legislation, regulation and/or rule implementing the Markets in Financial Instruments Directive

(Directive 2014/65/EU, as amended), or as otherwise may apply in any non-EEA jurisdictions

Investors in the Securities intending to invest in Securities through an intermediary (including by way of introducing broker) should request details of any such commission or fee payment from such intermediary before making any purchase hereof

(i)	Notional Amount per Certificate:	USD 1,000 per Security
(ii)	Trading in Units (Notes):	Not Applicable
(iii)	Minimum trading size:	The Securities may only be traded in a minimum initial amount of 100 Securities (corresponding to an aggregate Notional Amount of USD 100,000) and, thereafter, in multiples of one Security (corresponding to a Notional Amount of USD 1,000)

7. **Issue Date:** 15 September 2021

**Trade Date:** 1 September 2021

8. **Settlement Date and Redemption Date:** 12 September 2028

### **PROVISIONS APPLICABLE TO NOTES**

Paragraphs 9-21 are intentionally deleted

### **PROVISIONS APPLICABLE TO WARRANTS**

Paragraphs 22-34 are intentionally deleted

### **PROVISIONS APPLICABLE TO CERTIFICATES**

35. <b>Cash Settlement/Physical Settlement:</b>	Cash Settlement is applicable
36. <b>Call Option:</b>	Not Applicable
37. <b>Put Option:</b>	Not Applicable
38. <b>Redemption Amount:</b>	See Part C below

In cases where the Redemption Amount is Share Linked, Index Linked, Commodity Linked, FX Linked, Fund Linked or other variable linked:

(i) **Reference Asset(s):** The Index

(ii)	Provisions for determining Redemption Amount where calculated by reference to Share and/or Index and/or Commodity and/or FX Rate and/or Fund and/or other variable:	As specified in Part C below
(iii)	Provisions for determining Redemption Amount where calculation by reference to Share and/or Index and/or Commodity and/or FX Rate and/or Fund and/or other variable is impossible or impracticable or otherwise disrupted:	See paragraph 44 and Part C below
39.	<b>Early Payment Amount:</b>	Early Payment Amount 2 is applicable
40.	<b>Exercise applicable to Certificates (General Condition 10):</b>	Not Applicable

## **CERTIFICATE COUPON PROVISIONS**

41.	<b>Certificate Coupon Provisions (General Condition 8):</b>	Not Applicable
42.	<b>Certificate Floating Rate Coupon Provisions (General Condition 8.3):</b>	Not Applicable

## **SPECIFIC PRODUCT PROVISIONS APPLICABLE TO THE SECURITIES**

### **SHARE LINKED PROVISIONS**

43.	<b>Share Linked Provisions:</b>	Not Applicable
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### **INDEX LINKED PROVISIONS**

44.	<b>Index Linked Provisions:</b>	Applicable
(i)	Single Index or basket of Indices:	Single Index
(ii)	Index/Indices:	The J.P. Morgan Millennials Fund Market Navigator 5% VT Decrement 3% Index ( <i>Bloomberg Code: JNAVLB5U &lt;Index&gt;</i> ) (the "Index"), as more fully described in the rules and methodology of the Index (as amended and updated from time to time, the "Index Rules") which as of the Trade Date are as set out in Annex C ( <i>J.P. Morgan Millennials Fund Market Navigator 5% VT Decrement 3% Index – Index Rules</i> )
(iii)	Type of Index:	Proprietary Index, provided that:
		(i) in respect of the Index, each reference to a "Scheduled Trading Day" in the Index Linked Provisions shall be construed as a reference to an "Index Publication Day" (as defined in the

		Index Rules); and
(ii)	each reference in the Index Linked Provisions and Part C below to "Closing Index Level" shall be construed as a reference to "Index Level (as defined in the Index Rules)"	
(iv)	Exchange(s):	Not Applicable
(v)	Related Exchange(s):	Not Applicable
(vi)	Index Sponsor:	The Index Calculation Agent or, as the context may require, the Index Sponsor, in each case as defined in the Index Rules
(vii)	Index Level:	Not Applicable
(viii)	Initial Valuation Date(s):	2 September 2021
(ix)	Interest Valuation Date(s):	Not Applicable
(x)	Coupon Valuation Date(s):	Not Applicable
(xi)	Periodic Valuation Date(s):	Not Applicable
(xii)	Valuation Date(s):	31 August 2028
(xiii)	Initial Averaging Date(s):	Not Applicable
(xiv)	Averaging Date(s):	Not Applicable
(xv)	Valuation Time:	As specified in Index Linked Provision 9 ( <i>Definitions</i> )
(xvi)	Maximum Days of Disruption:	Six Scheduled Trading Days
(xvii)	Averaging Reference Dates (Disrupted Day consequences):	Not Applicable
(xviii)	Fallback Valuation Date:	Applicable: the second Business Day prior to the Redemption Date, as specified in Index Linked Provision 9 ( <i>Definitions</i> )
(xix)	Observation Period:	Not Applicable
(xx)	Change in Law - Increased Cost:	Not Applicable
(xxi)	Hedging Disruption:	Not Applicable
(xxii)	Consequences of the occurrence of a Market Disruption Event (VWC) (Index Linked Provision 7):	Not Applicable

## **COMMODITY LINKED PROVISIONS**

45. **Commodity Linked Provisions:** Not Applicable

## **FX LINKED PROVISIONS**

46. **FX Linked Provisions:** Not Applicable

## **FUND LINKED PROVISIONS**

47. **Fund Linked Provisions:** Not Applicable

## **MARKET ACCESS PARTICIPATION PROVISIONS**

48. **Market Access Participation Provisions:** Not Applicable

## **LOW EXERCISE PRICE WARRANT PROVISIONS**

49. **Low Exercise Price Warrant Provisions:** Not Applicable

## **ADDITIONAL RATES FALBACK PROVISIONS**

50. **Additional Rates Fallback Provisions:** Not Applicable

## **BOND LINKED PROVISIONS**

51. **Bond Linked Provisions:** Not Applicable

## **GENERAL PROVISIONS APPLICABLE TO THE SECURITIES**

52. **New Safekeeping Structure (in respect of Registered Notes) or New Global Note: (in respect of Bearer Notes):** Not Applicable

53. **Form of Securities:** Registered Securities

(i) Temporary or Permanent Bearer Global Security / Registered Global Security: Temporary Registered Global Security which is exchangeable for a Permanent Registered Global Security, each of which is exchangeable for Registered Definitive Securities (i) automatically in the limited circumstances specified in the relevant Registered Global Security or (ii) in the case of a Permanent Registered Global Security only, at any time at the option of the Issuer by giving notice to the Holders and the Registrar of its intention to effect such exchange on the terms as set forth in the relevant Permanent Registered Global Security

(ii) Are the Notes to be issued in the form of obligations under French law? No

(iii) Name of French Registration Agent Not Applicable

(iv) Representation of Holders of Notes / Masse: Not Applicable

	(v) Regulation S/Rule 144A Securities:	Not Applicable
54.	<b>Record Date:</b>	As set out in the General Conditions
55.	<b>Additional Financial Centre(s) (General Condition 12.2) or other special provisions relating to payment dates:</b>	Not Applicable
56.	<b>Payment Disruption Event (General Condition 13):</b>	
	Relevant Currency:	Specified Currency
57.	<b>Extraordinary Hedge Disruption Event (General Condition 17):</b>	Applicable
	(i) Extraordinary Hedge Sanctions Event:	Applicable
	(ii) Extraordinary Hedge Bail-in Event:	Applicable
	(iii) Extraordinary Hedge Currency Disruption Event:	Applicable
58.	<b>Early Redemption for Tax on Underlying Hedge Transactions (General Condition 18.4(b)):</b>	Not Applicable
59.	<b>Disruption Event (General Condition 19):</b>	Not Applicable
60.	<b>Physical Settlement:</b>	Not Applicable
61.	<b>Calculation Agent:</b>	J.P. Morgan Securities plc
62.	<b>Redenomination, renominalisation and reconventioning provisions:</b>	Not Applicable
63.	<b>Gross Up (General Condition 18):</b>	Applicable – as specified in General Condition 18.1
	(i) Exclude Section 871(m) Taxes from Gross Up (General Condition 18):	Applicable – as specified in General Condition 18.1
	(ii) 871(m) Securities:	Section 871(m) and the regulations promulgated thereunder will not apply to the Securities
64.	<b>Rounding:</b>	General Condition 23 applies
65.	<b>Other terms or special conditions:</b>	Applicable – see Part C

## **DISTRIBUTION**

66.	<b>If non-syndicated, name and address of Dealer:</b>	J.P. Morgan Securities plc of 25 Bank Street, Canary Wharf, London E14 5JP
		J.P. Morgan Securities plc will only act as Dealer, under the Structured Products Programme, in relation to jurisdictions where

it is permitted to carry out such activity.

J.P. Morgan Securities plc will not act as Dealer, under the Structured Products Programme, for EEA-based investors (save for where J.P. Morgan Securities plc has separately agreed with the investor(s) to do so).

67.	<b>Stabilising Manager(s) (if any):</b>	Not Applicable
68.	<b>Total commission and concession:</b>	Not Applicable
69.	<b>U.S. selling restrictions:</b>	Regulation S  <b>ERISA Restrictions for all Securities (including Rule 144A Securities and Securities subject to Regulation S)</b>  The Securities may not be acquired except subject to certain restrictions by, on behalf of, or with the assets of any plans subject to ERISA or Section 4975 of the U.S. Internal Revenue Code, as amended, subject to certain restrictions. See "Subscription and Sale – United States" and "Purchaser representations and requirements and transfer restrictions – ERISA Legends and ERISA Restrictions – (a) JPMorgan Chase Bank, N.A. or JPMorgan Chase & Co. issued Securities" in the Offering Circular.
70.	<b>ECI Holder Restrictions:</b>	Not Applicable
71.	<b>Additional Selling Restrictions:</b>	Not Applicable
72.	<b>Swiss Non-Exempt Public Offer:</b>	No
73.	<b>Prohibition of Sales to EEA Retail Investors:</b>	Applicable
74.	<b>Prohibition of Sales to UK Retail Investors:</b>	Applicable

## **GENERAL**

75. The aggregate principal amount of Notes issued has been translated into U.S. dollars at the rate of [●] 1 = U.S.\$ [●], producing a sum of (for Notes not denominated in U.S. dollars): Not Applicable

## **PURPOSE OF PRICING SUPPLEMENT**

This Pricing Supplement comprises the pricing supplement required for the issue, and listing and admission to trading on the Luxembourg Stock Exchange's Euro MTF, of the Securities described herein pursuant to the Structured Products Programme for the issuance of Notes, Warrants and Certificates of JPMorgan Chase Financial Company LLC, J.P. Morgan Structured Products B.V., JPMorgan Chase Bank N.A. and JPMorgan Chase & Co.

## **GOVERNING LAW AND JURISDICTION**

**Securities:** English law/Courts of England

## **RESPONSIBILITY**

The Issuer accepts responsibility for the information contained in this Pricing Supplement. Information on the Reference Asset has been provided by the Index Sponsor. The Issuer confirms that such information has been accurately reproduced and that, so far as it is aware, and is able to ascertain from the relevant information, no facts have been omitted which would render the reproduced information inaccurate or misleading.

An investor intending to acquire or acquiring any Securities from an offeror will do so, and offers and sales of the Securities to an investor by an offeror will be made, in accordance with any terms and other arrangements in place between such offeror and such investor including as to price, allocations and settlement arrangements. The Issuer will not be a party to any such arrangements with investors (other than the Dealer(s)), in connection with the offer or sale of the Securities and, accordingly, this Pricing Supplement will not contain such information. The investor must look to the offeror at the time of such offer for the provision of such information. The Issuer has no responsibility to an investor in respect of such information.

## **Signed on behalf of the Issuer:**

By: \_\_\_\_\_

Duly authorised

## **PART B – OTHER INFORMATION**

### **LISTING AND ADMISSION TO TRADING**

Application will be made for the Securities to be listed and admitted to trading on the Luxembourg Stock Exchange's Euro MTF with effect from, at the earliest, the Issue Date. No assurances can be given that such application for listing and admission to trading will be granted (or, if granted, will be granted by the Issue Date).

The Issuer has no duty to maintain the listing (if any) of the Securities on the relevant stock exchange over their entire lifetime. Securities may be suspended from trading and/or de-listed at any time in accordance with applicable rules and regulations of the relevant stock exchange.

**RATINGS** Not Applicable

### **INTERESTS OF NATURAL AND LEGAL PERSONS INVOLVED IN THE ISSUE**

Save as discussed in the section of the Offering Circular entitled "Subscription and Sale" and as discussed in Annex B (*Disclaimer and Potential Conflict of Interest*), so far as the Issuer is aware, no person involved in the issue of the Securities has an interest material to the issue.

### **REASONS FOR THE ISSUE AND ESTIMATED NET PROCEEDS**

(i) Reasons for the issue:	Not Applicable
(ii) Estimated net proceeds:	Not Applicable

### **POST-ISSUANCE INFORMATION**

The Issuer will not provide any post-issuance information with respect to the Reference Assets, unless required to do so by applicable law or regulation.

### **OPERATIONAL INFORMATION**

Intended to be held in a manner which would allow No  
Eurosystem eligibility:

ISIN:	XS2309913080
RIC:	XS2309913080=JPML
Common Code:	230991308
CFI:	DTZXFR
Relevant Clearing System(s):	Euroclear/Clearstream, Luxembourg
Delivery:	Delivery against payment
The Agents appointed in respect of the Securities are:	As set out in the Agency Agreement
Registrar:	The Bank of New York Mellon S.A./N.V., Luxembourg Branch

## PART C – OTHER APPLICABLE TERMS

### 1. Redemption Amount on the Redemption Date

For the purposes of General Condition 9.5 (*Redemption on the Redemption Date*) and paragraph 38 above, unless the Securities have previously been redeemed or purchased and cancelled in accordance with the Conditions, the Redemption Amount in respect of each Security (of the Notional Amount) shall be an amount in the Specified Currency determined by the Calculation Agent in accordance with the following formula:

$$\text{NA} \times \text{Payoff Amount}$$

### 2. Definitions

The following words and expressions shall have the following meanings:

**"Final Index Level"** means the Closing Index Level in respect of the Index in respect of the Valuation Date, as determined by the Calculation Agent and subject to adjustment and/or correction in accordance with the Conditions.

**"Index Performance"** means an amount calculated by the Calculation Agent in accordance with the following formula:

$$\frac{\text{Final Index Level}}{\text{Initial Index Level}}$$

**"Initial Index Level"** means, the Closing Index Level in respect of the Index in respect of the Initial Valuation Date, as determined by the Calculation Agent and subject to adjustment and/or correction in accordance with the Conditions, being, as of the date of this Pricing Supplement, USD 121.56.

**"Max"** followed by a series of amounts (or values) inside brackets, means whichever is the greater of the amounts (or values) separated by a comma inside those brackets.

**"NA"** means, in respect of each Security, the Notional Amount, being USD 1,000 (or, if less, its outstanding notional amount).

**"Payoff Amount"** means an amount determined by the Calculation Agent in accordance with the following formula:

$$\text{Max}(0, [\text{Index Performance} - \text{Strike}])$$

**"Strike"** means 100 per cent. (expressed as 1.00).

## ANNEX A

### RISK FACTORS

*Capitalised terms used in this section and not defined herein shall have the respective meaning ascribed to each in Part A or Part C of this Pricing Supplement, or, if not defined in Part A or Part C, the meaning ascribed to each in the Offering Circular.*

*Investing in the Securities is speculative and involves certain risks, including the following, which an investor should consider carefully before deciding to invest.*

*The following list of risk factors does not purport to be a complete enumeration or explanation of all the risks associated with the J.P. Morgan Millennials Fund Market Navigator 5% VT Decrement 3% Index (for the purposes of this Annex A, the "Index").*

An investor in the Securities should have such knowledge and experience in financial and business matters and expertise in assessing credit risk that it is capable of evaluating the merits, risks and suitability of investing in the Securities in the context of the investor's financial situation. Investment in the Securities is suitable only for investors who can bear the risks associated with a lack of liquidity in the Securities and the financial and other risks associated with an investment in the Securities. An investor shall be responsible for assessing the legality and suitability of an investment by it in the Securities.

An investor in the Securities should consult with his own legal, regulatory, tax, business, investment, financial and accounting advisers to the extent that it deems necessary, and make his own investment, hedging and trading decisions including decisions regarding the suitability of this investment based upon their own judgement and upon advice from such advisers as they deem necessary and not upon any view expressed by the Issuer, J.P. Morgan Securities plc ("JPMS plc") and/or any of their affiliates or subsidiaries (each such entity, together with all entities within the JPMorgan Chase & Co. group, the "JPMorgan Group").

In addition, an investor in the Securities should carefully consider all risks associated with any investment in the Securities, including but not limited to the following:

- (i) economic, market, regulatory, legal, financial or other circumstances may arise which would necessitate or make desirable a modification or amendment to the J.P. Morgan Millennials Fund Market Navigator 5% VT Decrement 3% Index – Index Rules as set out in Annex C (*J.P. Morgan Millennials Fund Market Navigator 5% VT Decrement 3% Index – Index Rules*) (the "Index Rules"). Notwithstanding the foregoing, the Index Sponsor (as defined in the Index Rules) may amend the Index Rules as it deems appropriate. Such amendments may include (without limitation): (a) correcting or curing any errors, omission or contradictory provisions; (b) modifications to the methodology described in the Index Rules (including, without limitation, a change in the frequency of the calculation of the Index Level) that are necessary or desirable in order for the calculation of the Index to continue notwithstanding any economic, market, regulatory, legal, financial or other circumstances as of the Index Base Date (as defined in the Index Rules) of the Index; or (c) modifications of a formal, minor or technical nature. Following any amendment, the Index Sponsor will make available (as soon as practicable) the amended version of the Index Rules and will include the effective date of such amendment in the new version of the Index Rules. However, the Index Sponsor is under no obligation to inform any person about any amendments to the Index (except as required by law). If such an amendment is effected, the composition of the Index, the manner in which such composition is determined, and/or the calculation methodology used to determine the level of the Index from time to time, may be changed, and this in turn may affect, possibly adversely, the return on and value of the Securities;
- (ii) there may exist at times only limited markets for the Securities, resulting in low or non-existent volumes of trading in the Securities and such obligations, and therefore a lack of liquidity and price volatility of the Securities and such obligations;

- (iii) any amounts scheduled and due under the terms of the Securities bear the credit risk of the Issuer;
- (iv) the Securities may not benefit from the same ratings assigned to other obligations issued or entered into by the Issuer; and
- (v) no person has been authorised to give any information or make any representation not contained in or not consistent with this Pricing Supplement, or any other information supplied in connection with the Securities and, if given or made, such information or representation must not be relied upon as having been authorised by the JPMorgan Group.

### **Proprietary and Rules-Based Trading Index**

The Index follows a notional rules-based proprietary trading strategy that operates on the basis of pre-determined rules. Accordingly, potential investors in financial products which are linked to the performance of the Index should determine whether those rules are appropriate in light of their individual circumstances and investment objectives.

No assurance can be given that the investment strategy on which the Index is based will be successful in achieving the investment objectives of any potential investor.

### **Notional Exposures**

The Index is constructed on notional or synthetic exposures to the Constituent (as defined in the Index Rules) referred in the Index. Such exposures are purely notional or synthetic and will exist solely in the records maintained by or on behalf of the Index Calculation Agent (as described in the Index Rules). Consequently, investors in financial products which are linked to the performance of the Index will not have any claim against any of the Constituents which comprise the Index.

### **Hypothetical Back-Testing**

Any hypothetical back-testing or similar analysis performed by any person in respect of the Index must be considered illustrative only and may be based on estimates or assumptions not used by the Index Calculation Agent when determining the index level of the Index.

Hypothetical back-testing or similar analysis should not be considered indicative of future performance.

### **Market Risks**

The performance of the Index is dependent on, amongst other things, the performance of certain Constituents (as described in the Index Rules). As a consequence, investors in financial products the return on which is linked to the Index should appreciate that their investment is exposed to the performance of the relevant Constituents.

### **Index Calculation Agent Discretion**

The Index Rules confer on the Index Calculation Agent discretion in making certain determinations and calculations from time to time. The exercise of such discretion in the making of calculations and determinations may adversely affect the performance of the Index.

### **Potential Conflicts of Interest**

There is a potential for conflicts of interest in the structure and operation of the Index and by virtue of the normal business activities of the Index Sponsor, the Index Calculation Agent and any Relevant Person (as defined in the Index Rules). The Index Sponsor, the Index Calculation Agent and any Relevant Person (as defined in the Index Rules) are acting or may act in a number of capacities in connection with the Index. The Index Sponsor, the Index Calculation Agent (and, as applicable, their respective affiliates) acting in such capacities each shall have only the duties and responsibilities expressly set out in the Index Rules in respect of

the relevant capacity and shall not, by virtue of its or any of its respective affiliates acting in any other capacity, be deemed to have other duties or responsibilities or be deemed to hold a standard of care other than as expressly provided with respect to each such capacity.

Various potential and actual conflicts of interest may arise from the overall investment activity of the Index Sponsor, the Index Calculation Agent and any Relevant Person (as defined in the Index Rules). The Index Sponsor, the Index Calculation Agent and any Relevant Person (as defined in the Index Rules) may each have, or may each have had, interests or positions, or may buy, sell or otherwise trade positions, in or relating to the Index and/or a Constituent, or may have invested, or may engage in transactions relating to any Constituent, either for its own account or the account of others, may publish research reports or otherwise express views with respect to such transactions or regarding expected movements in price or volatility of a Constituent (which may or may not be consistent with the exposure of a Constituent in the Index). The Index Sponsor, the Index Calculation Agent and any Relevant Person (as defined in the Index Rules) may act with respect to such transactions in the same manner as if the Index did not exist and without regard to whether any such action might have an adverse effect on the Index. Such transactions may or may not be different from the transactions referenced by the Index and may involve events or circumstances which result in a need for the Index Calculation Agent to exercise its discretion under the Index Rules. Such activity may, or may not, affect the value of a Constituent, but those considering taking any economic exposure by reference to the Index should be aware that a conflict may arise. The Index has been developed with the possibility of any entity in the JPMorgan group issuing, entering into, promoting, offering or selling transactions or investments (structured or otherwise) linked, in whole or in part, to the Index and hedging such transactions or investments in any manner that they see fit. Accordingly, it should be assumed that the Index Rules will be analysed from this point of view.

Additionally, the Index Sponsor, the Index Calculation Agent and any Relevant Person may serve as agent or underwriter for other issuances of actual or potential Constituents and are or may be engaged in trading, brokerage and financing activities, as well as providing investment banking and financial advisory services. There is no limitation or restriction on the Index Sponsor, the Index Calculation Agent and any Relevant Person (as defined in the Index Rules) with regard to acting as a discretionary or advisory investment manager, a portfolio calculation agent or advisor (or in any similar role or roles) to other parties or persons. This and their other future activities may give rise to additional conflicts of interest. Further information is set out in Annex B (*Disclaimers and Potential Conflicts of Interest*).

## ANNEX B

### DISCLAIMERS AND POTENTIAL CONFLICTS OF INTEREST

The Securities are linked to the J.P. Morgan Millennials Fund Market Navigator 5% VT Decrement 3% Index (for the purposes of this Annex B, the "**Index**").

J.P. Morgan Securities plc ("**JPMS plc**") and any of its affiliates or subsidiaries (each such entity, together with all other affiliates or subsidiaries of JPMorgan Chase & Co., the "**JPMorgan Group**") compile, sponsor and disseminate the Index. No entity in the JPMorgan Group has any obligation to take into account the interests of holders of the Securities when determining, composing or calculating the Index and the relevant JPMorgan Group entities can at any time and in their sole discretion, modify or change the method of calculating the Index or cease its calculation, publication or dissemination. Accordingly, actions and omissions of the relevant entities of the JPMorgan Group may affect the value of the Index and, consequently, the value of the Securities.

Neither the Index Sponsor nor the Index Calculation Agent (both as defined in the Index Rules) is under an obligation to continue the calculation, publication and dissemination of the Index. JPMS plc and/or any affiliate, subsidiary or third party designated by it will act as Index Calculation Agent in respect of the Index.

THE INDEX IS DERIVED FROM SOURCES THAT ARE CONSIDERED RELIABLE, BUT THE JPMORGAN GROUP DOES NOT GUARANTEE THE VERACITY, CURRENCY, COMPLETENESS OR ACCURACY OF THE INDEX OR OTHER INFORMATION FURNISHED IN CONNECTION WITH THE INDEX. NO REPRESENTATION, WARRANTY OR CONDITION, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, AS TO CONDITION, SATISFACTORY QUALITY, PERFORMANCE, OR FITNESS FOR PURPOSE ARE GIVEN OR DUTY OR LIABILITY ASSUMED BY THE JPMORGAN GROUP IN RESPECT OF THE INDEX OR ANY DATA INCLUDED THEREIN, OMISSIONS THEREFROM OR THE USE OF THE INDEX IN CONNECTION WITH THE SECURITIES, AND ALL THOSE REPRESENTATIONS, WARRANTIES AND CONDITIONS ARE EXCLUDED SAVE TO THE EXTENT THAT SUCH EXCLUSION IS PROHIBITED BY LAW.

To the fullest extent permitted by law, the JPMorgan Group shall have no liability or responsibility to any person or entity for any loss, damages, costs, charges, expenses or other liabilities, including without limitation liability for any special, punitive, indirect or consequential damages (including lost profits), even if notified of the possibility of such damages, whether caused by the negligence of that person or otherwise, arising in connection with the use of the Index or in connection with the Securities.

No entity in the JPMorgan Group makes any warranty or representation whatsoever, express or implied, as to the accuracy or completeness of the index rules as set forth in Annex C (*J.P. Morgan Millennials Fund Market Navigator 5% VT Decrement 3% Index – Index Rules*) (the "**Index Rules**"), results to be obtained from the use of the Index, or as to the performance and/or the value thereof at any time (past, present or future). The JPMorgan Group retains the right to change the Index Rules in accordance with its provisions and such Index Rules may change at any time.

No entity in the JPMorgan Group (whether as a result of negligence or for any other reason) shall be liable to any investor or holder of the Securities for any error or omission in the calculation of the Index or be under any obligation to advise any person of any error therein or to guarantee the performance and/or value of the Index.

#### Potential Conflicts of Interest

In the normal course of business, the Issuer, JPMS plc and/or their affiliates and/or its or their directors, officers and employees may have, or may have had, interests or positions, or may buy, sell or otherwise trade positions, in or relating to the Index and/or the constituents thereof, or may have invested, or may engage in transactions with others relating to any of these items. Such activity may, or may not, affect the value of the Securities, but potential investors should be aware that a conflict may arise.

In addition, on, prior to or after the Trade Date (being 1 September 2021), the Issuer, JPMS plc or any of their affiliates or others may hedge their anticipated exposure with respect to the Securities by taking positions in any underlying asset, or in any investment that is a component of or an investment in or relating to the Index.

The Calculation Agent under the Securities, JPMS plc, has various broad discretionary powers in connection with certain determinations and valuations in respect of the Securities, exercise of any of which could have the effect of reducing the returns on the Securities to the Holders thereof.

Potential investors in the Securities should be aware that any entity within the JPMorgan Group is or may be, in respect of constituents of the Index, and/or the constituents thereof, comprising the hypothetical portfolio on which the performance of the Securities is based, engaged in trading, brokerage and financing activities, as well as providing investment banking and financial advisory services. Accordingly, any entity within the JPMorgan Group may at any time hold long or short positions, and may trade or otherwise effect transactions, for its own account or the accounts of its customers.

The Calculation Agent under the Securities, JPMS plc, is also the Index Calculation Agent in respect of the Index, the performance of which will determine the Redemption Amount payable in respect of the Securities. JPMS plc has various broad discretionary powers in connection with (i) certain determinations and valuations in respect of the Securities and the composition and calculation of the level of the Index, and (ii) the calculation of the return and other determinations in respect of the Index, exercise of any of which could have the effect of reducing the returns on the Securities to the Holders thereof. In particular, upon the occurrence of certain events which have an impact on the constituents of the Index (namely, disruption events or other events affecting the constituents of the Index), the Calculation Agent may exercise discretion in adjusting the calculation of the value of the Index or of any affected constituents. In view of this dual role, JPMS plc is subject to potential conflicts of interest.

It should be noted that the Index has been developed with the possibility of the Index Sponsor or any entity in the JPMorgan Group issuing, entering into, promoting, offering or selling transactions or investments (structured or otherwise) linked, in whole or in part, to the Index and hedging such transactions or investments in any manner that they see fit. Accordingly it should be assumed that the Index Rules will be analysed from this point of view.

**ANNEX C**

**J.P. MORGAN MILLENNIALS FUND MARKET NAVIGATOR 5% VT DECREMENT 3% INDEX –  
INDEX RULES**

# **J.P. Morgan Millennials Fund Market Navigator 5% VT Decrement 3% Index Index Rules**

**24 February 2021**

**J.P.Morgan**  
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## Notices, Disclaimers and Conflicts

Capitalised terms used in this section but not otherwise defined have the meanings specified in other parts of the Index Rules.

Neither the Index Sponsor nor the Index Calculation Agent endorses or makes any representation or warranty, express or implied, in connection with any security, transaction, fund, structured deposit or other financial product or investment (each, a “**Product**”) that references the Index including as to the advisability of purchasing or entering into a Product or the results to be obtained by any party using the Index in connection with a Product. Furthermore, neither the Index Sponsor nor the Index Calculation Agent has any obligation or liability in connection with the administration, marketing or trading of any such Product and is not obliged to enter into or promote Products.

The Index is the exclusive property of the Index Sponsor and the Index Sponsor retains all proprietary rights in the Index.

No one may reproduce, distribute or disseminate this document or the information contained in this document or an Index Level (as applicable) without the prior written consent of the Index Sponsor. This document is not intended for distribution to, or use by any person in, a jurisdiction where such distribution is prohibited by law or regulation.

Neither the Index Sponsor nor the Index Calculation Agent in their capacity as such has any liability whatsoever to any person who uses the Index (or any Index Level) in any circumstances.

Potential conflicts of interest may exist between the structure and operation of the Index roles and responsibilities of the Index Sponsor and Index Calculation Agent and the normal business activities of the Index Sponsor, the Index Calculation Agent or any Relevant Person.

During the course of their businesses, the Index Sponsor, the Index Calculation Agent and any Relevant Person may enter into or promote, offer or sell transactions or Products (structured or otherwise) that reference the Index, any Constituent or any constituent of a Constituent. In addition, the Index Sponsor, the Index Calculation Agent and any Relevant Person may have, or may have had, interests (including general commercial interests related to this Index or any Constituent) or positions, or may buy, sell or otherwise trade positions in or relating to the Index, any Constituent or any constituent of a Constituent, or may invest or engage in transactions with other persons, or on behalf of such persons, relating to any of these. Such activity could give rise to a conflict of interest, and such conflict may have an impact, positive or negative, on the Index Level. The Index Sponsor, the Index Calculation Agent and the Relevant Persons do not have any duty (a) to consider the circumstances of any person when participating in such transactions or (b) to conduct themselves in a manner that is favourable to anyone with exposure to the Index.

Neither the Index Sponsor nor the Index Calculation Agent is under any obligation to continue the calculation, publication or dissemination of the Index. The Index Sponsor may at any time and without notice terminate the calculation, publication or dissemination of the Index. The Index Sponsor may delegate or transfer to a third party some or all of its functions in relation to the Index. Further information relating to the identity and role of third parties that are non-affiliates of J.P. Morgan in respect of the Index, is available upon request from the Index Sponsor.

The following further information is available at <https://www.jpmorganindices.com>:

- (i) supplemental disclosure on the Index Sponsor’s governance and oversight framework;
- (ii) information on complaints handling; and
- (iii) additionally, in respect of indices where the Index Sponsor is J.P. Morgan Securities plc, further information on conflicts of interest.

Except as provided in the following paragraph, neither the Index Sponsor nor the Index Calculation Agent gives any representation, warranty or undertaking, of any type (whether express or implied, statutory or otherwise) in relation to the Index, as to (i) the condition, satisfactory quality, performance or fitness for purpose of the Index, (ii) the results to be achieved by an investment in any Product, (iii) any data included in or omissions from the Index, (iv) the use of the Index in connection with a Product, (v) the Index Level at

any time on any day, (vi) the veracity, currency, completeness or accuracy of the information on which the Index is based (and without limitation, the Index Sponsor and the Index Calculation Agent accept no liability to any investor in a Product for any errors or omissions in that information or the results of any interruption to it and the Index Sponsor and the Index Calculation Agent shall be under no obligation to advise any person of any such error, omission or interruption), or (vii) any other matter. To the extent any such representation, warranty or undertaking could be deemed to have been given by the Index Sponsor or the Index Calculation Agent, it is excluded save to the extent that such exclusion is prohibited by law.

To the fullest extent permitted by law, the Index Sponsor and the Index Calculation Agent has no liability or responsibility to any person or entity (including, without limitation, any investor in any Product) for any loss, damages, costs, charges, expenses or other liabilities howsoever arising, including, without limitation, liability for any special, punitive, indirect or consequential damages (including loss of business or loss of profit, loss of time and loss of goodwill), even if notified of the possibility of the same, arising in connection with the design, compilation, calculation, maintenance or sponsoring of the Index or in connection with any Product.

The Index Sponsor or the Index Calculation Agent may make certain calculations based on information obtained from publicly available sources without independently verifying such information and accepts no responsibility or liability in respect of such calculations or information.

Notwithstanding anything to the contrary, nothing in these Index Rules should be construed to be investment advice or a recommendation to purchase a specific Product or enter into any transaction. Nothing in these Index Rules or any other communication from or to J.P. Morgan should be deemed to or be construed as creating a "fiduciary relationship" or any relationship of agency or trust. J.P. Morgan and its subsidiaries, officers, directors, employees and agents, are not acting in any fiduciary capacity and do not accept any duty of care with respect to any person. Each person should make their own investment decision based on their own judgment and on their own examination of the specific Product that they are purchasing or transaction they are entering into, and should consult their own legal, regulatory, investment, tax, accounting and other professional advisers as they deem necessary in connection with any purchase of a Product or entry into any transaction relating to any Product.

The foregoing notices, disclaimers and conflicts disclosure is not intended to be exhaustive. Anyone reading these Index Rules should seek such advice as they consider necessary from their professional advisors, legal, tax or otherwise, without reliance on the Index Sponsor, Index Calculation Agent or any Relevant Person to satisfy them that they fully understand these Index Rules and the risks associated with the Index.

These Index Rules have been developed with the possibility of one or more entities, with the written permission of the Index Sponsor, entering into or promoting, offering or selling Products (structured or otherwise) linked to the Index and the hedging of such transactions or Products in any manner that they see fit.

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The Index Sponsor owns all intellectual property rights in: (i) the development of and methodology for producing the Index, (ii) the Index Levels, and (iii) these Index Rules. Third parties shall not use the Index Sponsor's intellectual property without the prior written consent of the Index Sponsor (including in situations where a third party performs certain functions in relation to the Index).

**THIS DOCUMENT IS IMPORTANT. YOU SHOULD NOT INVEST IN A PRODUCT LINKED TO THE INDEX UNLESS YOU HAVE ENSURED THAT YOU FULLY UNDERSTAND THE NATURE OF SUCH AN INVESTMENT AND THE RISKS INVOLVED AND ARE SATISFIED THAT THE INVESTMENT IS SUITABLE AND APPROPRIATE FOR YOUR CIRCUMSTANCES AND OBJECTIVES. IF YOU ARE IN ANY DOUBT ABOUT THIS YOU SHOULD TAKE ADVICE FROM AN APPROPRIATELY QUALIFIED ADVISER. EVEN IF**

**YOU ARE A HIGHLY SOPHISTICATED INVESTOR WHO REGULARLY TRANSACTS IN PRODUCTS LINKED TO INDICES OF THIS TYPE, YOU ARE STRONGLY ADVISED TO TAKE SUCH ADVICE IN ANY EVENT.**

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## 1 This Document

This document comprises the rules and methodology (the “**Index Rules**”) of the J.P. Morgan Millennials Fund Market Navigator 5% VT Decrement 3% Index (the “**Index**”).

## 2 Introduction

The following introduction is intended to describe the objective of the Index in general terms.

The Index is a rules-based index that tracks the performance of a strategy referencing a broad portfolio of Constituents comprised of mutual funds and indices, further described in Table A of Section 3 below. The Index aims to extract the historically observed ‘momentum effect’ from the Constituents through the implementation of the steps set out in these Index Rules. The Index aims to tracks the returns of a synthetic long position in a Constituent depending on a momentum signal which is determined in accordance with the terms set out in described in Section 5.

The weight assigned to each of the Constituents will be determined in accordance with the methodology described further in Section 5 below. The Index will determine the preliminary weights in respect of each of the Constituents by reference to its momentum signal, realised historical volatility and correlation with other Constituents, as further described in Section 5 below. The weights in respect of each Constituent will be determined, among other things, using a third party optimisation software as further described in the methodology below, which seeks to provide the weights in respect of a Constituent, taking into account the realised covariance of returns of the Constituents, and a target volatility mechanism as further described in these Index Rules. The Index implements a set of allocation bounds and limits, considering the behaviour of the Constituents in times of market stress, to calculate the final weights in respect of the Constituents. The Index Running Adjustment Factor, Rebalancing Adjustment Factor and the Running Adjustment Factor are deducted from the Index Levels; these will act as a drag on the performance of the Index.

With respect to each Index Publication Day, the Index Calculation Agent will determine and publish the Index Level as described in these Index Rules. Notwithstanding anything to the contrary, the Index Calculation Agent in certain circumstances will delay the publication of the Index Level if an Index Publication Day is a Disrupted Calculation Day, in accordance with the provisions set out in Section 8.2 below.

### **The Index Level is floored at zero and will not be negative.**

In the event that the Index Level falls to zero in respect of any Calculation Day, the Index Level will subsequently be set to zero in respect of all Calculation Days occurring thereafter.

Capitalised terms not otherwise defined shall have the meaning set out in Section 15 below.

### 3 Index Specifics

The following table sets out the specific information relating to the Index:

Name of the Index	J.P. Morgan Millennials Fund Market Navigator 5% VT Decrement 3% Index
Index Bloomberg Ticker	JNAVLB5U <Index>
Index Currency	USD
Index Base Date	4 January 2012
Initial Index Level	100.00
Index Live Date	24 February 2021
Index Running Adjustment Factor	0.20%
Index Synthetic Decrement Factor	3%
Index Volatility Target	5%
Momentum Lookback	252
Correlation Lookback 12M	252
Correlation Lookback 6M	126
Correlation Lookback 3M	63
Correlation Cap	50%
Leverage Cap	450%
Stress Percentile Threshold	5%
Rebalancing Averaging Constant	4
Weekly CVaR Threshold	2.5%
Cash Index	J.P. Morgan Cash Index Euro Currency 3 Month (Bloomberg: JPCAEU3M <Index>)
Cash Index Currency	EUR
CVaR Stress Start Date	12 December 2013
Index Scheduled Trading Day	Means each Calculation Day from and including the Index Base Date which is a Scheduled Trading Day for all Constituent.
Scheduled Rebalance Day	<p>Means:</p> <p>(a) the Index Base Date, and</p> <p>(b) following the Index Base Date, each Index Scheduled Trading Day that falls five Index Scheduled Trading Days immediately following (and excluding) a previous Scheduled Rebalance Day.</p>

Index Calculation Agent	J.P. Morgan Securities plc or any successor or assign. See Section 7.1 below.
Index Publication Day	Means each Calculation Day from and including the Index Base Date which is a Scheduled Trading Day for all Constituents.
Index Sponsor	J.P. Morgan Securities plc or any successor or assign. See Section 7.1 below.
Optimiser	<p>CVXOPT, a Python based software for convex optimisation (the “<b>CVXOPT</b>”), version 1.1.6 or any successor or updated version as implemented by the Index Calculation Agent from time to time. The Optimiser is publicly-available and open-source optimization software, freely available on the internet and is licensed by the Index Calculation Agent pursuant to the GNU General Public License as published by the Free Software Foundation.</p> <p>Further details regarding CVXOPT are published under the following website: <a href="http://cvxopt.org/">http://cvxopt.org/</a>.</p> <p>See also Section 5 Step C6 below for further information.</p>
Data Provider/Source	<p>Means:</p> <ul style="list-style-type: none"> <li>(i) Closing Levels, and</li> <li>(ii) FX Rate (i), in each case, as defined in Section 15 below.</li> </ul>

**Table A Constituents and certain information relating to the Constituents**

i	Constituent	Asset Category	Constituent Bloomberg Ticker	Constituent Sponsor	Constituent Currency	Constituent Rebalancing Adjustment Factor	Constituent Running Adjustment Factor	Constituent Inclusion Date	Time Sta
1	Allianz Global Artificial Intelligence	Funds	ALGAICT LX <Equity>	Allianz Global Investors GmbH	EUR	0.020%	0.50%	02 July 2018	30 J
2	Edmond de Rothschild Fund - Big Data	Funds	EDRGDRE LX <Equity>	Edmond de Rothschild Asset Management Luxembourg SA	EUR	0.020%	0.50%	31 October 2016	No
3	AXA World Funds SICAV - Framlington Digital Economy	Funds	AXFDACE LX <Equity>	AXA Funds Management SA	EUR	0.020%	0.50%	30 November 2018	No
4	BlackRock Global Funds - World Healthscience Fund	Funds	MERHLEA LX <Equity>	BlackRock Luxembourg SA	EUR	0.020%	0.50%	02 September 2002	30
5	Candriam Equities L Europe Innovation	Funds	DEXEUIN LX <Equity>	Candriam Luxembourg	EUR	0.020%	0.50%	31 July 2012	01
6	AB SICAV I - International Health Care Portfolio	Funds	ALLHCCE LX <Equity>	Alliance Bernstein Luxembourg SA	EUR	0.020%	0.50%	31 October 2007	30
7	Franklin Templeton Investment Funds - Franklin Biotechnology Discovery Fund	Funds	FTBAEH1 LX <Equity>	Franklin Templeton International Services Sarl	EUR	0.020%	0.50%	31 May 2019	31 M
8	Fidelity Funds - Global Health Care Fund	Funds	FIDHCFE LX <Equity>	Fidelity Funds	EUR	0.020%	0.50%	02 June 2009	02 J
9	Invesco Global Consumer Trends Fund	Funds	INVPGLE LX <Equity>	INVESCO Management SA	EUR	0.020%	0.50%	01 October 2001	02
10	Pictet - Global Environmental Opportunities	Funds	PIEMSRE LX <Equity>	Pictet Asset Management Europe SA	EUR	0.020%	0.50%	31 October 2011	No
11	NN L - Euro Green Bond	Funds	NNEGPCE LX <Equity>	NN Investment Partners BV	EUR	0.020%	0.50%	01 October 2018	02
12	DPAM L - Bonds Emerging Markets Sustainable	Funds	PLBEMSB LX <Equity>	Degroof Petercam Asset Services SA	EUR	0.020%	0.50%	31 March 2014	0
13	PIMCO GIS Emerging Markets Bond ESG Fund	Funds	PSREEHA ID <Equity>	PIMCO Global Advisors Ireland Ltd	EUR	0.020%	0.50%	30 September 2019	01

i	Constituent	Asset Category	Constituent Bloomberg Ticker	Constituent Sponsor	Constituent Currency	Constituent Rebalancing Adjustment Factor	Constituent Running Adjustment Factor	Constituent Inclusion Date	Time Stamp
14	AXA World Funds - Global Inflation Bonds	Funds	AXAGIAE LX <Equity>	AXA Funds Management SA	EUR	0.020%	0.50%	31 October 2007	30
15	CPR Invest - Food For Generations	Funds	CPRFGAA LX <Equity>	CPR Asset Management SA/France	EUR	0.020%	0.50%	31 October 2018	31
16	BlackRock Global Funds - World Financials Fund	Funds	MWORLEA LX<Equity>	BlackRock Global Funds	EUR	0.020%	0.50%	31 October 2007	30
17	Fidelity Funds - Global Technology Fund	Funds	FFGAACE LX <Equity>	FIL Investment Management Luxembourg SA	EUR	0.020%	0.50%	30 April 2016	30
18	J.P. Morgan US 10Y Bond Futures Index in USD	Interest Rates	RFJGUSBE <Index>	J.P. Morgan Securities plc	USD	0.020%	0.10%	30 March 2001	31
19	J.P. Morgan EU 10Y Bond Futures Index in USD	Interest Rates	RFJGEUBE <Index>	J.P. Morgan Securities plc	EUR	0.020%	0.10%	30 March 2001	30
20	J.P. Morgan UK 10Y Bond Futures Index in USD	Interest Rates	RFJGUKBE <Index>	J.P. Morgan Securities plc	GBP	0.020%	0.10%	30 March 2001	31
21	J.P. Morgan JP 10Y Bond Futures Index in USD	Interest Rates	RFJGPBE <Index>	J.P. Morgan Securities plc	JPY	0.020%	0.10%	30 March 2001	30

**Table B Asset Category Bounds**

<b>a</b>	<b>Asset Category</b>	<b>Asset Category Bound</b>
1	Funds	150%
2	Interest Rates	300%

## 4 Mathematical functions and constants

Throughout the Index Rules, certain mathematical symbols and functions are used. Unless otherwise specified, these symbols and functions will have the following meanings:

$\sum$  means the sum of the numbers or formulas specified in the enclosed parentheses over the range of variables indicated below, and if applicable, above the symbol.

$| |$  means the absolute value of the number or formulas enclosed in the symbol.

$\ln( )$  means the natural logarithm of the number or formulas enclosed in the parentheses.

$\text{MIN}( )$  means the lowest value amongst the numbers or formulas enclosed in the parentheses.

$\text{MAX}( )$  means the highest value amongst the numbers or formulas enclosed in the parentheses

$\underset{\mathbf{M}}{\text{argmin}}( )$  means the argument  $\mathbf{M}$  which minimises the value of the numbers or formulas enclosed in the parentheses.

$\sqrt{ }$  means the square root of the number or formula enclosed within the symbol.

$\square^T$  means the transpose of the matrix indicated below.

$\text{Num}( )$  means the number of elements in the set enclosed in the parentheses.

## 5 Index Methodology

### Section A Determine the Momentum Signal for each Constituent in respect of Calculation Day (t)

#### Step A1 Determine the Constituent Lookback Return in respect of Constituent (i) and Calculation Day (t)

In respect of Calculation Day (t), the Index Calculation Agent will determine the Constituent Lookback Return (the "Constituent Lookback Return" or "CLBRet<sub>t</sub>", or, in respect of Constituent (i), "CLBRet<sub>t</sub><sup>i</sup>") as follows:

(a) if Calculation Day (t) falls on or after the later of Constituent Inclusion Date (i):

$$\text{CLBRet}_t^i = \ln \left( \frac{\text{CL}_{t-5}^i}{\text{CL}_{(t-4-\text{Momentum Lookback})}^i} \right)$$

(b) otherwise:

$$\text{CLBRet}_t^i = 0$$

where:

$\text{CL}_{t-5}^i$  means the Published Closing Level of Constituent (i) in respect of the latest Scheduled Trading Day (i) falling on or before Calculation Day (t-5)

$\text{CL}_{(t-4-\text{Momentum Lookback})}^i$  means the Published Closing Level of Constituent (i) in respect of the latest Scheduled Trading Day (i) falling on or before the Calculation Day that falls (Momentum Lookback+4) Calculation Days immediately prior to Calculation Day (t)

Momentum Lookback means the Momentum Lookback as set out in Section 3 above

#### Step A2 Determine the Momentum Signal for each Constituent in respect of Calculation Day (t)

In respect of Calculation Day (t), the Index Calculation Agent will determine the Momentum Signal (the "Momentum Signal" or "MSig<sub>t</sub>", or, in respect of Constituent (i), "MSig<sub>t</sub><sup>i</sup>") as follows:

(a) if  $\text{CLBRet}_t^i > 0$ :

$$\text{MSig}_t^i = 1$$

(b) otherwise:

$$\text{MSig}_t^i = 0$$

where:

$\text{CLBRet}_t^i$  means the Constituent Lookback Return in respect of Constituent (i) and Calculation Day (t), as defined in Step A1 above

## Section B Determine the Effective Risk Budget in respect of Calculation Day (t)

In respect of Calculation Day (t), the Index Calculation Agent will determine the Effective Risk Budget (the “**Effective Risk Budget**” or “**EffRB<sub>t</sub>**”, or, in respect of Constituent (i), “**EffRB<sub>t</sub><sup>i</sup>**”) as follows:

(a) if  $\sum_{i=1}^N MSig_t^i = 0$ :

$$EffRB_t^i = MSig_t^i$$

(b) otherwise:

$$EffRB_t^i = \frac{MSig_t^i}{\sum_{i=1}^N MSig_t^i}$$

where:

$MSig_t^i$  means the Momentum Signal in respect of Constituent (i) and Calculation Day (t), as defined in Step A2 above

$N$  means the total number of Constituents

## Section C Determine the Averaged Scaled Optimised Weights in respect of a Calculation Day (t)

### Step C1 Determine the Covariance Matrices in respect of Calculation Day (t)

In respect of a Calculation Day (t), the Index Calculation Agent will determine three Covariance Matrices, calculated over different historical measurement periods (together the “**Covariance Matrices**” and singularly “**Covariance Matrix**”), namely:

- the 12M Covariance (the “**12M-Covariance**”, or “**Covar12M<sub>t</sub>**”, or, in respect of Constituent (i) and Constituent (j), “**Covar12M<sub>t</sub><sup>i,j</sup>**”),
- the 6M Covariance (the “**6M-Covariance**”, or “**Covar6M<sub>t</sub>**”, or, in respect of Constituent (i) and Constituent (j), “**Covar6M<sub>t</sub><sup>i,j</sup>**”),
- and, the 3M Covariance (the “**3M-Covariance**”, or “**Covar3M<sub>t</sub>**”, or, in respect of Constituent (i) and Constituent (j), “**Covar3M<sub>t</sub><sup>i,j</sup>**”).

Each Covariance Matrix is a 2-dimentional matrices of size NxN, where N is the number of Constituents, with the element in i<sup>th</sup> row and j<sup>th</sup> column representing the respective covariance in respect of Constituent (i) and Constituent (j), illustrated below:

$$Covar_t(L) = \begin{bmatrix} Covar_t^{1,1}(L) & \dots & Covar_t^{1,N}(L) \\ \vdots & Covar_t^{i,j}(L) & \vdots \\ Covar_t^{N,1}(L) & \dots & Covar_t^{N,N}(L) \end{bmatrix}$$

Each element within the Covariance Matrix in respect of Calculation Day (t), for a given lookback window, is determined as follows:

(a) if Calculation Day (t) falls on or after the later of Constituent Inclusion Date (j) and Constituent Inclusion Date (i):

$$Covar_t^{i,j}(L) = \left( \frac{1}{L-1} \times \left( \sum_{x=5}^{L+4} \ln \left( \frac{CL_{t-x}^i}{CL_{t-x-5}^i} \right) \times \ln \left( \frac{CL_{t-x}^j}{CL_{t-x-5}^j} \right) \right) - \frac{1}{(L-1) \times L} \times \left( \sum_{x=5}^{L+4} \ln \left( \frac{CL_{t-x}^i}{CL_{t-x-5}^i} \right) \times \sum_{x=5}^{L+4} \ln \left( \frac{CL_{t-x}^j}{CL_{t-x-5}^j} \right) \right) \right)$$

(b) otherwise:

$$\text{Covar}_t^{i,j}(L) = 0$$

where:

$CL_{t-x}^i$	means the Published Closing Level of Constituent (i) in respect of the latest Scheduled Trading Day (i) falling on or before Calculation Day (t-x)
$CL_{t-x-5}^i$	means the Published Closing Level of Constituent (i) in respect of the latest Scheduled Trading Day (i) falling on or before Calculation Day (t-x-5)
$CL_{t-x}^j$	means the Published Closing Level of Constituent (j) in respect of the latest Scheduled Trading Day (j) falling on or before Calculation Day (t-x)
$CL_{t-x-5}^j$	means the Published Closing Level of Constituent (j) in respect of the latest Scheduled Trading Day (j) falling on or before Calculation Day (t-x-5)
$x$	means any integer from 5 to (L+4)
$L$	means the relevant correlation lookback set out below

The Covariance Matrices are determined as follows:

$$\text{Covar12M}_t = \text{Covar}_t(\text{Correlation Lookback 12M})$$

$$\text{Covar6M}_t = \text{Covar}_t(\text{Correlation Lookback 6M})$$

$$\text{Covar3M}_t = \text{Covar}_t(\text{Correlation Lookback 3M})$$

where:

Correlation Lookback 12M	means the Correlation Lookback 12M as set out in Section 3 above
Correlation Lookback 6M	means the Correlation Lookback 6M as set out in Section 3 above
Correlation Lookback 3M	means the Correlation Lookback 3M as set out in Section 3 above

### Step C2 Determine the Variance in respect of Constituent (i) and Calculation Day (t)

In respect of Constituent (i) and Calculation Day (t), the Index Calculation Agent will determine the Variance of such Constituent and Calculation Day (t) (the "Variance" or " $\text{Var}_t^i$ ") as follows:

$$\text{Var}_t^i = \text{Covar12M}_t^{i,i}$$

where:

$\text{Covar12M}_t^{i,i}$	means the 12M Covariance in respect of Constituent (i) and Constituent (i), and Calculation Day (t), as defined in Step C1 above
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### Step C3 Determine the Correlation in respect of each Constituent (i) and Constituent (j), and in respect of Calculation Day (t)

In respect of a Calculation Day (t), the Index Calculation Agent will determine the Correlation (the "Correlation" or " $\text{Corr}_t^{i,j}$ ") in respect of each Constituent (i) and Constituent (j) as follows:

(a) if Calculation Day (t) falls on or after the later of Constituent Inclusion Date (j) and Constituent Inclusion Date (i):

$$\text{Corr}_t^{i,j} = \frac{\text{Covar12M}_t^{i,j}}{\sqrt{\text{Var}_t^i \times \text{Var}_t^j}}$$

(b) otherwise:

$$\text{Corr}_t^{i,j} = 0$$

where:

$\text{Covar12M}_t^{i,j}$  means the 12M-Covariance in respect of Constituent (i) and Constituent (j), and Calculation Day (t), as defined in Step C1 above

$\text{Var}_t^i$  means the Variance in respect of Constituent (i) and Calculation Day (t), as defined in Step C2 above

$\text{Var}_t^j$  means the Variance in respect of Constituent (j) and Calculation Day (t), as defined in Step C2 above

#### **Step C4 Determine the Adjusted Correlation in respect of each Constituent (i) and Constituent (j), and in respect of Calculation Day (t)**

In respect of a Calculation Day (t), the Index Calculation Agent will determine the Adjusted Correlation (the “**Adjusted Correlation**” or “**AdjCorr**<sub>t</sub><sup>i,j</sup>”) in respect of each Constituent (i) and Constituent (j) as follows:

$$\text{AdjCorr}_t^{i,j} = \text{MAX}(\text{Corr}_t^{i,j}, -\text{CorrelCap})$$

where:

$\text{Corr}_t^{i,j}$  means the Correlation in respect of Constituent (i) and Constituent (j), and Calculation Day (t), as defined in Step C3 above

$\text{CorrelCap}$  means the Correlation Cap as defined in Section 3 above

#### **Step C5 Determine the Adjusted Covariance in respect of Calculation Day (t)**

In respect of a Calculation Day (t), the Index Calculation Agent will determine the Adjusted Covariance (the “**Adjusted Covariance**”, or “**AdjCovar**<sub>t</sub>”, or, in respect of Constituent (i) and Constituent (j), “**AdjCovar**<sub>t</sub><sup>i,j</sup>”) as a 2-dimentional matrix of size N x N, where N is the number of Constituents, with the element in i<sup>th</sup> row and j<sup>th</sup> column representing the respective adjusted covariance between Constituent (i) and Constituent (j), determined as follows:

$$\text{AdjCovar}_t = \begin{bmatrix} \text{AdjCovar}_t^{1,1} & \dots & \text{AdjCovar}_t^{1,N} \\ \vdots & \text{AdjCovar}_t^{i,j} & \vdots \\ \text{AdjCovar}_t^{N,1} & \dots & \text{AdjCovar}_t^{N,N} \end{bmatrix}$$

and,

$$\text{AdjCovar}_t^{i,j} = \text{AdjCorr}_t^{i,j} \times \sqrt{\text{Var}_t^i \times \text{Var}_t^j}$$

where:

$\text{AdjCorr}_t^{i,j}$  means the Adjusted Correlation in respect of Constituent (i) and Constituent (j), and Calculation Day (t), as defined in Step C4 above

$\text{Var}_t^i$  means the Variance in respect of Constituent (i) and Calculation Day (t), as defined in Step C2 above

$\text{Var}_t^j$  means the Variance in respect of Constituent (j) and Calculation Day (t), as defined in Step C2 above

## Step C6 Determine the Optimised Weights in respect of Calculation Day (t)

In respect of a Calculation Day (t), the Index Calculation Agent will determine the Optimised Weights (the “**Optimised Weights**”, or “**OW<sub>t</sub>**”, or, in respect of Constituent (i), “**OW<sub>t</sub><sup>i</sup>**”) by implementing the following steps:

### (a) Input adjustments

For the purposes of the optimisation procedure, the Index Calculation Agent shall omit the set of Constituents (the “**Omitted Constituents**”) for which the Effective Risk Budget in respect of such Calculation Day (t), as determined in Section B above, is zero (0).

The Optimised Weights in respect of the Omitted Constituents shall be set to zero (0) in respect of Calculation Day (t). In respect of the Constituents that are not omitted (the “**Remaining Constituents**”), the Optimised Weights shall be determined as further described below.

The Index Calculation Agent shall make relevant adjustments to the following input matrices to exclude the relevant rows and columns, as applicable, in respect of the Omitted Constituents for such Calculation Day (t):

- the Adjusted Covariance (**AdjCov<sub>t</sub>**) in respect of such Calculation Day (t) (such matrix following the adjustment being the “**Adjusted Covariance Optimisation Input**” or “**AdjCovInput<sub>t</sub>**”); and
- the Effective Risk Budgets (**EffRB<sub>t</sub>**) in respect of such Calculation Day (t) (such vector following the adjustment being the “**Effective Risk Budget Optimisation Input**” or “**β<sub>t</sub>**” or, in respect of Remaining Constituent (k), “**β<sub>t</sub><sup>k</sup>**”).

### (b) Optimiser parameters

The Index Calculation Agent will use the Optimiser identified in Section 3 above to identify the Optimised Weights in respect of each Calculation Day (t). The following description is a summary description intended to provide an overview of the process pursuant to which the Optimiser calculates the Optimised Weights, given the parameters set forth herein, and using the inputs specified below.

In respect of the Remaining Constituents and Calculation Day (t), the Optimised Weights shall be determined as:

$$\mathbf{OW}_t = \underset{\mathbf{w}}{\operatorname{argmin}} \left( \frac{1}{2} \times \mathbf{w}^T \times \mathbf{AdjCovInput}_t \times \mathbf{w} - \sum_{k \in RC} |\beta_t^k| \times \ln(|w_k|) \right)$$

Subject to:  $\beta_t^k \times w_k > 0$ , in respect of each Remaining Constituent

where:

RC	means Remaining Constituents
AdjCovInput <sub>t</sub>	means the Adjusted Covariance Optimisation Input in respect of Calculation Day (t), as defined in this Step C6
β <sub>t</sub> <sup>k</sup>	means the Effective Risk Budget Optimisation Input in respect of Remaining Constituent (k) and Calculation Day (t), as defined in this Step C6
w	means the vector of weights

The Optimised Weights are determined using a cp function (the “**CP Function**”) of the Optimiser. The (F, G, h) below will be used by the Optimiser as parameters input:

- (a) F(x, z): a function which returns one of the following set of values or matrices, depending on the value of x and z, as described below:
  - If x is “None” (as such term is defined and used by the Optimiser), and z is “None”:

$$F(x, z) = 0, \beta_t$$

- otherwise, if  $\beta_t^k \times x_k \leq 0$  for any  $k$ :

$$F(x, z) = \text{None}$$

- otherwise, if  $z$  is "None":

$$F(x, z) = \mathbf{f}, \mathbf{Df}$$

- otherwise:

$$F(x, z) = \mathbf{f}, \mathbf{Df}, z[0] \times \mathbf{H}$$

(b)  $G$ : a 2-dimentional matrix of size  $N_t \times N_t$  with the element in the  $k^{\text{th}}$  row and  $l^{\text{th}}$  column being as described below:

$$G_{k,l} = \begin{cases} -\beta_t^k \text{ if } k = l \\ 0, \text{ otherwise} \end{cases}$$

(c)  $h$ : a 1-dimentional matrix of size  $N_t$  with each element being zero, as described below:

$$[0, 0, \dots, 0, \dots, 0]$$

where:

$N_t$

means the total number of Remaining Constituents

$\beta_t^k$

means the Effective Risk Budget Optimisation Input in respect of Remaining Constituent ( $k$ ) and Calculation Day ( $t$ ), as defined in this Step C6 above

$\beta_t$

means the Effective Risk Budgets Optimisation Input, a 1-dimentional matrix of size  $N_t$  with the  $k^{\text{th}}$  element being the Effective Risk Budget Optimisation Input in respect of Constituent ( $k$ ) and Calculation Day ( $t$ ), represented as described below:

$$[\beta_t^1, \beta_t^2, \dots, \beta_t^k, \dots, \beta_t^{N_t}]$$

$f$

means the function to be minimised, as described below:

$$\frac{1}{2} \times \mathbf{x}^T \times \mathbf{AdjCovInput}_t \times \mathbf{x} - \sum_{k=1}^{N_t} |\beta_t^k| \times \ln(|x_k|)$$

where  $x$  represents the vector of weights  $w$

$\mathbf{AdjCovInput}_t$

means the Adjusted Covariance Optimisation Input in respect of Calculation Day ( $t$ ), as defined in this Step C6 above, with rows and columns

$Df$

means the gradient of  $f$ , a 1-dimentional matrix of size  $N_t$  with the  $k^{\text{th}}$  element being as described below:

$$\sum_{l=1}^{N_t} x^l \times \text{AdjCovarInput}_t^{k,l} - \frac{|\beta_t^k|}{x_k}$$

$H$

means the Hessian of  $f$ , a 2-dimentional matrix of size  $N_t \times N_t$  with the element in the  $k^{\text{th}}$  row and  $l^{\text{th}}$  column being as described below:

(a) if  $k = l$ , then:

$$\text{AdjCovarInput}_t^{k,l} + \frac{|\beta_t^k|}{x_k^2}$$

(b) otherwise:

$$\text{AdjCovarInput}_t^{k,l}$$

**(c) Fall-back procedure**

The CP Function will return a status (called through `solvers.cp(F, G, h)['status']`). If the status equals "optimal", then the Optimised Weights shall equal the solved weights (called through `solvers.cp(F, G, h)['x']`). Otherwise, the Optimised Weights in respect of Calculation Day (t) shall be the determined as follows:

- in respect of the Index Base Date,  $\beta_t$
- in respect of any Calculation Day (t) falling after the Index Base Date, the Optimised Weights in respect of Calculation Day (t-1).

If, in respect of a Calculation Day (the "**Affected Calculation Day**"), the Index Calculation Agent is unable to determine the Optimised Weights using the Optimizer owing to a temporary technical failure such as, without limitation, a corruption of relevant software libraries or a temporary failure in the computing facilities (the "**Temporary Optimiser Failure**"), then the Index Calculation Agent shall determine the Optimised Weights in respect of such Affected Calculation Day as the Optimised Weights in respect of the immediately preceding Calculation Day. If the Temporary Optimiser Failure persists for a further Calculation Day from the Affected Calculation Day, then the provisions set out in Section 12.1 above shall apply.

**Step C7 Determine the Scaled Optimised Weights in respect of Calculation Day (t)**

In respect of a Calculation Day (t), the Index Calculation Agent will determine the Scaled Optimised Weights (the "**Scaled Optimised Weights**" or "**SOW<sub>t</sub>**", or, in respect of Constituent (i), "**SOW<sub>t</sub><sup>i</sup>**") as follows:

(a) if  $\sum_{j=1}^N |OW_t^j| = 0$ :

$$SOW_t^i = OW_t^i$$

(b) otherwise:

$$SOW_t^i = \frac{OW_t^i}{\sum_{j=1}^N OW_t^j}$$

where:

$OW_t^i$  means the Optimised Weights in respect of Constituent (i) and Calculation Day (t), as defined in Step C6 above

$OW_t^j$  means the Optimised Weights in respect of Constituent (j) and Calculation Day (t), as defined in Step C6 above

**Step C8 Determine the Averaged Scaled Optimised Weights in respect of Calculation Day (t)**

In respect of a Calculation Day (t), the Index Calculation Agent will determine the Averaged Scaled Optimised Weights (the "**Averaged Scaled Optimised Weights**" or "**AVSOW<sub>t</sub>**", or, in respect of Constituent (i), "**AVSOW<sub>t</sub><sup>i</sup>**") as follows:

(a) if Calculation Day (t) is the Index Base Date or a Scheduled Rebalance Day:

- i. if Calculation Day (t) is the Index Base Date or falls on one of the first (K-1) Scheduled Rebalance Days that occur immediately following (and including) the Index Base Date:

$$AVSOW_t^i = SOW_t^i$$

- ii. otherwise:

$$AVSOW_t^i = \frac{1}{K} \times \sum_{j=0}^{K-1} SOW_{t-j}^i$$

(b) otherwise:

$$AVSOW_t^i = AVSOW_{t-1}^i$$

where:

$K$  means the Rebalancing Averaging Constant as defined in Section 3 above

$SOW_{t-j}^i$  means,

- if  $j = 0$ , then the Scaled Optimised Weights in respect of Constituent (i) and Calculation Day (t), as defined in Step C7 above; otherwise

the Scaled Optimised Weights in respect of Constituent (i) and the Calculation Day which is the  $j^{\text{th}}$  Scheduled Rebalance Day immediately prior to Calculation Day (t), as defined in Step C7 above

$SOW_t^i$  means the Scaled Optimised Weights in respect of Constituent (i) and Calculation Day (t), as defined in Step C7 above

$AVSOW_{t-1}^i$  means the Averaged Scaled Optimised Weights in respect of Constituent (i) and Calculation Day (t-1), as defined in this Step C8

## Section D Determine the Preliminary Weights in respect of Calculation Day (t)

### Step D1 Determine the Averaged Scaled Optimised Weights Volatility in respect of Calculation Day (t)

In respect of a Calculation Day (t), the Index Calculation Agent will determine the Average Scaled Optimised Weights Volatility (the “**Averaged Scaled Optimised Weights Volatility**” or “**AVSOWV<sub>t</sub>**”) as follows:

$$AVSOWV_t = \text{MAX} \left( \sqrt{\frac{252}{5} \times AVSOW_t^T \times \text{Covar3M}_t \times AVSOW_t}, \sqrt{\frac{252}{5} \times AVSOW_t^T \times \text{Covar6M}_t \times AVSOW_t}, \sqrt{\frac{252}{5} \times AVSOW_t^T \times \text{Covar12M}_t \times AVSOW_t} \right)$$

where:

**AVSOW<sub>t</sub>** means the Averaged Scaled Optimised Weights in respect of Calculation Day (t), as defined in Step C8 above

**Covar3M<sub>t</sub>** means the 3M-Covariance in respect of Calculation Day (t), as defined in Step C1 above

**Covar6M<sub>t</sub>** means the 6M-Covariance in respect of Calculation Day (t), as defined in Step C1 above

**Covar12M<sub>t</sub>** means the 12M-Covariance in respect of Calculation Day (t), as defined in Step C1 above

### Step D2 Determine the Volatility Target in respect of Calculation Day (t)

In respect of a Calculation Day (t), the Index Calculation Agent will determine the Volatility Target (the “**Volatility Target**”, or “**VT<sub>t</sub>** ” as follows:

$$VT_t = \text{IndexVT} \times \text{MIN} \left( 1, \frac{2}{N} \times \sum_{i=1}^N MSig_t^i \right)$$

where:

**IndexVT** means the Index Volatility Target as defined in Section 3 above

**MSig<sub>t</sub><sup>i</sup>** means the Momentum Signal in respect of Constituent (i) and Calculation Day (t), as defined in Step A2 above

**N** means the total number of Constituents

### Step D3 Determine the Averaged Volatility Target in respect of Calculation Day (t)

In respect of a Calculation Day (t), the Index Calculation Agent will determine the Averaged Volatility Target (the “**Averaged Volatility Target**”, or “**AVT<sub>t</sub>** ” as follows:

(a) if Calculation Day (t) is a Scheduled Rebalance Day:  
 i. if Calculation Day (t) is the Index Base Date or falls on one of the first (K-1) Scheduled Rebalance Days that occur immediately following (and including) the Index Base Date:

$$AVT_t = VT_t$$

ii. otherwise:

$$AVT_t = \frac{1}{K} \times \sum_{i=0}^{K-1} VT_{t-i}$$

(b) otherwise:

$$AVT_t = AVT_{t-1}$$

where:

K means the Rebalancing Averaging Constant as defined in Section 3 above

$VT_{t-i}$  means,

- if  $i = 0$ , then the Volatility Target in respect of Calculation Day (t), as defined in Step D2 above; otherwise

the Volatility Target in respect of the Calculation Day which is the  $i^{\text{th}}$  Scheduled Rebalance Day immediately prior to Calculation Day (t), as defined in Step D2 above

$AVT_{t-1}$  means the Averaged Volatility Target in respect of Calculation Day (t-1), as defined in this Step D3

#### Step D4 Determine the Preliminary Weights in respect of Calculation Day (t)

In respect of a Calculation Day (t), the Index Calculation Agent will determine the Preliminary Weights (the "Preliminary Weights", or "PW<sub>t</sub>", or, in respect of Constituent (i), "PW<sub>t</sub><sup>i</sup>") as follows:

(a) if  $AVSOWV_t = 0$ :

$$PW_t^i = AVSOW_t^i$$

(b) otherwise:

$$PW_t^i = \text{MIN} \left( AVSOW_t^i \times \frac{AVT_t}{AVSOWV_t}, CB_i \right)$$

where:

$AVSOW_t^i$  means the Averaged Scaled Optimised Weights in respect of Constituent (i) and Calculation Day (t), as defined in Step C8 above

$AVT_t$  means the Averaged Volatility Target as defined in Step D3 above

$AVSOWV_t$  means the Averaged Scaled Optimised Weights Volatility in respect of Calculation Day (t) as defined in Step D1 above

$CB_i$  means the Constituent Bound in respect of Constituent (i), as set out in Table A Section 3 above

## Section E Determine the Bounded Weights in respect of Calculation Day (t)

### Step E1 Determine the Asset Category Weight Divisor in respect of Asset Category (a) and Calculation Day (t)

In respect of a Calculation Day (t), the Index Calculation Agent will determine the Asset Category Weight Divisor (the “Asset Category Weight Divisor” or “ACWD<sub>t</sub><sup>a</sup>”) in respect of each Asset Category set out in Table B Section 3 above (each “Asset Category (a)” (referred to as ‘a’ below)) as follows:

$$ACWD_t^a = \text{MAX} \left( 1, \frac{1}{ACB^a} \times \sum_{i=1}^N PW_t^i \times \text{isAssetClass}(i, a) \right)$$

where:

ACB<sup>a</sup> means the Asset Category Bound in respect of Asset Category (a), as set out in Table B Section 3 above

PW<sub>t</sub><sup>i</sup> means the Preliminary Weight in respect of Constituent (i) and Calculation Day (t), as defined in Step D4 above

isAssetClass(i, a) means:

- if the Asset Category in respect of Constituent (i), as set out in Table A Section 3 above, is same as ‘a’, 1;
- otherwise, 0.

N means the total number of Constituents

### Step E2 Determine the Asset Category Bound Weights in respect of Constituent (i) and Calculation Day (t)

In respect of a Calculation Day (t), the Index Calculation Agent will determine the Asset Category Bound Weights (the “Asset Category Bound Weights” or “ACBW<sub>t</sub><sup>i</sup>”) in respect of Constituent (i) as follows:

$$ACBW_t^i = \frac{PW_t^i}{ACWD_t^{\text{AC}(i)}}$$

where:

PW<sub>t</sub><sup>i</sup> means the Preliminary Weight in respect of Constituent (i) and Calculation Day (t), as defined in Step D4 above

ACWD<sub>t</sub><sup>AC(i)</sup> means the Asset Category Weight Divisor, as determined in Step E1 above, in respect of the Asset Category of Constituent (i), as set out in Table A Section 3 above

### Step E3 Determine the Simulated Portfolio CVaR in respect of Calculation Day (t)

In respect of Constituent (i) and Calculation Day (t), the Index Calculation Agent will determine the Simulated Portfolio CVaR (the “Simulated Portfolio CVaR” or “SPCVaR<sub>t</sub>”) by implementing the following steps:

- (1) calculate the “Weekly Constituent Return” or “WCR<sub>d</sub><sup>i</sup>” in respect of each Constituent (i) and Calculation Day (d) as follows:
  - (a) if Calculation Day (d) falls on or after the later of the Timeseries Start Date (i) and the 5th Calculation Day immediately following Index Base Date:

$$WCR_d^i = \ln\left(\frac{CL_d^i}{CL_{d-5}^i}\right)$$

(b) otherwise:

$$WCR_d^i = 0$$

(2) calculate the “**Simulated Portfolio Return**” or “**SPR<sub>d</sub>**” in respect of Calculation Day (d) as follows:

$$SPR_d = \sum_{i=1}^N WCR_d^i \times ACBW_t^i$$

(3) calculate the set of the “**Simulated Portfolio Historical Returns**” or “**SPHR<sub>t</sub>**” in respect of Calculation Day (t) from the fifth Calculation Day immediately following the Index Base Date to and including Calculation Day (t-5) as follows:

$$SPHR_t = \{SPR_{IBD+5}, SPR_{IBD+5+1}, SPR_{IBD+5+2}, \dots, SPR_{t-5-1}, SPR_{t-5}\}$$

(4) calculate the “**Portfolio Stress Percentile Rank**” or “**PSPR<sub>t</sub>**” in respect of Calculation Day (t) as the product of the Stress Percentile Threshold and the total number of Weekly Returns as follows:

$$PSPR_t = SP \times \text{Num}(SPHR_t)$$

If the resultant product is not a whole number, it is rounded down to the nearest integer less than such product.

- (5) rank the Simulated Portfolio Historical Returns in the ascending order of their value, starting from the lowest value to the highest value, denoted as  $\text{Rank}(SPR_d)$
- (6) identify the set of “**Stressed Simulated Portfolio Historical Returns**” or “**SSPHR<sub>t</sub>**” in respect of Calculation Day (t) as the set of Simulated Portfolio Historical Returns with a  $\text{Rank}(SPR_d)$  less than or equal to the Portfolio Stress Percentile Rank
- (7) calculate the “**Simulated Portfolio CVaR**” or “**SPCVaR<sub>t</sub>**” in respect of each Constituent (i) and Calculation Day (t) as the average of such Stressed Simulated Portfolio Historical Returns as follows:

$$SPCVaR_t = \frac{1}{PSPR_t} \times \sum_{r \in SSPHR} r$$

where:

$ACBW_t^i$  means the Asset Category Bound Weight in respect of Constituent (i) and Calculation Day (t), as defined in Step E2 above

$CL_d^i$  means the Published Closing Level of Constituent (i) in respect of the latest Scheduled Trading Day (i) on or before the Calculation Day (d)

$CL_{d-5}^i$  means the Published Closing Level of Constituent (i) in respect of the latest Scheduled Trading Day (i) on or before the Calculation Day (d-5)

$SPR_{IBD+5}$  means the Simulated Portfolio Return in respect of the fifth Calculation Day immediately following the Index Base Date, as defined in sub-step (2) above

$SPR_{t-5}$  means the Simulated Portfolio Return in respect of Calculation Day (t-5)

SP	means the Stress Percentile Threshold, as set out in Section 3 above
$PSPR_t^i$	means the Portfolio Stress Percentile Rank in respect of Calculation Day (t) as defined in sub-step (4) above
$SSPHR_t$	means the set of Stressed Simulated Portfolio Historical Returns in respect of Calculation Day (t) as defined in sub-step (6) above
$r$	means each Simulated Portfolio Return in the set of Stressed Simulated Portfolio Historical Returns in respect of Calculation Day (t) considered separately and individually for the purposes of the summation function specified in the formula in sub-step (7) above

#### **Step E4      Determine the CVaR Multiplier in respect of Calculation Day (t)**

In respect of a Calculation Day (t), the Index Calculation Agent will determine the CVaR Multiplier (the “**CVaR Multiplier**” or “**MultiplierCVaR<sub>t</sub>**”) as follows:

(a) if Calculation Day (t) falls on or after the CVaR Stress Start Date and  $|SPCVaR_t| > 0$ :

$$\text{MultiplierCVaR}_t = \text{MIN}\left(\frac{\text{CVaRThreshold}}{|SPCVaR_t|}, 1\right)$$

(b) otherwise

$$\text{MultiplierCVaR}_t = 1$$

where:

$SPCVaR_t$	means the Simulated Portfolio CVaR in respect of Calculation Day (t), as defined in Step E3 above
CVaR Stress Start Date	means the CVaR Stress Start Date as defined in Section 3 above
CVaRThreshold	means the Weekly CVaR Threshold as defined in Section 3 above

#### **Step E5      Determine the CVaR Bound Weights in respect of Calculation Day (t)**

In respect of a Calculation Day (t), the Index Calculation Agent will determine the CVaR Bound Weights (the “**CVaR Bound Weights**” or “**CBW<sub>t</sub><sup>i</sup>**”) in respect of Constituent (i) as follows:

$$\text{CBW}_t^i = \text{ACBW}_t^i \times \text{MultiplierCVaR}_t$$

where:

$ACBW_t^i$	means the Asset Category Bound Weights in respect of Constituent (i) and Calculation Day (t), as defined in Step E2 above
$\text{MultiplierCVaR}_t$	means the CVaR Multiplier in respect of Calculation Day (t), as defined in Step E4 above

#### **Step E6      Determine the Leverage Limit Divisor in respect of Calculation Day (t)**

In respect of a Calculation Day (t), the Index Calculation Agent will determine the Leverage Limit Divisor (the “**Leverage Limit Divisor**” or “**LLD<sub>t</sub>**”) as follows:

$$\text{LLD}_t = \text{MAX}\left(1, \frac{1}{\text{LeverageCap}} \times \sum_{i=1}^N \text{CBW}_t^i\right)$$

where:

$\text{CBW}_t^i$  means the CVaR Bound Weights in respect of Constituent (i) and Calculation Day (t), as defined in Step E5 above

$\text{LeverageCap}$  means the Leverage Cap as defined in Section 3 above

$N$  means the total number of Constituents

#### **Step E7      Determine the Bounded Weight in respect of Calculation Day (t)**

In respect of a Calculation Day (t), the Index Calculation Agent will determine the Bounded Weights (the “**Bounded Weights**” or “**BCW<sub>t</sub><sup>i</sup>**”) in respect of Constituent (i) as follows:

$$\text{BCW}_t^i = \frac{\text{CBW}_t^i}{\text{LLD}_t}$$

where:

$\text{CBW}_t^i$  means the CVaR Bound Weights in respect of Constituent (i) and Calculation Day (t), as defined in Step E5 above

$\text{LLD}_t$  means the Leverage Limit Divisor in respect of Calculation Day (t), as defined in Step E6

## **Section F    Determine the Final Weights in respect of Calculation Day (t)**

### **Step F1    Determine whether Calculation Day (t) is a Rebalance Day in respect of Constituent (i)**

The Index Calculation Agent will determine Calculation Day (t) as a Rebalance Day (a “**Rebalance Day**” or “**Rebalance Day (i)**”) in respect of Constituent (i) if at least one of the following conditions is satisfied (or ‘True’):

- (a) Calculation Day (t) is the Index Base Date; or
- (b) Calculation Day (t) is an Index Scheduled Trading Day and not a Disrupted Day (i).

### **Step F2    Determine the Final Weights in respect of Calculation Day (t)**

In respect of a Calculation Day (t), the Index Calculation Agent will determine the Final Weights (the “**Final Weights**” or “**FW<sub>t</sub>**”) in respect of Constituent (i) as follows:

- (a) if Calculation Day (t) is a Rebalance Day (i):

$$FW_t^i = BCW_t^i$$

- (b) otherwise:

$$FW_t^i = FW_{t-1}^i$$

where:

$BCW_t^i$  means the Bounded Weights in respect of Constituent (i) and Calculation Day (t), as defined in Step E7 above

$FW_{t-1}^i$  means the Final Weights in respect of Constituent (i) and Calculation Day (t-1), as defined in this Step F2

## Section G Determine the Index Level in respect of Calculation Day (t)

### Step G1 Determine the Number of Units in respect of Constituent (i) and Calculation Day (t)

In respect of a Calculation Day (t) and a Constituent (i), the Index Calculation Agent will determine the Number of Units in respect of Constituent (i) and Calculation Day (t) (the “Number of Units” or “NOU<sub>t</sub><sup>i</sup>”) as follows:

(a) if Calculation Day (t) is not a Rebalance Day (i):

$$NOU_t^i = NOU_{t-1}^i$$

(b) otherwise:

$$NOU_t^i = \frac{IndexLevel_{t-5} \times FW_t^i}{CL_{t-5}^i \times FX_{t-5}^i}$$

where:

IndexLevel<sub>t-5</sub> means the Index Level in respect Calculation Day (t-5) as determined in Step G6 below, provided that:

- (a) if Calculation Day (t-5) occurs on or before the Index Base Date, IndexLevel<sub>t-5</sub> will be equal to the Initial Index Level; and
- (b) if Calculation Day (t-5) is a Disrupted Calculation Day or a Delayed Calculation Day(t-5), IndexLevel<sub>t-3</sub> will be equal to the Index Level in respect of the first Calculation Day immediately preceding Calculation Day (t-5) that is a Non-Disrupted Calculation Day

NOU<sub>t-1</sub><sup>i</sup> means the Number of Units of Constituent (i) in respect of Calculation Day (t-1)

FW<sub>t</sub><sup>i</sup> means the Final Weight of Constituent (i) in respect of Calculation Day (t), as determined in Step F2 above

FX<sub>t-5</sub><sup>i</sup> means the FX Rate (i) of Constituent (i) in respect of Calculation Day (t-5)

CL<sub>t-5</sub><sup>i</sup> means the Published Closing Level of Constituent (i) in respect of Calculation Day (t-5), provided that if Calculation Day (t-5) is not a Scheduled Trading Day (i), CL<sub>t-5</sub><sup>i</sup> shall be the Published Closing Level of Constituent (i) in respect of the Scheduled Trading Day (i) immediately preceding Calculation Day (t-5)

### Step G2 Determine the Cash Units in respect of Constituent (i) and Calculation Day (t)

In respect of a Calculation Day (t), the Index Calculation Agent will determine the Cash Units (the “Cash Units” or “CU<sub>t</sub>”) as follows:

(a) if Calculation Day (t) is not a Rebalance Day:

$$CU_t = CU_{t-1}$$

(b) otherwise:

$$CU_t = \frac{1}{(P_t^{\text{Cash}} \times FX_t^{\text{Cash}})} \times \sum_{i=1}^N (NOU_t^i \times P_t^i \times FX_t^i \times IsTR_i)$$

where:

CU<sub>t-1</sub> means the Cash Units in respect of Calculation Day (t-1)

$P_t^{\text{Cash}}$	means the Closing Level of the Cash Index in respect of Calculation Day (t)
N	means the total number of Constituents
$NOU_i^t$	means the Number of Units of Constituent (i) in respect of Calculation Day (t)
$P_t^i$	means the Closing Level of Constituent (i) in respect of Calculation Day (t)
$FX_t^{\text{Cash}}$	means the FX Rate in respect of the Cash Index and Calculation Day (t)
$FX_t^i$	means the FX Rate (i) of Constituent (i) in respect of Calculation Day (t)
$IsTR_i$	means:
	- if the Constituent Type (i) is 'Fund', 1;
	- otherwise, 0

### Step G3 Determine the Rebalancing Adjustment Factor in respect of Calculation Day (t)

In respect of Calculation Day (t), the Index Calculation Agent will determine the Rebalancing Adjustment Factor (the "Rebalancing Adjustment Factor" or "RebalFactor<sub>t</sub>") as follows:

$$\text{RebalFactor}_t = \sum_{i=1}^N (|NOU_t^i - NOU_{t-1}^i| \times P_t^i \times FX_t^i \times CRAF_i)$$

where:

N	means the total number of Constituents
$NOU_t^i$	means the Number of Units of Constituent (i) in respect of Calculation Day (t), as determined in Step G1 above
$NOU_{t-1}^i$	means the Number of Units of Constituent (i) in respect of Calculation Day (t-1), as determined in Step G1 above, provided that in respect of Index Base Date $NOU_{t-1}^i$ shall be 0
$P_t^i$	means the Closing Level of Constituent (i) in respect of Calculation Day (t)
$FX_t^i$	means the FX Rate (i) of Constituent (i) in respect of Calculation Day (t)
$CRAF_i$	means the Constituent Rebalancing Adjustment Factor in respect of Constituent (i), as set out in Table A above

### Step G4 Determine the Running Adjustment Factor in respect of Calculation Day (t)

In respect of Calculation Day (t), the Index Calculation Agent will determine the Running Adjustment Factor (the "Running Adjustment Factor" or "RunningFactor<sub>t</sub>") as:

(a) in respect of Index Base Date:

$$\text{RunningFactor}_t = 0$$

(b) in respect of each Calculation Day (t) falling after the Index Base Date:

$$\text{RunningFactor}_t = \left( \text{IndexLevel}_{t-1} \times (\text{IRAF} + \text{ISDF}) + \sum_{i=1}^N (NOU_{t-1}^i \times P_{t-1}^i \times FX_t^i \times RAF_i) \right) \times \frac{D(t-1, t)}{360}$$

where:

$\text{IndexLevel}_{t-1}$  means the Index Level in respect of Calculation Day (t-1) as determined in Step G6 below

IRAF	means the Index Running Adjustment Factor as set out in Section 3 above
ISDF	means the Index Synthetic Decrement Factor as set out in Section 3 above
N	means the total number of Constituents
NOU <sub>t-1</sub> <sup>i</sup>	means the Number of Units of Constituent (i) in respect of Calculation Day (t-1), as determined in Step G1 above
P <sub>t-1</sub> <sup>i</sup>	means the Closing Level of Constituent (i) in respect of Calculation Day (t-1)
FX <sub>t</sub> <sup>i</sup>	means the FX Rate (i) of Constituent (i) in respect of Calculation Day (t-1)
D(t-1, t)	means the number of calendar days from but excluding Calculation Day (t-1) to and including Calculation Day (t)
RAF <sub>i</sub>	means the Constituent Running Adjustment Factor in respect of Constituent (i), as set out in Table A above

#### **Step G5 Determine the Cash Factor in respect of Calculation Day (t)**

In respect of Calculation Day (t), the Index Calculation Agent will calculate the Cash Factor (the “**Cash Factor**” or “**CashFactor<sub>t</sub>**”) as:

(a) in respect of Index Base Date:

$$\text{CashFactor}_t = 0$$

(b) in respect of each Calculation Day (t) falling after the Index Base Date:

$$\text{CashFactor}_t = \text{CU}_{t-1} \times (P_t^{\text{Cash}} - P_{t-1}^{\text{Cash}}) \times \text{FX}_t^{\text{Cash}}$$

where:

CU <sub>t-1</sub>	means the Cash Units in respect of Calculation Day (t-1) as determined in Step G2 above
P <sub>t</sub> <sup>Cash</sup>	means the Closing Level of the Cash Index in respect of Calculation Day (t)
P <sub>t-1</sub> <sup>Cash</sup>	means the Closing Level of the Cash Index in respect of Calculation Day (t-1)
FX <sub>t</sub> <sup>Cash</sup>	means the FX Rate in respect of the Cash Index and Calculation Day (t)

#### **Step G6 Determine the Index Level in respect of Calculation Day (t)**

The Index Calculation Agent will calculate the level of the Index in respect of Calculation Day (t) (the “**Index Level**” or “**IndexLevel<sub>t</sub>**”) as:

(a) in respect of Index Base Date:

$$\text{IndexLevel}_t = \text{Initial Index Level}$$

(b) in respect of each Calculation Day (t) falling after the Index Base Date:

$$\text{IndexLevel}_t = \text{MAX} \left( \text{IndexLevel}_{t-1} + \sum_{i=1}^N \left( \text{NOU}_{t-1}^i \times (P_t^i - P_{t-1}^i) \times \text{FX}_t^i \right) - \text{RebalFactor}_t - \text{RunningFactor}_t - \text{CashFactor}_t, 0 \right)$$

where:

Initial Index Level	has the meaning set out in Section 3 above
IndexLevel <sub>t-1</sub>	means the Index Level in respect of Calculation Day (t-1)
N	means the total number of Constituents

NOU <sub>t-1</sub>	means the Number of Units of Constituent (i) in respect of Calculation Day (t-1), as determined in Step G1 above
P <sub>t</sub> <sup>i</sup>	means the Closing Level of Constituent (i) in respect of Calculation Day (t)
P <sub>t-1</sub> <sup>i</sup>	means the Closing Level of Constituent (i) in respect of Calculation Day (t-1)
FX <sub>t</sub> <sup>i</sup>	means the FX Rate (i) of Constituent (i) in respect of Calculation Day (t)
RebalFactor <sub>t</sub>	means Rebalancing Adjustment Factor in respect of Calculation Day (t), as determined in Step G2 above
RunningFactor <sub>t</sub>	means Running Adjustment Factor in respect of Calculation Day (t), as determined in Step G4 above
CashFactor <sub>t</sub>	means Cash Factor in respect of Calculation Day (t), as determined in Step G5 above

**Note:** For the purposes of calculating the Index Level as described in this Section G above, the Closing Level in respect of Constituent (i) (P<sub>t</sub><sup>i</sup> and P<sub>t-1</sub><sup>i</sup>) are considered to be zero (0) in respect of Calculation Days that fall at least one day before the Constituent Inclusion Date (i).

**The Index Level is floored at zero and will not be negative.**

In the event that the Index Level falls to zero in respect of any Calculation Day, the Index Level will subsequently be set to zero in respect of all Calculation Days occurring thereafter.

## 6 Certain General Terms relating to the Index

### 6.1 Publication and availability of the Index Rules

The Index Rules are published by J.P. Morgan Securities plc of 25 Bank Street, Canary Wharf, London E14 5JP, in its capacity as Index Sponsor.

Copies of the Index Rules and the Relevant Underlying Indices Rules may be obtained by holders or potential holders of Products linked to the Index free of charge on request from the Index Sponsor at its principal office in London against such proof of status and upon such terms as the Index Sponsor may in its reasonable discretion require.

### 6.2 Amendments

Economic, market, regulatory, legal, financial or other circumstances may arise that may necessitate or make desirable an amendment of the Index Rules.

Notwithstanding the foregoing, the Index Sponsor may amend the Index Rules as it deems appropriate. Such amendments may include (without limitation):

- (a) correcting or curing any errors, omissions or contradictory provisions; or
- (b) modifications to the methodology described in the Index Rules (including, without limitation, a change in the frequency of calculation of the Index Level) that are necessary or desirable in order for the calculation of the Index to continue notwithstanding any change to any economic, market, regulatory, legal, financial or other circumstances as of the Index Live Date of the Index; or
- (c) modifications of a formal, minor or technical nature.

The Index Sponsor will notify the Index Calculation Agent (if a different entity than the Index Sponsor) before making an amendment pursuant to this Section 6.2. The Index Sponsor may, but is not obliged to, take into account the views of the Index Calculation Agent regarding any proposed amendment.

Following any amendment, the Index Sponsor will make available (as soon as practicable) the amended version of the Index Rules and will include the effective date of such amendment in the new version of the Index Rules. However, the Index Sponsor is under no obligation to inform any person about any amendments to the Index (except as required by law, further information in respect of which is available here: <https://www.jpmorganindices.com>).

The Index Sponsor may, in its sole discretion, at any time and without notice, terminate the calculation and publication of the Index.

### 6.3 No advice or offer of securities

The Index Rules do not constitute investment, taxation, legal, accounting or other advice, including within the meaning of Article 53 of the Financial Services and Markets Act 2000 (Regulated Activities) Order 2001 or investment advice within the meaning of Article 4(4) of the Markets in Financial Instruments Directive 2004/39/EC or otherwise.

The Index Rules neither constitute an offer to purchase or sell securities nor constitute specific advice in whatever form (investment, tax, legal, accounting or regulatory) in respect of any Product that may be linked to the Index.

### 6.4 The Index is synthetic

The Index references a "notional" or synthetic exposure to the Constituents and there is no actual portfolio of assets to which any person is entitled or in which any person has any ownership interest. The Index merely references the synthetic exposures, the performance of which is used as a reference point for calculating Index Levels.

## 7 Index Sponsor, Index Calculation Agent

### 7.1 Identity of Index Sponsor and Index Calculation Agent

The sponsor of the Index (the “**Index Sponsor**”) as of the Index Live Date is specified in Section 3 above.

The Index Sponsor is responsible for, among other things, the creation and design of the Index, the documentation of the Index Rules, and the appointment of the calculation agent of the Index (the “**Index Calculation Agent**”), which may be the Index Sponsor, a non-related third party or an affiliate or subsidiary of the Index Sponsor. The Index Calculation Agent as of the Index Live Date is specified in Section 3 above.

The Index Sponsor may at any time and for any reason terminate the appointment of an Index Calculation Agent and appoint an alternative entity as the replacement Index Calculation Agent.

The Index Calculation Agent is responsible for:

- (a) calculating the Index Level in respect of each Calculation Day in accordance with the Index Rules; and
- (b) determining (subject to the prior agreement of the Index Sponsor) if a disruption, adjustment or other event has occurred and the related consequences and adjustments in accordance with the Index Rules.

The Index Sponsor may delegate and/or transfer any of its obligations or responsibilities in connection with the Index to one or more entities which it determines are appropriate. The Index Calculation Agent (unless the same entity as the Index Sponsor) must obtain written permission from the Index Sponsor prior to any delegation or transfer of its responsibilities or obligations in connection with the Index to a third party.

### 7.2 Index Sponsor and Index Calculation Agent standards

Each of the Index Sponsor and the Index Calculation Agent shall act in good faith and in a commercially reasonable manner in respect of determinations, interpretations and calculations made by it pursuant to the Index Rules.

Subject to the regulatory obligations of the Index Sponsor and Index Calculation Agent, neither the Index Sponsor nor the Index Calculation Agent acts on behalf of, accepts any duty of care or any fiduciary duty to any person.

### 7.3 Index Sponsor and Index Calculation Agent determinations

The exercise of (or failure to exercise) the Index Sponsor’s or the Index Calculation Agent’s discretions in relation to the Index may have a detrimental effect on the Index Level and/or the volatility of the Index.

The Index Sponsor and/or Index Calculation Agent may make certain calculations based on information obtained from publicly available sources without independently verifying such sources and accept no responsibility or liability for loss or damage in respect thereof.

All determinations, interpretations and calculations of the Index Sponsor and the Index Calculation Agent relating to the Index Rules shall be final, conclusive and binding and no person shall be entitled to make any claim against the Index Sponsor, the Index Calculation Agent or any Relevant Person in respect thereof. None of the Index Sponsor, the Index Calculation Agent or any Relevant Person shall:

- (a) be under any obligation to revise any determination, interpretation or calculation made or action taken for any reason in connection with the Index Rules or the Index; or
- (b) have any responsibility to any person for any determination, interpretation or calculation made or anything done (or omitted to be done) (whether as a result of negligence or otherwise) in respect of the Index or in

respect of the publication of the Index Level (or failure to publish such level) or any use to which any person may put the Index or the Index Levels.

## 8 Index Levels

### 8.1 Initial Index Level and Index Base Date

The Initial Index Level and Index Base Date are specified in Section 3 above of these Index Rules.

### 8.2 Publication of Index Levels

In respect of an Index Publication Day, the Index Calculation Agent shall publish (in a manner determined by the Index Calculation Agent from time to time which, as of the Index Live Date, is published on Bloomberg on the Index Bloomberg Ticker page) the Index Level calculated in respect of such Calculation Day in accordance with the Index Rules. If an Index Publication Day is a Disrupted Calculation Day, the Index Calculation Agent will delay the publication of the Index Level in respect of such Index Publication Day until it is able to calculate the levels of the Constituents for such day, subject to the provisions set out in Section 10.3 below.

Notwithstanding anything to the contrary, the Index Sponsor may cease calculation and publication of the Index Level at any time in its sole discretion and nothing in this document shall be construed as an agreement by the Index Sponsor to continue to calculate the Index Level if the Index Sponsor has elected to cease publication.

The Index Calculation Agent will publish the Index Level to two decimal points and may vary its rounding convention in its sole discretion provided that it will not publish an Index Level with less than two decimal points. Notwithstanding anything to the contrary, the Index Calculation Agent may calculate and maintain the Index Level to greater accuracy for the determination of upcoming Index Levels or other calculations.

### 8.3 Index Live Date

The Index Calculation Agent has been calculating the Index Level and publishing it in accordance with the methodology specified in these Index Rules since the Index Live Date specified in Section 3 above of these Index Rules.

## 9 Corrections in respect of the Index

If any publicly available information (including, but not limited to, the Published Closing Levels of the Constituent(s)) published by the relevant recognized financial information source selected by the Index Calculation Agent and used in any calculation or determination is subsequently corrected or the Index Calculation Agent identifies an error or omission in any of its calculations or determinations in respect of the Index, the Index Calculation Agent may, if the Index Calculation Agent determines that such error, omission or correction (as the case may be) is material and it is practicable, adjust or correct the relevant calculation or determination to take into account such correction as soon as it is reasonably practicable to do so.

## 10 Disruption Provisions

### 10.1 Defining a Disrupted Day for a Constituent

In respect of a Constituent (i), a “**Disrupted Day**” or “**Disrupted Day (i)**” means any Scheduled Trading Day (i) in respect of such Constituent (i) on which a Market Disruption Event (i) has occurred in respect of such Constituent (i).

### 10.2 Defining a Market Disruption Event for a Constituent

In respect of a Constituent (i), a “**Market Disruption Event**” or “**Market Disruption Event (i)**” means either of (a) or (b) below:

- (a) (X) the failure by the Constituent Sponsor (i) to calculate and publish the NAV or level (as applicable) of the Constituent (i) on any Scheduled Trading Day (i) or in respect of such Scheduled Trading Day (i) within the scheduled or usual timeframe for publication, and (Y) a Constituent Disrupted Day (i) in respect of Scheduled Trading Day (i), in respect of a Constituent that is not a Fund (but not in respect of a Constituent that is Fund), as set out in the applicable Constituent Index Rules (i) which the Index Calculation Agent considers materially impacts the ability of market participants to effect transactions in, or obtain market values for, the underlying components of the Constituent (i); or
- (b) in the absence of the event set out in limb (a)(X) above, the occurrence of the event set out in limb (a)(Y) above.

### **10.3 Consequences of Market Disruption Event**

If a Calculation Day is a Scheduled Trading Day (i) (the “**Relevant Scheduled Trading Day**”) and is a Disrupted Day in respect of one or more of the Constituents (such Constituents, the “**Disrupted Constituent (i)**”), then the Index Calculation Agent, for the purpose of determining the Closing Level in respect of the formulae and algorithms set out in Section 5 Step (F) shall delay the publication of the Index Level in respect of such day and shall implement the following steps to determine the Closing Level in respect of the Disrupted Constituent(i):

- if the First Non-Disrupted Day (i) falls prior to any Disrupted Cut-off Day (i) falling on or after the Scheduled Trading Day (i), the Closing Level (i) in respect of the First Non-Disrupted Day (i) and Disrupted Constituent(i); and
- otherwise, a level in respect of the Disrupted Constituent(i) determined by the Index Calculation Agent in respect of the first Disrupted Cut-off Day (i) falling on or after the Relevant Scheduled Trading Day (i) acting in good faith and in a commercially reasonable manner.

In respect of the Cash Index, if a Calculation Day is a Cash Index Disruption Day, the level of the Cash Index shall be determined by the Index Calculation Agent in good faith and in a commercially reasonable manner taking into account such factors that it considers relevant (for example, but not limited to, the event giving rise to such Calculation Day being a Cash Index Disruption Day).

### **10.4 Definitions of Certain Terms**

“**Constituent Disrupted Day**” or “**Constituent Disrupted Day (i)**” means, in respect of Constituent (i), any Scheduled Trading Day (i) which is a “Disrupted Day” (as defined or howsoever described or defined in Constituent Index Rules (i)) in respect of such Constituent (i).

“**Scheduled Trading Day**” or “**Scheduled Trading Day (i)**” means, in respect of Constituent (i), any day on, or, as the case may be, in respect of, which the Constituent Sponsor (i) is scheduled to publish the NAV or level (as applicable) of Constituent (i) (disregarding any non-publication due to disruptions).

“**Valuation Time**” means the time at which, or in respect of which, the Constituent Sponsor calculates and publishes the NAV or official closing level (as applicable) of the Constituent.

## **11 Extraordinary Events in respect of a Constituent**

The following shall be deemed to be an Extraordinary Event in respect of a Constituent:

### **11.1 Consequences of an Extraordinary Event in respect of a Fund**

If the Index Calculation Agent determines that an Extraordinary Event has occurred in respect of a Fund (such affected Fund, an “**Affected Fund**”), the Index Calculation Agent acting in good faith and in a commercially reasonable manner, shall (i) remove such Affected Fund from the Index, (iii) make such adjustment(s) if any, to one or more of any variable, component, calculation or terms relevant to the Index as the Index Calculation Agent determines appropriate to account for such Extraordinary Event and determine the effective date of the adjustment(s).

## **11.2 Defining an Extraordinary Event in respect of a Fund**

An “**Extraordinary Event**” will be deemed to have occurred with respect to a Fund if any of the following, as determined by the Index Calculation Agent (and, for the avoidance of doubt, the Index Calculation Agent has no obligation actively to monitor whether or not any of the following events has occurred, and provided that, if any of the following events would amount to both an Lock-in Events and a Market Disruption Event, the Index Calculation Agent may determine whether to treat such event as a Lock-in Events or a Market Disruption Event in respect of such Fund):

- (a) an Insolvency in respect of a Fund, its Management Company or any of its Fund Service Providers;
- (b) a Fund Merger Event in respect of a Fund;
- (c) a Fund Termination in respect of a Fund;
- (d) a Nationalisation in respect of a Fund; or
- (e) the occurrence of a Lock-in Event.

## **11.3 Successor Constituent or Reference Data**

If any Constituent or data referenced by a Constituent or the Index is: (a) not calculated and announced by the applicable Constituent Sponsor or the sponsor of such data but is calculated and announced by a successor sponsor acceptable to the Index Calculation Agent; or (b) replaced by a successor index or successor data using, in the determination of the Index Calculation Agent, the same or substantially similar formula for and method of calculation as used in the calculation of such Constituent or data, then such index or reference data so calculated and announced by that successor index sponsor or that successor reference data sponsor shall be deemed the Constituent or reference data, as the case may be.

## **11.4 Material Change in the Method or Formula of Calculating a Constituent or other Reference Data**

On any Calculation Day, if any Constituent Sponsor or other person with control over the Constituent or any data referenced by the Index or a Constituent (e.g. a futures contact), makes a material change in the formula for or the method of calculating a Constituent or reference data which has a material impact on the calculation of the Index Level by the Index Calculation Agent, then the Index Calculation Agent may make such adjustment(s) that it determines to be appropriate to any variable, calculation, methodology or detail in these Index Rules to account for such modification. Such adjustment may occur prior to, on or after the date of such material change, depending on when such change is announced and when the Index Calculation Agent becomes aware of such change.

## **11.5 Non-Publication of a Constituent as a result of Cancellation of a Constituent**

If a Constituent Sponsor permanently cancels a Constituent, and no successor index exists, the Index Calculation Agent shall either:

- (a) continue to calculate the Index Level using the latest terms specified in these Index Rules and the methodology of the applicable Constituent at the time such Constituent was cancelled;
- (b) make such adjustment(s) that it determines to be appropriate to any variable, calculation, methodology, valuation terms or any other rule in relation to the Index to account for such cancellation, including but not

limited to excluding or substituting the affected Constituent with a substitute Constituent that has substantially similar characteristics to the affected Constituent; or

- (c) cease to calculate and publish the Index Level.

Such adjustment may occur prior to, on or after the date of such cancellation, depending on when such cancellation is announced and when the Index Calculation Agent becomes aware of such change.

## **12 Other Extraordinary Events**

### **12.1 Prolonged Technical Issue related to the Optimiser**

If the Index Calculation Agent determined that on any Calculation Day a Temporary Optimiser Failure has occurred, subject to the provisions set out in Section 5 Step C6(c) above, and it persists for one additional Calculation Day after the Affected Calculation Day, then the Index Calculation Agent may, in its sole discretion, replace the Optimiser with a successor optimiser which has the same or substantially similar characteristics of the current Optimiser and may make such adjustments to these Index Rules as it determines to be appropriate to account for such event on such dates as selected by the Index Calculation Agent.

### **12.2 Successor currency or change to the an underlying currency**

If any currency referenced herein is lawfully eliminated, converted, redenominated or exchanged for any successor currency, then such currency shall be deemed replaced by such successor currency.

To the extent that any such elimination, conversion, redenomination or exchange results in two or more currencies that were formally associated with the original currency, the Index Calculation Agent may modify these Index Rules to account for such elimination, conversion, redenomination or exchange. For example, the Index Calculation Agent may select one of the applicable currencies to be a successor currency or amend the formulas for calculating the Index to account for the new exchange rate, if any.

## **13 Change in Law and Intellectual Property Impairment**

### **13.1 Change in Law**

Without prejudice to the ability of the Index Calculation Agent to amend these Index Rules, the Index Calculation Agent may exclude or substitute any Constituent or other reference data following the occurrence (and/or continuation) of a Change in Law. If such an event occurs, then the Index Calculation Agent may adjust these Index Rules as it determines to be appropriate to account for such exclusion or substitution on such date(s) selected by the Index Calculation Agent.

### **13.2 Cancellation of a License or Impairment of Intellectual Property Rights relating to data or software package**

If, at any time, any relevant license or other right or ability of the Index Calculation Agent or the Index Sponsor (or any of their affiliates) to use the Optimiser or any Constituent or relevant data or information or to refer to the level/price or other information in respect of any Constituent or relevant data or information (or other component of the Index or another matter that could affect the Index) terminates, becomes impaired, ceases or cannot be obtained or will cease to be available on commercially reasonable terms or the Index Calculation Agent's right or ability to use (i) the Optimiser or the Constituent for the purposes of the Index or (ii) the Index, in connection with any other license or sub-license agreement is otherwise impaired, ceases or cannot be obtained or will cease to be available on commercially reasonable terms (for any reason), then Index Calculation Agent may replace the Optimiser with a successor optimiser which has the same or substantially similar characteristics as the current Optimiser or remove such Constituent or any other relevant data or information from the Index or substitute a successor constituent, data or information, as applicable, and may make such adjustment to these Rules as it determines

appropriate to account for such change(s) on such date(s) selected by the Index Calculation Agent including, without limitation, selecting a replacement optimiser, constituent, index or reference asset having similar characteristics to such Optimiser, Constituent or other relevant data and the date such replacement is effective.

## **14 Hypothetical Back-Tested Levels**

Any Index Level prior to the Index Live Date is a hypothetical, back-tested level. Such levels should not be taken as an indication of future performance, and no assurance can be given as to the levels or performance of the Index on a future date. Back-tested results are achieved by means of a retroactive application of a back-tested model designed with the benefit of hindsight. The Index Calculation Agent, in calculating hypothetical back-tested levels, may have applied the disruption provisions specified in these Index Rules differently than it otherwise would have applied such provisions in a “live” calculation scenario. Additionally, the precision and rounding of the levels of the Index or the Constituent (or other calculated values) may differ from the methodology applied on a going forward basis. In calculating the hypothetical back-tested levels, the Index Calculation Agent may have made certain assumptions in respect of the timing surrounding the publication of certain indicators, the Closing Levels and Published Closing Levels used and the Index levels. These assumptions may have a material impact on the hypothetical back-tested levels occurring on or before the Index Live Date. No representation is made that any Product that references the Index will or is likely to achieve returns similar to any hypothetical back-tested returns. Alternative modelling techniques or assumptions might provide different results. Finally, hypothetical back-tested results of past performance are neither an indicator nor a guarantee of future performance or returns. Actual results and performance may vary compared to such hypothetical back-tested levels.

## 15 Definitions of Terms

In respect of the Index, the terms defined below have the following meaning in the Index Rules:

<b>“12M-Covariance”</b>	has the meaning set out in Step C1.
<b>“3M-Covariance”</b>	has the meaning set out in Step C1.
<b>“6M-Covariance”</b>	has the meaning set out in Step C1.
<b>“Adjusted Correlation”</b>	has the meaning set out in Step C4.
<b>“Adjusted Covariance”</b>	has the meaning set out in Step C5.
<b>“Adjusted Covariance Optimisation Input”</b>	has the meaning set out in Step C6.
<b>“Affected Calculation Day”</b>	has the meaning set out in Step C6.
<b>“Affected Fund”</b>	has the meaning set out in Section 11.
<b>“Asset Category”</b>	means each Asset Category set out in Table A.
<b>“Asset Category (a)”</b>	has the meaning set out in Step E1.
<b>“Asset Category Bound”</b>	means, in respect of an Asset Category, the Asset Category Bound set out in Table B.
<b>“Asset Category Weight Divisor”</b>	has the meaning set out in Step E1.
<b>“Asset Category Bound Weights”</b>	has the meaning set out in Step E2.
<b>“Averaged Scaled Optimised Weights Volatility”</b>	has the meaning set out in Step D1.
<b>“Averaged Scaled Optimised Weights”</b>	has the meaning set out in Step C8.
<b>“Averaged Volatility Target”</b>	has the meaning set out in Step D3.
<b>“Bounded Weights”</b>	has the meaning set out in Step E7.
<b>“Calculation Day” or “Calculation Day (t)” or “Calculation Day (d)”</b>	means each day other than a Saturday or a Sunday.
<b>“Calculation Day (t-1)”</b>	means, in respect of a Calculation Day (t), the Calculation Day immediately preceding Calculation Day (t).
<b>“Calculation Day (d-x)”</b>	means, in respect of a Calculation Day (d), the Calculation Day which is ‘x’ number of Calculation Days immediately preceding Calculation Day (d).
<b>“Calculation Day (t-5)”</b>	means, in respect of a Calculation Day (t), the fifth Calculation Day immediately preceding Calculation Day (t).
<b>“Calculation Day (t-x)”</b>	means, in respect of a Calculation Day (t), the Calculation Day which is ‘x’ number of Calculation Days immediately preceding Calculation Day (t).
<b>“Calculation Day (t-x-5)”</b>	means, in respect of a Calculation Day (t), the Calculation Day which is ‘x+5’ number of Calculation Days immediately preceding Calculation Day (t).
<b>“Cash Factor”</b>	has the meaning set out in Step G5.
<b>“Cash Index”</b>	has the meaning set out in Section 3.

**“Cash Index Currency”**

has the meaning set out in Section 3.

**“Cash Index Disruption Day”**

means, in respect of a Calculation Day, the occurrence of the non-publication of the closing level of the Cash Index within the scheduled or usual timeframe for publication.

**“Cash Index Rules”**

means, in respect of the Cash Index, the rules and methodology of such index as updated and amended from time to time.

**“Cash Units”**

has the meaning set out in Step G2.

**“Change in Law”**

means, on or after the Index Live Date:

(A) in respect of a Constituent that is a Fund, (a) due to the adoption of or any change in any applicable law or regulation (including, without limitation, any (i) tax law or (ii) adoption or promulgation of new regulations authorised or mandated by existing statute), or (b) due to the promulgation of or any change, announcement or statement of the formal or informal interpretation by the any court, tribunal or regulatory authority with competent jurisdiction of any applicable law or regulation (including any action taken by a taxing authority), the Index Calculation Agent determines that (x) it has, or it will, within the next 15 calendar days, become illegal to hold, acquire or dispose of any Fund Shares of the relevant Fund, or (y) the value of the Fund Shares are or will be materially adversely affected or the rights and remedies of the Hypothetical Investor as a fund shareholder of the Fund are or will be materially adversely affected, or (z) the ability of a Fund to carry out its investment objective or comply with its investment guidelines or restrictions is or will be materially adversely affected, or (aa), any market participants that are brokers or financial intermediaries (individually or collectively) will incur a materially increased cost to hold, acquire, or dispose of (in whole or in part) any transaction or interest in or relating to a Fund (including, without limitation, due to any increase in tax liability, decrease in tax benefit or other adverse effect on its tax position); and

(B) in respect of a Constituent that is not a Fund, due to (i) the adoption of, or any change in, any applicable law, regulation, order or rule (including, without limitation, any tax law or adoption or promulgation of new regulations authorized or mandated by existing statute) or (ii) the promulgation of, or any change in, the announcement or statement of a formal or informal interpretation, application, exercise or operation by any court, tribunal or regulatory authority with competent jurisdiction of any applicable law, regulation, order or rule (including, without limitation, rules or regulations promulgated or implemented by the U.S. Commodity Futures Trading Commission, the U.S. Securities and Exchange Commission or any exchange or trading facility), the Index Calculation Agent determines that (x) it is contrary to such law, regulation, order or rule for any market participants that are brokers or financial intermediaries (individually or collectively) to hold, acquire or dispose of (in whole or in part) any financial asset, transaction or interest in or relating to the Index, any Constituent or any component of any Constituent or (y) holding a position in any financial asset, transaction or interest in or relating to the Index, any Constituent or any component of any Constituent is (or, but for the consequent disposal or termination thereof, would otherwise be) in

excess of any allowable position limit(s) applicable to any market participants that are brokers or financial intermediaries (individually or collectively) under any such law, regulation, order or rule.

### **“Closing Level”**

means,

- in respect of a Constituent (i) and a Calculation Day (t):
  - (a) if Calculation Day (t) is a Scheduled Trading Day (i), subject to adjustments in accordance with the terms set out in Section 10.3 above, (A) in respect of a Constituent that is a Fund, the NAV of such Fund, subject to adjustment in accordance with these Index Rules or (B) in respect of a Constituent that is not a Fund, the official closing level of Constituent (i) as of the Valuation Time on or in respect of Scheduled Trading Day (i) as calculated by the Constituent Sponsor (i) and published on the Constituent Bloomberg Ticker (i) (or otherwise provided to the Index Calculation Agent in a manner acceptable to the Index Calculation Agent) within the usual or scheduled time for publication; provided further that if the Constituent Sponsor (i) fails to calculate and publish a NAV or level (as applicable) on the Constituent Bloomberg Ticker (i) within the usual or scheduled time for publication and the Index Calculation Agent is reasonably aware that such non-publication is solely as a result of a technical issue which prevented the Constituent Sponsor (i) from doing so, the Closing Level will be either:
    - i. a NAV or level (as applicable) that is, within three London Business Days of Calculation Day (t), subsequently calculated and published by the Constituent Sponsor (i), or failing this,
    - ii. in respect of a Constituent that is not a Fund (but not in respect of a Constituent that is a Fund) a level (as applicable) determined by the Index Calculation Agent for such day in accordance with the most recent published methodology (if any) relating to the calculation and determination of Constituent (i); or
    - iii. in respect of a Constituent that is a Fund, a level in respect of the Disrupted Constituent(i) determined by the Index Calculation Agent for such day acting in good faith and in a commercially reasonable manner.
  - (b) if such Calculation Day (t) is not a Scheduled Trading Day (i), the Closing Level of Constituent (i) in respect of the immediately preceding Calculation Day which is a Scheduled Trading Day.
    - in respect of the Cash Index and a Calculation Day (t), the level published on the Bloomberg page for the Cash Index (set out in Section 3 in the definition of the Cash Index).

<b>“Constituent” or “Constituent (i)” or “Constituent (j)”</b>	means each Constituent set out in Table A and indexed “i” or “j” where applicable.
<b>“Constituent Bound”</b>	means, in respect of a Constituent (i), the Constituent Bound set out in Table A.
<b>“Constituent Bloomberg Ticker (i)”</b>	means, in respect of a Constituent (i), the Constituent Bloomberg Ticker set out in Table A.
<b>“Constituent Currency (i)”</b>	means, in respect of a Constituent (i), the Constituent Currency set out in Table A.
<b>“Constituent Disrupted Day” or “Constituent Disrupted Day (i)”</b>	has the meaning set out in Section 10.4.
<b>“Constituent Inclusion Date (i)”</b>	means, in respect of a Constituent (i), the Constituent Inclusion Date as set out in Table A.
<b>“Constituent Index Rules (i)”</b>	means, in respect of a Constituent (i) that is not a Fund, the rules and methodology of Constituent (i) as updated and amended from time to time by the Constituent Sponsor (i).
<b>“Constituent Lookback Return”</b>	has the meaning set out in Step A1.
<b>“Constituent Rebalancing Adjustment Factor (i)”</b>	means, in respect of a Constituent (i), the Constituent Rebalancing Adjustment Factor set out in Table A.
<b>“Constituent Running Adjustment Factor (i)”</b>	means, in respect of a Constituent (i), the Constituent Running Adjustment Factor set out in Table A.
<b>“Constituent Sponsor (i)”</b>	means, in respect of a Constituent (i), <ul style="list-style-type: none"> <li>(a) which is a Fund, the Constituent Sponsor set out in Table A or the Fund Service Provider responsible for publishing the NAV or any successor or assign.</li> <li>(b) otherwise, the Constituent Sponsor set out in Table A or any successor or assign.</li> </ul>
<b>Constituent Type</b>	Has the meaning set out in Table A.
<b>“Correlation”</b>	has the meaning set out in Step C3.
<b>“Correlation Cap”</b>	has the meaning set out in Section 3.
<b>“Correlation Lookback 3M”</b>	has the meaning set out in Section 3.
<b>“Correlation Lookback 6M”</b>	has the meaning set out in Section 3.
<b>“Correlation Lookback 12M”</b>	has the meaning set out in Section 3.
<b>“Covariance Matrices”</b>	has the meaning set out in Step C1.
<b>“CP Function”</b>	has the meaning set out in Step C6.
<b>“CVaR Bound Weights”</b>	has the meaning set out in Step E5.
<b>“CVaR Multiplier”</b>	has the meaning set out in Step E4.
<b>“CVaR Stress Start Date”</b>	has the meaning set out in Section 3.
<b>“CVXOPT”</b>	has the meaning set out in Section 3.
<b>“Data Provider/Source”</b>	has the meaning set out in Section 3.
<b>“Delayed Calculation Day(t)”</b>	means in respect of a Calculation Day (t) the Index Calculation Agent is not able to determine the Index Level in respect of such Calculation

	Day (t) within the usual or scheduled timeframe for determining such Index Level for any reason, including without limitation, a delay in obtaining the Closing Level of any Constituent (i) in respect of such Calculation Day(t).
<b>“Disrupted Day” or “Disrupted Day (i)”</b>	has the meaning set out in Section 10.1.
<b>“Disrupted Calculation Day”</b>	means a Calculation Day (t) which is a Disrupted Day for any Constituent with a Number of Units in respect of such Calculation Day (t) not equal to zero.
<b>“Disrupted Cut-off Day (i)”</b>	means, in respect of a Constituent (i), a Scheduled Trading Day (i) which is a Disrupted Day (i) and where each of the four immediately preceding Scheduled Trading Days (i) are also Disrupted Day (i).
<b>“Effective Risk Budget”</b>	has the meaning set out in Section B.
<b>“Effective Risk Budget Optimisation Input”</b>	has the meaning set out in Step C6.
<b>“Extraordinary Event”</b>	means any of the events set out in Section 11 or Section 12.
<b>“Final Weights”</b>	has the meaning set out in Step F2.
<b>“First Non-Disrupted Day (i)”</b>	means, in respect of a Constituent (i) and a Relevant Scheduled Trading Day (i), the first Scheduled Trading Day (i) immediately following the Relevant Scheduled Trading Day (i) that is not a Disrupted Day (i).
<b>“Fund”</b>	means each mutual fund, being a Constituent for the purpose of these Index Rules;
<b>“Fund Offering Documents”</b>	means such Fund's offering memorandum, prospectus or similar offering document and any supplements and addenda thereto, its constitutional documents, its subscription and redemption documents, as applicable.
<b>“Fund Merger Event”</b>	<p>means the occurrence of:</p> <p>(a) in respect of a Fund, any (i) reclassification or change of such Fund that results in a transfer of, or an irrevocable commitment to transfer, all of the Fund Shares of such Fund outstanding to another entity or person, (ii) consolidation, amalgamation, merger or binding share exchange of the Fund with or into another entity or person (other than a consolidation, amalgamation, merger or binding share exchange in which such Fund is the continuing entity and which does not result in a reclassification or change of all such Fund Shares outstanding), (iii) takeover offer, tender offer, exchange offer, solicitation, proposal or other event by any entity or person to purchase or otherwise obtain 100 per cent. of the outstanding Fund Shares of the Fund that results in a transfer of or an irrevocable commitment to transfer all such Fund Shares (other than such Fund Shares owned or controlled by such other entity or person), or (iv) consolidation, amalgamation, merger or binding share exchange of the Fund or its subsidiaries with or into another entity in which the Fund is the continuing entity and which does not result in a reclassification or change of all such Fund Shares outstanding but results in the outstanding Fund Shares (other than Fund Shares owned or controlled by such other entity) immediately prior to such</p>

event collectively representing less than 50 per cent. of the outstanding Fund Shares immediately following such event; and

(b) in respect of the Management Company of a Fund or any service provider to such Fund, any (i) reclassification or change of the shares of such entity that results in a transfer of or an irrevocable commitment to transfer all of the shares of such entity outstanding to another entity or person, (ii) consolidation, amalgamation, merger or binding share exchange of such entity with or into another entity or person (other than a consolidation, amalgamation, merger or binding share exchange in which such entity is the continuing entity and which does not result in a reclassification or change of all of the shares of such entity outstanding), (iii) other takeover offer, tender offer, exchange offer, solicitation, proposal or other event by any entity or person to purchase or otherwise obtain 100 per cent. of the outstanding shares of such entity that results in a transfer of or an irrevocable commitment to transfer all of such shares (other than the shares of such entity owned or controlled by such other entity or person), or (iv) consolidation, amalgamation, merger or binding share exchange of such entity or its subsidiaries with or into another entity in which such entity is the continuing entity and which does not result in a reclassification or change of all the shares of such entity outstanding but results in the outstanding shares of such entity (other than the shares owned or controlled by such other entity) immediately prior to such event collectively representing less than 50 per cent. of the outstanding shares of such entity immediately following such event.

**“Fund Service Provider”**

means each of the administrator, the custodian, the auditors, prime brokers or any entities providing services to a Fund.

**“Fund Shares”**

means the shares or units of a Fund.

**“Fund Shareholder”**

means a holder of a Fund Share of a Fund.

**“Fund Termination”**

means, in relation to a Fund, where the trust deed, partnership agreement, memorandum and articles of association, fund rules, or other similar or equivalent documents constituting such Fund (each, the **“Constitutional Documents”**) has been terminated or otherwise ceased to exist in accordance with the Constitutional Documents. For the avoidance of doubt, and without limiting the generality of the preceding sentence, the following events will constitute a Fund Termination:

- (a) cancellation of the Constitutional Documents by the Fund Manager or directors;
- (b) an order being made by any competent regulatory authority for cancellation or termination of such Fund; and/or
- (c) an order being made by any competent regulatory authority for (i) cancellation or suspension of the relevant licence of the Management Company required to manage such Fund; or (ii) the winding up of the Management Company.

**“FX Disrupted Day (i)”**

means, in respect of an FX Rate (i) and any day, the occurrence of:

- (a) the non-publication of the Relevant FX Rate (i) on the FX Price Source (i) at the scheduled or usual time of publication in respect of such day; and/or

	(b) any event that affects the convertibility of the Constituent Currency (i) into the Index Currency.
<b>"FX Fixing Time (i)"</b>	4 p.m. New York time.
<b>"FX Price Source (i)"</b>	Bloomberg Page BFIX or any successor or alternative source determined by the Index Calculation Agent.
<b>"FX Rate (i)"</b>	<p>(a) means in respect of a Constituent (i) and a Calculation Day (t):</p> <ul style="list-style-type: none"> <li>(i) in the event that the Index Currency and the Constituent Currency (i) are the same, the FX Rate (i) will equal 1; and</li> <li>(ii) otherwise, in respect of a Constituent (i) and a day, the exchange rate between the Index Currency and the Constituent Currency (i) expressed as a number of units of the Index Currency for one unit of the Constituent Currency (i) (the "Relevant FX Rate (i)") as determined by the Index Calculation Agent by reference to the FX Price Source (i) in respect of the FX Fixing Time (i) on such day; provided that if such day is an FX Disrupted Day (i), the Relevant FX Rate (i) shall be determined by the Index Calculation Agent in good faith and in a commercially reasonable manner taking into account such factors that it considers relevant (for example, but not limited to, the event giving rise to such day being an FX Disrupted Day (i)).</li> </ul> <p>(b) in respect of the Cash Index and a Calculation Day (t), the exchange rate between the Index Currency and the Cash Index Currency expressed as a number of units of the Index Currency for one unit of the Cash Index Currency (the "Relevant FX Rate (i)") as determined by the Index Calculation Agent by reference to the FX Price Source (i) in respect of the FX Fixing Time (i) on such day; provided that if such day is an FX Disrupted Day (i), the Relevant FX Rate (i) shall be determined by the Index Calculation Agent in good faith and in a commercially reasonable manner taking into account such factors that it considers relevant (for example, but not limited to, the event giving rise to such day being an FX Disrupted Day (i)).</p>
<b>"Hypothetical Investor"</b>	means a hypothetical investor comparable to a sophisticated international financial institution, and incorporated in the jurisdiction of the Index Sponsor, having exposure to an investment in the Fund Shares of any Fund.
<b>"Index"</b>	has the meaning set out in Section 1.
<b>"Index Base Date"</b>	has the meaning set out in Section 3.
<b>"Index Bloomberg Ticker"</b>	has the meaning set out in Section 3.
<b>"Index Calculation Agent"</b>	has the meaning set out in Section 7.1.
<b>"Index Currency"</b>	has the meaning set out in Section 3.
<b>"Index Level"</b>	has the meaning set out in Step G5.
<b>"Index Live Date"</b>	has the meaning set out in Section 3.
<b>"Index Publication Day"</b>	has the meaning set out in Section 3.
<b>"Index Rules"</b>	has the meaning set out in Section 1.

<b>"Index Running Adjustment Factor"</b>	has the meaning set out in Section 3.
<b>"Index Scheduled Trading Day"</b>	has the meaning set out in Section 3.
<b>"Index Sponsor"</b>	has the meaning set out in Section 7.1.
<b>"Index Synthetic Decrement Factor"</b>	has the meaning set out in Section 3.
<b>"Initial Index Level"</b>	has the meaning set out in Section 3.
<b>"Index Volatility Target"</b>	has the meaning set out in Section 3.
<b>"Insolvency"</b>	means, in respect of any relevant entity, that the relevant entity (a) is dissolved (other than pursuant to a consolidation, amalgamation or merger); (b) becomes insolvent or is unable to pay its debts or fails or admits in writing its inability generally to pay its debts as they become due; (c) makes a general assignment, arrangement or composition with or for the benefit of its creditors; (d)(i) institutes or has instituted against it, by a regulator, court, administrator, supervisor, government body or any similar official with primary insolvency, rehabilitative, legal or regulatory jurisdiction over it in the jurisdiction of its incorporation or organisation of its head or home office, a proceeding seeking a judgment of insolvency or bankruptcy or any other relief under any bankruptcy or insolvency law or other similar law affecting creditors' rights, or a petition is presented for its winding-up or liquidation by it or such regulator, court, administrator, supervisor, government body or similar official, or (ii) has instituted against it a proceeding seeking judgment of insolvency or bankruptcy or any other relief under any bankruptcy or insolvency law or other similar law affecting creditors' rights, or a petition is presented for its winding-up or liquidation, and such proceeding or petition is instituted or presented by a person or entity not described in (i) above and either (A) results in a judgement or insolvency or bankruptcy or the entry of an order for relief or the making of an order for its winding-up or liquidation or (B) is not dismissed, discharged, stayed or restrained in each case with 15 calendar days of the institution or presentation thereof; (e) has a resolution passed for its winding-up, official management or liquidation (other than pursuant to a consolidation, amalgamation or merger); (f) seeks or becomes subject to the appointment of an administrator, provisional liquidator, conservator, receiver, trustee, custodian or other similar official for it or for all or substantially all of its assets; (g) has a secured party take possession of all or substantially all of its assets or has a distress, execution, attachment, sequestration or other legal process levied, enforced or sued on or against all or substantially all its assets and such secured party maintains possession, or any such process is not dismissed, discharged, stayed or restrained, in each case within 15 calendar days thereafter; (h) causes or is subject to any event with respect to it which, under the applicable laws of any jurisdiction, has an analogous effect to any of the events specified in (a) to (g) above; or (i) takes any action in furtherance of, or indicating its consent to, approval of, or acquiescence in, any of the forgoing acts.
<b>"Leverage Cap"</b>	has the meaning set out in Section 3.
<b>"Leverage Limit Divisor"</b>	has the meaning set out in Step E6.
<b>"Lock-in-Events"</b>	means each of the following:

**(a) Global Events:**

**(i) Modification of Fund Offering Documents:** the Index Calculation Agent determines that the Fund Offering Documents of a Fund have been amended, supplemented or otherwise modified since the Index Live Date, in a way that the Index Calculation Agent determines would adversely affect a Hypothetical Investor as a holder of interest in such a Fund, including without limitation and by way of example only, to change the strategy or investment objective of such Fund or any investment guidelines or restrictions, the currency in which the Fund Shares of such Fund are denominated;

**(ii) Disputes:** the Index Calculation Agent determines that a Fund, the Management Company of a Fund or any of the Fund Service Providers of a Fund become party to any litigation or dispute, which in the reasonable commercial determination of the Index Calculation Agent, could materially impact the performance of the Fund;

**(b) Net Asset Value and Performance:**

**(i) Failure to Calculate NAV:** the Index Calculation Agent determines a Fund or any applicable Fund Service Provider of a Fund fails to calculate and announce and/or publish the NAV per Fund Share on the date in respect of which such value is scheduled to be published according to the Fund Offering Documents of such Fund, and such breach is not cured within 8 London Business Days' to the satisfaction of the Index Calculation Agent (provided that, if such breach occurs on five consecutive occasions, the cure period specified above shall not apply in respect of any fifth or subsequent breach), or any changes are made to the frequency with which, or the dates on which, the NAV per Fund Share is calculated, as set out in the Fund Offering Documents of such Fund on the Index Live Date, and which the Index Calculation Agent determines that such change will have a material effect on a Hypothetical Investor as a holder of interest in such a Fund;

**(ii) Audited NAV:** in respect of a Fund, the Index Calculation Agent determines that any audited NAV per Fund Share of such Fund is different from the NAV per Fund Share of such Fund previously announced and/or published by such Fund or any Fund Service Provider of such Fund, or such Fund's auditors qualify or refuse to provide an unqualified report in respect of such Fund or any NAV per Fund Share of such Fund;

**(iii) Assets under Management:** the Index Calculation Agent determines that a Fund's assets under management have declined by a percentage equal to or greater than the 50 per cent over the preceding three months;

**(iv) Performance and Risk Measurements:** the annualised historical volatility of a Fund over the preceding 30 days, using the historical NAV per Fund Share figures that are available for the preceding 30 days, is greater than 30%, as determined by the Index Calculation Agent;

**(c) Trading:**

**(i) Mandatory Redemption:** the Index Calculation Agent determines that the Hypothetical Investor would be required, or that it would be appropriate for the Hypothetical Investor, for any reason whatsoever including without limitation, regulatory reasons or any mandatory redemption imposed by a Fund, to redeem any Fund Shares it may hold;

**(ii) Material Change in Index:** (I) a material change is made to (x) the risk profile, (y) the investment objective or (z) the investment restrictions, of a Fund in place as at the Index Live Date, or (II) the Index Calculation Agent is not satisfied that a Fund is being managed in accordance with its rules or in accordance with the description of the Fund's (x) risk profile, (y) investment objective or (z) investment restrictions, of such Fund as set out in its Fund Offering Documents in place as at the Index Live Date;

**(iii) Notification from Manager:** if written notification (or other indication or acknowledgement) by the Management Company to Fund Shareholders or to the administrator of a Fund that, in its opinion, (I) it is not advisable to continue operation of such Fund because it is not economically prudent to do so, (II) the risk profile, strategy or investment objective of a Fund will not, or can no longer, be met in the foreseeable future or (II) liquidation, dissolution or discontinuance of such Fund is recommended;

**(iv) Suspension on Trading:** (I) Any suspension of, or limitation is imposed on, trading of a Fund (by reason of liquidity restrictions or otherwise), or (II) any limitation or other event which prevents the timely payment of redemption proceeds in cash to any investor (as specified in the Fund Offering Documents in place as at the Index Live Date), or (III) any dealing request made by any investor or prospective investor in such Fund is deferred in whole or in part;

**(v) Increase in Fees:** the Index Calculation Agent determines that (I) a Fund, its Management Company or any Fund Service Provider has amended the management and/or incentive fee (or any other analogous fee) payable to the Management Company and/or any Fund Service Provider, as applicable, or (II) there is an increase in fees payable by the Hypothetical in respect of a purchase, sale or holding in the Fund Shares of such Fund, or any dealing in the Fund Shares of such Fund or otherwise investing in such Fund Shares, from that in place as at the Index Live Date;

**(d) Operational failures:**

**(i) Change in Manager and/or Service Providers:** the Index Calculation Agent determines that the Management Company of a Fund or any Fund Service Provider of a Fund (I) resigns, has its appointment terminated or is otherwise replaced, (II) the Fund or any of the relevant Fund Service Provider has experienced or is experiencing or will experience a material adverse change in its business, assets, operations or financial condition, (III) has breached any term of any contract between such Fund and its Management Company or any of its Fund Service Provider (as applicable), or (IV) that any contract between a Fund and its Management Company or any of its Fund Service Provider (as applicable) terminates or is otherwise not renewed or replaced, and further determines, in its

reasonable commercial discretion, that such occurrence could have an adverse economic impact (x) on the Fund or (y) on a Hypothetical investor as a holder of an interest in such Fund;

**(ii) Operational Failures:** the Index Calculation Agent determines that the operation or organisation of a Fund, the Management Company of a Fund, or any applicable Fund Service Provider of a Fund (including, without limitation, its organisational structure and its procedures, processes or policies in respect of investment selection, due diligence, asset allocation, risk management or investment monitoring) has changed from that as at the Index Live Date, or that any such procedures, processes or policies are either not being applied or are not being applied consistently with their application on the Index Live Date, where such change has, in the determination of the Index Calculation Agent, a material effect and such changes are not rectified to the satisfaction of the Index Calculation Agent within five London Business Days;

**(iii) Reporting Failures:** there occurs any failure of a Fund, the Management Company of a Fund or any Fund Service Provider of a Fund to deliver or cause to be delivered to the Hypothetical Investor any information (I) that it is normal practice to deliver or (II) which the Index Calculation Agent deems necessary for any determinations, including but not be limited to, determinations in respect of the occurrence of any Extraordinary Event, cause to be delivered to any Fund Shareholder or the Hypothetical Investor on or before the time specified in the Fund Offering Documents of such Fund, and such breach is not cured within five London Business Days or, if none, within a reasonable time, as determined by the Index Calculation Agent;

**(e) Regulatory and legal constraints:**

**(i) Regulatory Action:** the Index Calculation Agent determines that the activities of a Fund, the Management Company of a Fund or any Fund Service Provider of a Fund and/or any of their respective directors, officers, employees or agents are placed under review or investigation by any governmental, legal, administrative or regulatory authority or court of competent jurisdiction and/or are subject to any charges or actions by any governmental, legal, administrative or regulatory authority for reasons of wrongdoing, suspected wrongdoing, breach (or suspected breach) of any applicable law, rule or regulation or other similar reason and/or a Fund, the Management Company of a Fund or any Fund Service Provider of a Fund and/or any of their respective directors, officers, employees or agents have any of their respective registrations, authorisations, licences or memberships with any governmental, legal, administrative or regulatory authorities revoked, suspended, terminated, limited or qualified in any way;

**(ii) Regulatory Constraints:** the Index Calculation Agent determines that the Hypothetical Investor is or may in the future be unable, or that it is or may become impractical or difficult for the Hypothetical Investor to perform any obligation imposed on the Hypothetical Investor by any law, rule, regulation or interpretation thereof by any governmental, regulatory or administrative body or authority or court or stock exchange, in each case of competent

	authority including, without limitation and by way of example only, any reporting or accounting obligation, due to its investment in the Fund Shares of a Fund (I) would be obliged (whether by the Management Company or otherwise) or (II) deems it necessary or appropriate in order to comply with or remain compliant within any applicable legal and/or regulatory limits on the amount of Fund Shares of such Fund that it may hold, to redeem all or some of the Fund Shares of such Fund that it is holding.
<b>"London Business Day"</b>	a day (other than a Saturday or Sunday) on which commercial banks are generally open for business in London.
<b>"Management Company"</b>	means, in respect of a Fund, such entity or entities as the Index Calculation Agent may determine is for the time being the duly appointed manager of such Fund (and/or any entity or entities to whom such entity or entities may delegate any of its duties, rights, obligations or liabilities in respect of such Fund), or such other entity.
<b>"Market Disruption Event" or "Market Disruption Event (i)"</b>	has the meaning set out in Section 10.2.
<b>"Momentum Lookback"</b>	has the meaning set out in Section 3.
<b>"Momentum Signal"</b>	has the meaning set out in Step A2.
<b>"Nationalisation"</b>	means, in respect of a Fund, that all the Fund Shares of such Fund or all or substantially all the assets of the Fund are nationalised, expropriated or are otherwise required to be transferred to any governmental agency, authority, entity or instrumentality thereof.
<b>"NAV"</b>	means, in respect of the Fund Shares of a Fund and on any relevant day, the net asset value (or, if applicable, the estimated or provisional net asset value) per such Fund Share in respect of such day (or, if such day is not a Scheduled Trading Day, the most recent Scheduled Trading Day), as calculated and published (or, if not published, as notified) to the fund shareholder of such Fund by the relevant Management Company.
<b>"Non-Disrupted Calculation Day"</b>	means a Calculation Day that is not a Disrupted Calculation Day.
<b>"Number of Units"</b>	has the meaning set out in Step G1.
<b>"Omitted Constituents"</b>	has the meaning set out in Step C6.
<b>"Optimised Weights"</b>	has the meaning set out in Step C6.
<b>"Optimiser"</b>	has the meaning set out in Section 3.
<b>"Portfolio Stress Percentile Rank"</b>	has the meaning set out in Step E3.
<b>"Preliminary Weights"</b>	has the meaning set out in Step D4.
<b>"Product"</b>	means any security, transaction, fund, structured deposit or other financial product or investment that references the Index.
<b>"Published Closing Level (i)"</b>	means, in respect of a Constituent (i) and a Scheduled Trading Day (i), the NAV or official closing level (as applicable) of Constituent (i) as of the Valuation Time on or in respect of Scheduled Trading Day (i) as calculated by the Constituent Sponsor (i) and published on the Constituent Bloomberg Ticker (i) (or otherwise provided to the Index Calculation Agent in a manner acceptable to the Index Calculation Agent) within the usual or scheduled time for publication; provided that if (x) the NAV or level (as applicable) of Constituent (i) is not

	published in respect of a Scheduled Trading Day (i) within the usual or scheduled time for publication or (y) it is a Market Disruption Event (i) as defined in Section 10.2, the Published Closing Level in respect of Constituent (i), for the purposes of any algorithms or formulae set out in Section 5, shall be the Published Closing Level in respect of such Constituent (i) on the immediately preceding Scheduled Trading Day (i).
<b>“Rebalance Day”</b>	has the meaning set out in Step F1.
<b>“Rebalancing Adjustment Factor”</b>	has the meaning set out in Step G2.
<b>“Rebalancing Averaging Constant”</b>	has the meaning set out in Section 3.
<b>“Relevant FX Rate (i)”</b>	has the meaning set out in the definition of “FX Rate (i)” in this Section 15.
<b>“Relevant Person”</b>	means each of the Index Sponsor, the Index Calculation Agent and each of their respective affiliates and subsidiaries and their respective directors, officers, employees, representatives, delegates and agents.
<b>“Relevant Underlying Indices Rules”</b>	means <ul style="list-style-type: none"> <li>(a) the Cash Index Rules; and</li> <li>(b) the Constituent Index Rules (i) in respect of each Constituent (i) comprised in the Index.</li> </ul>
<b>“Relevant Volatility Target”</b>	has the meaning set out in Step D3.
<b>“Remaining Constituents”</b>	has the meaning set out in Step C6.
<b>“Risk Budget (i)”</b>	means, in respect of a Constituent (i), the Risk Budget set out in Table A.
<b>“Running Adjustment Factor”</b>	has the meaning set out in Step G4.
<b>“Scaled Optimised Weights”</b>	has the meaning set out in Step C7.
<b>“Scaled Optimised Weights Volatility”</b>	has the meaning set out in Step D1.
<b>“Scheduled Rebalance Day”</b>	has the meaning set out in Section 3.
<b>“Scheduled Trading Day” or “Scheduled Trading Day (i)”</b>	has the meaning set out in Section 10.4.
<b>“Step”</b>	means the relevant Step set out in Section 5.
<b>“Simulated Portfolio CVaR”</b>	has the meaning set out in Step E3.
<b>“Simulated Portfolio Return”</b>	has the meaning set out in Step E3.
<b>“Simulated Portfolio Historical Returns”</b>	has the meaning set out in Step E3.
<b>“Stress Percentile Threshold”</b>	has the meaning set out in Section 3.
<b>“Stressed Simulated Portfolio Historical Returns”</b>	has the meaning set out in Step E3.
<b>“Table”</b>	means the relevant Table set out in Section 3.
<b>“Temporary Optimiser Failure”</b>	has the meaning set out in Step C6.
<b>“Timeseries Start Date (i)”</b>	means, in respect of a Constituent (i), the Timeseries Start Date as set out in Table A.

<b>“Volatility Target”</b>	has the meaning set out in Step D2.
<b>“Valuation Time”</b>	has the meaning set out in Section 10.4.
<b>“Variance”</b>	has the meaning set out in Step C2.
<b>“Weekly CVaR Threshold”</b>	has the meaning set out in Section 3.
<b>“Weekly Constituent Return”</b>	has the meaning set out in Step E3.

## **16 Versions of the Index Rules and Index Adjustments**

Any amendment or adjustment to the Index Rules and the effective date of any such amendment or adjustment may but does not have to be reflected in a revised version of the Index Rules. Copies of the latest issue of the Index Rules and/or details of relevant adjustments (where not reflected in a revised version of the Index Rules) are available as specified in Section 6.1 above.

<b>Version</b>	<b>Date</b>	<b>Amendment</b>
1.0	24 February 2021	Not Applicable (First Release)

## ANNEX D

The Offering Circular dated 22 April 2021 has been supplemented by the following Supplement(s):

<b>Supplement(s)</b>	<b>Description</b>	<b>Date</b>
Supplement No. 1	In respect of (i) the Quarterly Report on Form 10-Q of JPMorgan Chase & Co. for the quarter ended 31 March 2021, (ii) Supplement No. 1 dated 19 May 2021 to the Registration Document dated 21 April 2021 of JPMorgan Chase & Co. and (iii) Supplement No. 1 dated 19 May 2021 to the Registration Document dated 21 April 2021 of JPMorgan Chase Bank, N.A.	20 May 2021
Supplement No. 2	In respect of (i) the JPMorgan Chase & Co. 13 July 2021 Form 8-K, (ii) Supplement No. 1 dated 26 July 2021 to the Registration Document dated 21 April 2021 of J.P. Morgan Structured Products B.V. and (iii) amendments to the sections entitled "Risk Factors" and "Fund Linked Provisions"	27 July 2021
Supplement No. 3	In respect of (i) the Quarterly Report on Form 10-Q of JPMorgan Chase & Co. for the quarter ended 30 June 2021, (ii) the unaudited interim financial statements of JPMorgan Chase Bank, N.A. for the six months ended 30 June 2021, (iii) Supplement No. 3 dated 18 August 2021 to the Registration Document dated 21 April 2021 of JPMorgan Chase & Co. and (iv) Supplement No. 3 dated 18 August 2021 to the Registration Document dated 21 April 2021 of JPMorgan Chase Bank, N.A.	19 August 2021