



# Commodity Model Portfolio

December  
2020

**MARKETING MATERIAL – THIS IS NOT INVESTMENT RESEARCH AND IS INTENDED FOR ELIGIBLE COUNTERPARTIES AND PROFESSIONAL CLIENTS ONLY**

**WisdomTree.com** ■ **+44 (0) 207 448 4330**



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FOR PROFESSIONAL CLIENTS ONLY.

# About WisdomTree



# WisdomTree Company Overview

## Who We Are

WisdomTree is a global asset manager with a track record of innovation, competitive performance and thought leadership since 2006. WisdomTree is headquartered in New York and has over 200 employees globally.

## Investment Philosophy & Approach

Our belief that a fundamentally weighted approach can produce attractive returns with less risk and expense than active management made us a pioneer in factor-based investing.

## WisdomTree Solutions

WisdomTree manages \$66.9 billion across innovative solutions that are designed to meet investors' needs across asset classes and market cycles.

## What We Can Deliver

Our investment strategies are delivered through exchange traded products (ETPs) which can provide intra-day liquidity, transparency, and tax efficiency. ETPs can be designed to track the returns of many different financial instruments, and they trade on exchanges to allow investors to meet their needs of trading flexibility.

### WisdomTree Asset Management, Inc.

- Headquartered in New York City

### Mexico & South America Presence

- Dedicated Employee with support from Compass Group

### WisdomTree UK Ltd

- London Office

### WisdomTree Ireland Ltd

- Dublin Office
- Milan Office

### Israel Presence

- Dedicated Independent Contractor

All data as of 21/12/2020. <sup>1</sup>WisdomTree Investments, Inc., through its subsidiaries in the U.S. and Europe (collectively "WisdomTree").



# WisdomTree in Europe

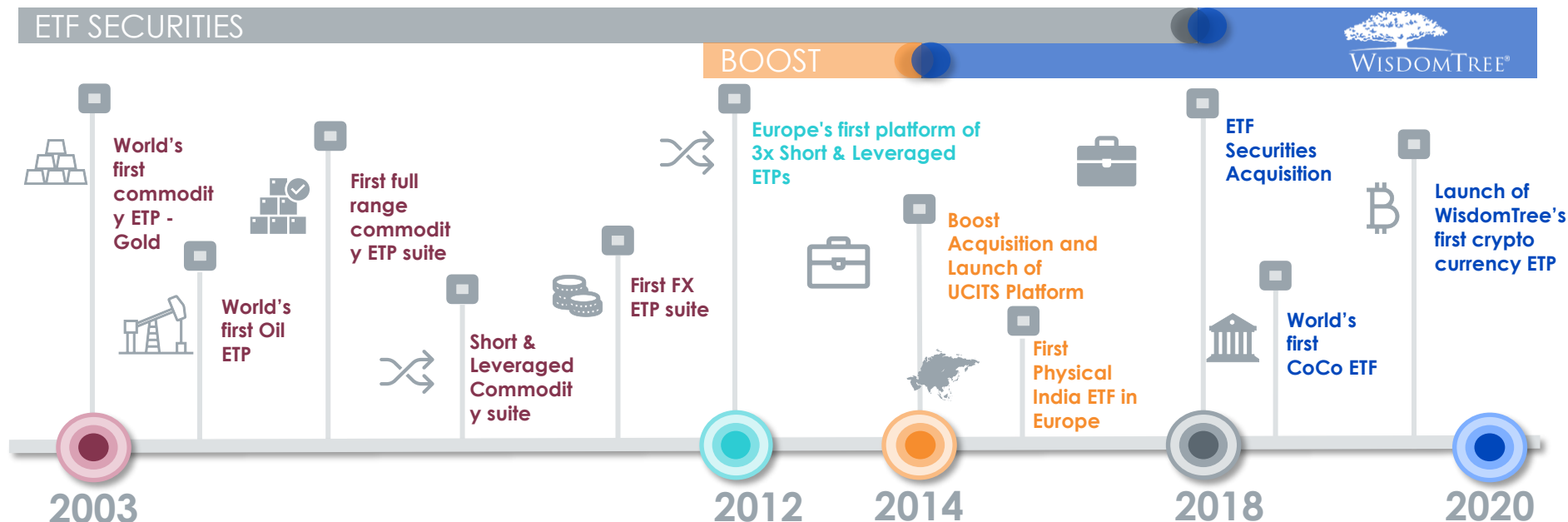
**Founded in 2006** in the US with a passion for creating better ways to invest WisdomTree was the **first investment manager to weight by dividends**. Since then, our European business has grown in terms of our product set and Assets under management (AUM).

We did this initially through the **acquisition of Boost**, who were **the first European platform to solely offer 3x leveraged and inverse ETPs**.

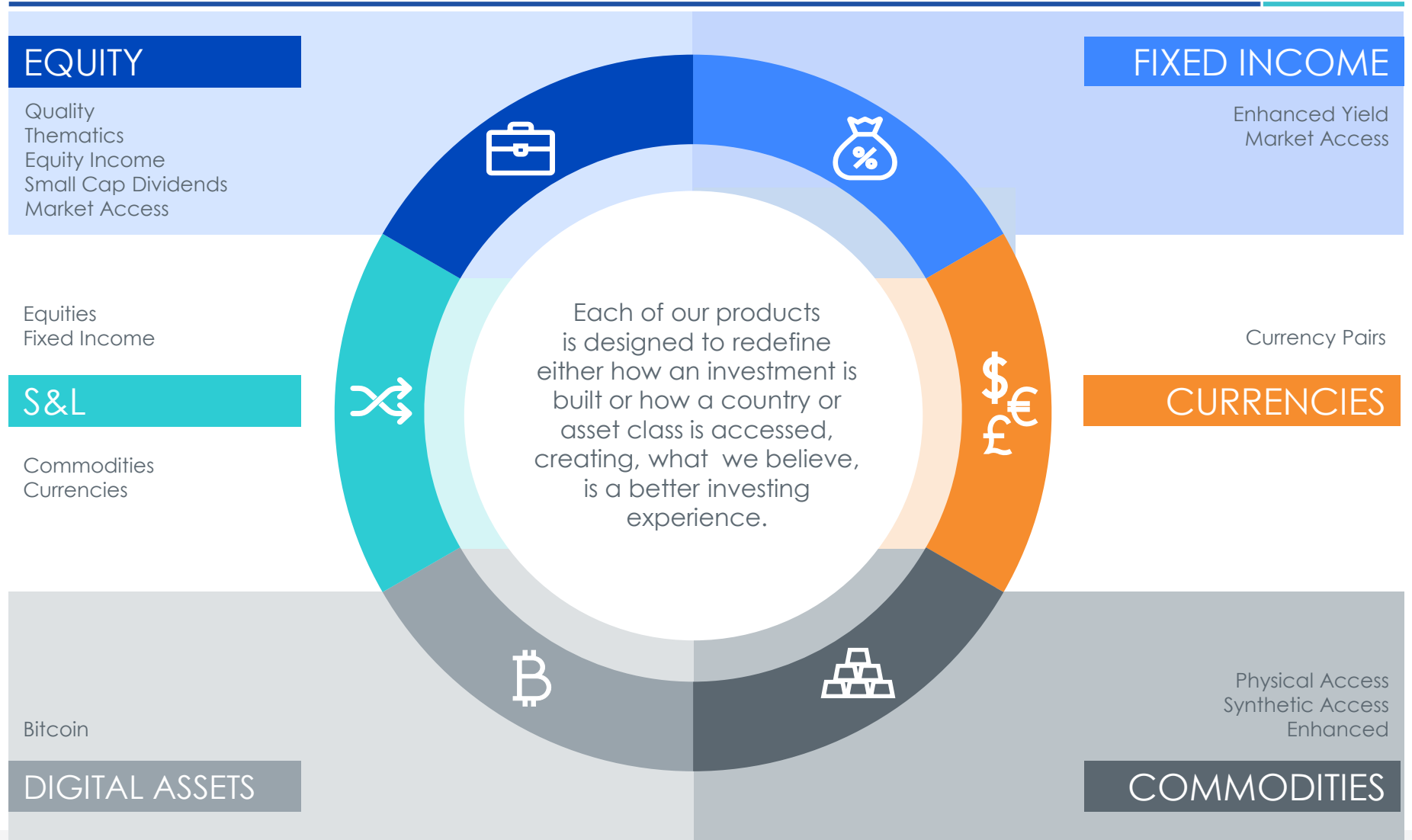
In April 2018, we completed the **acquisition of ETF Securities' exchange-traded commodities, currencies and short-and-leveraged business**, including the world's first gold ETP.

In September 2019, we **unified 224 products under the WisdomTree brand and closed 192** duplicative or extraneous products across our product set.

## ETF SECURITIES



# Thoughtful exposures across all asset classes



S&L – short and leveraged

# WisdomTree Enhanced Broad Commodities



# WisdomTree Enhanced Broad Commodities

A diversified strategic approach which enhances the risk-return profile

## Broad commodities basket

Investors get a **well-diversified basket of 23 commodities** across precious metals, industrial metals, energy and agricultural commodities

## Enhanced risk-return profile

Optimising commodity carry can **enhance returns** from an improved roll yield and **reduce risk**

## Strategic exposure to commodities

The approach generates alpha over the long-term and is therefore a suitable **core commodity** option

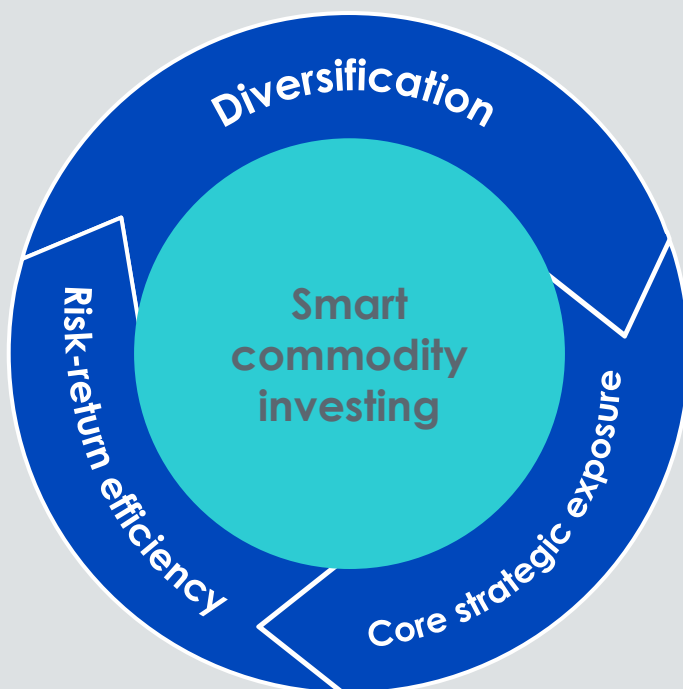
Source: WisdomTree. **Historical performance is not an indication of future performance and any investments may go down in value.**



# Investment Philosophy

## A smart approach to investing in commodities can generate long-term alpha

A smart approach can enhance the risk-return profile



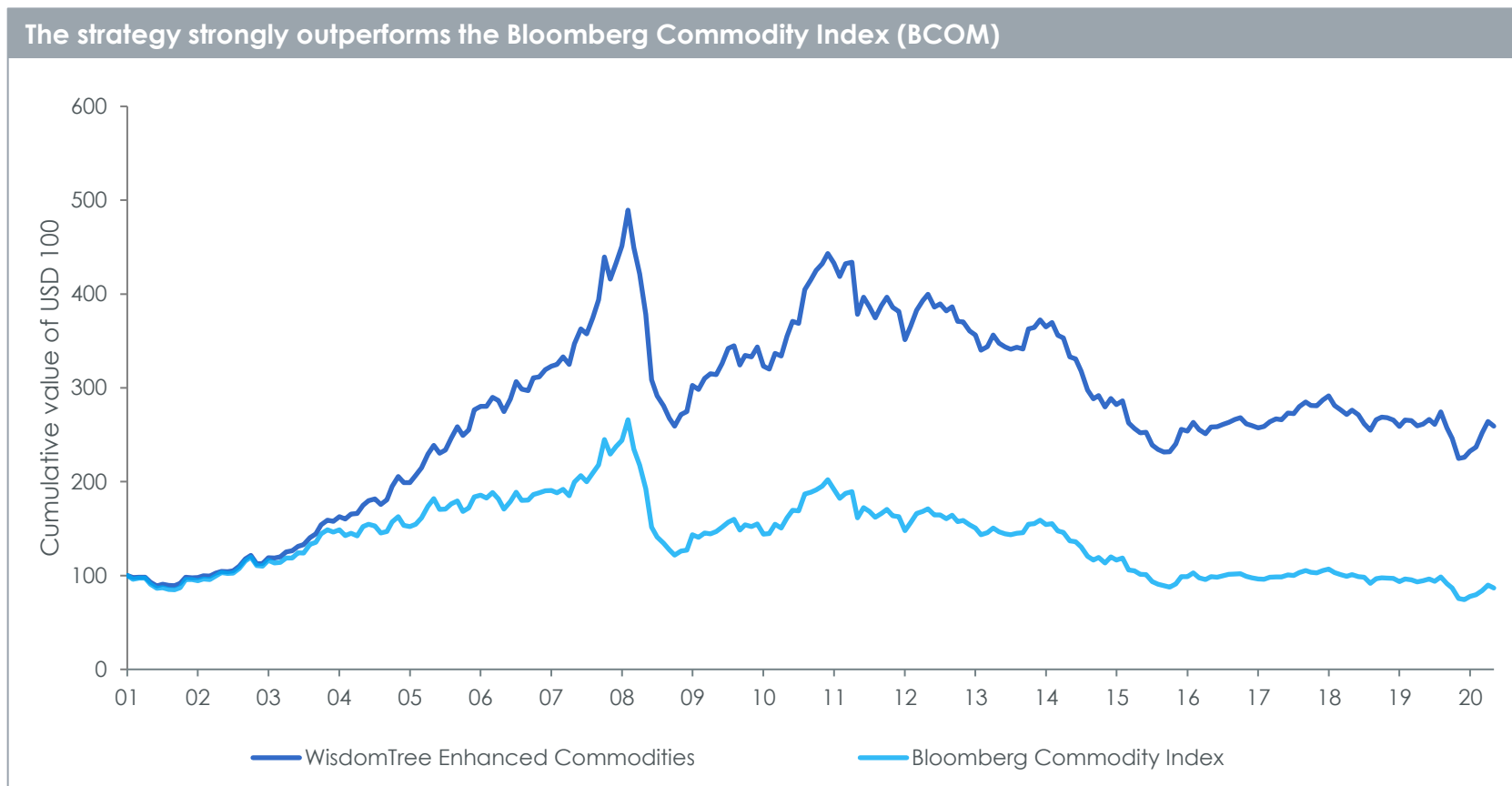
### Smart way to invest in commodities

- + **Diversity:** We use Bloomberg Commodity Index (BCOM) weights spread across 23 commodities
- + **Enhanced returns:** The strategy maximises the carry (roll yield) by investing in the most optimal contract on the futures curve (most backwardated or least contangoed contract)
- + **Structural risk reduction:** Contracts further along the futures curve typically have lower risk compared to front month contracts
- + **Maximise curve potential:** The set of investible contracts includes very long tenors as long as they are liquid
- + **Systematic and transparent:** Clearly explained rules-based investment methodology

Source: WisdomTree. Historical performance is not an indication of future performance and any investments may go down in value.



# Our enhanced approach has added value historically



Sources: WisdomTree, Bloomberg. Data from 31/05/01 to 30/09/20 and based on monthly returns. **WisdomTree Enhanced Commodities** refers to the Optimised Roll Commodity Total Return Index which started its live calculation on 30/07/13 and is the underlying index for the strategy. Calculations are based on total return indices and **include backtested data. Historical performance is not an indication of future performance and any investments may go down in value.**

# The strategy aims to provide an efficient access to commodities

## Commodity futures investors can enhance roll returns

$$\text{Total Return} = \text{Spot Return} + \text{Roll Return} + \text{Collateral Yield}$$

(Return associated with spot price of commodity)

(Return from maintaining futures exposure by rolling positions from one contract to another)

(Return from collateral used to guarantee futures position)



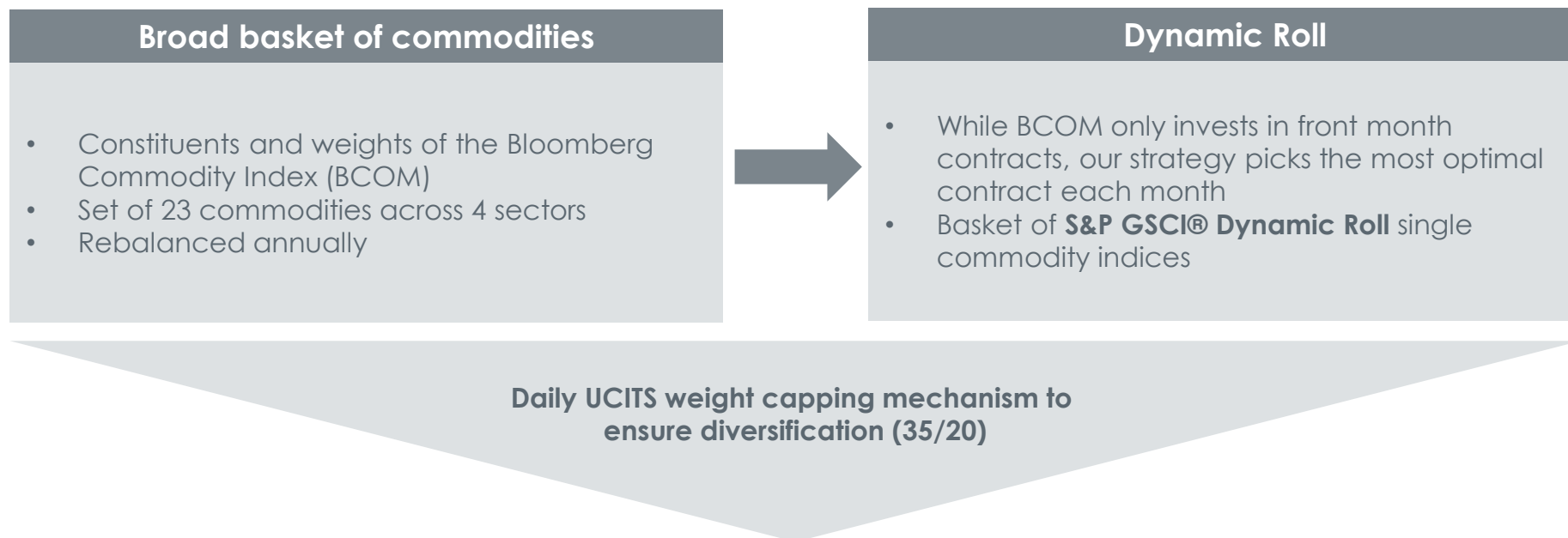
*Each month, the strategy invests in the most optimal futures contract which aims to maximise the roll return. This is referred to as the **dynamic roll methodology***

Source: WisdomTree. Historical performance is not an indication of future performance and any investments may go down in value.



# A robust Investment Process

## A dynamic approach to holding a diversified set of commodities



### Systematic and Transparent Portfolio

focusing on:

1. Diversity

2. Enhanced returns

3. Systematic risk reduction

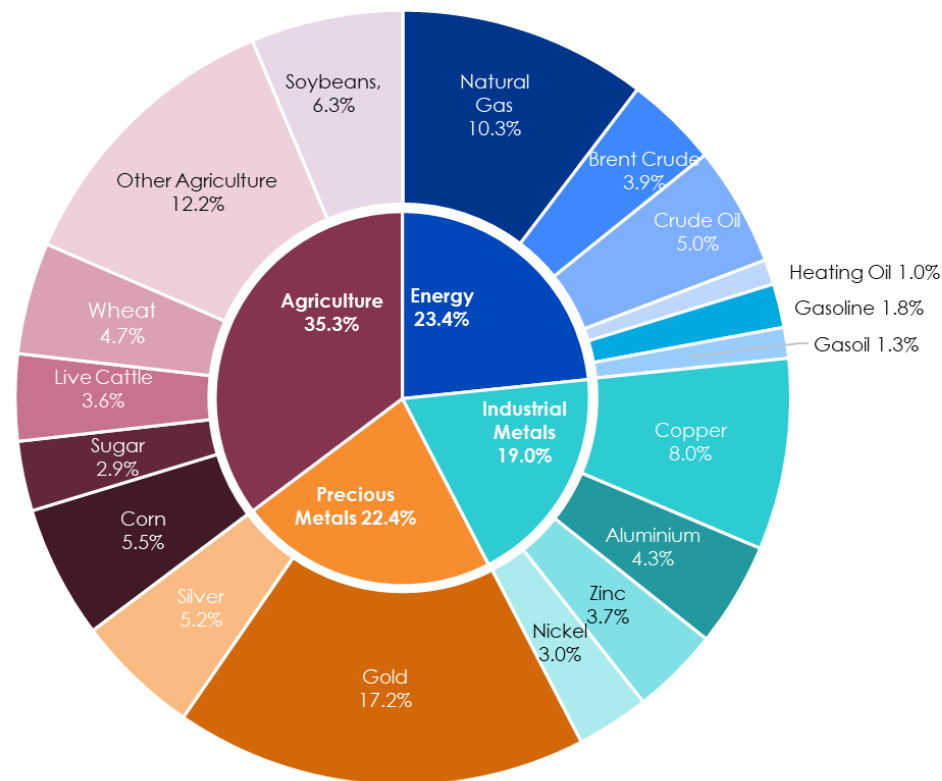
Source: WisdomTree. Under UCITS weight capping, only of 18 components can reach 35% and all remaining components are capped at 20%. The 23 commodities are divided into 18 components. Gold, Silver, Soybean Meal and Soybean Oil do not follow the Dynamic Roll methodology. **Dynamic Roll** refers to the S&P GSCI® Dynamic Roll approach.

# The strategy invests in a diversified set of commodities

## The strategy adopts the composition of the BCOM Index

- + WisdomTree Enhanced Commodities strategy tracks the Optimised Roll Commodity Total Return Index (EBCIWTT).
- + The index follows the constituents and weights of the Bloomberg Commodity Index (BCOM). BCOM's exposures are built on the following principles:

1. **Liquidity**
2. **Economic significance**
3. **Diversification**
4. **Continuity**



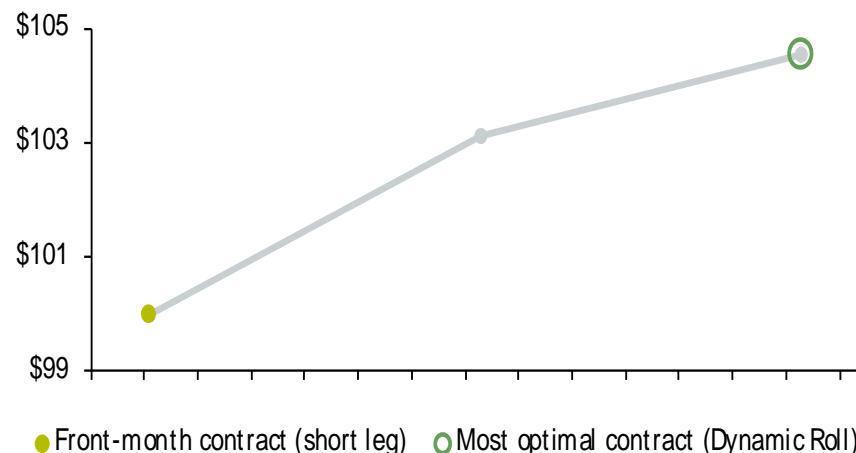
Sources: BNP, Bloomberg, WisdomTree. Data as of 30/09/20.

\*Other agriculture represents Soybean Meal, Lean hogs, Coffee, Cotton, Red Wheat and Soybean Oil

# Dynamic Roll minimises negative carry in contango markets

- + Contango is the usual shape of a forward curve in a normal supply-demand balance environment
- + **Around two-thirds of the commodity investment universe exhibits contango**
- + Traditional commodity indices generally use the nearest-dated contract to gain exposure to a commodity, **typically resulting in highly negative carry when a forward curve is in contango**
- + However, being **positioned further along the curve when in contango (and concave)** results in lower carry costs
- + **In contango, deferred vs front-month: positive carry differential**

## Positioning in Contango: deferred positioning

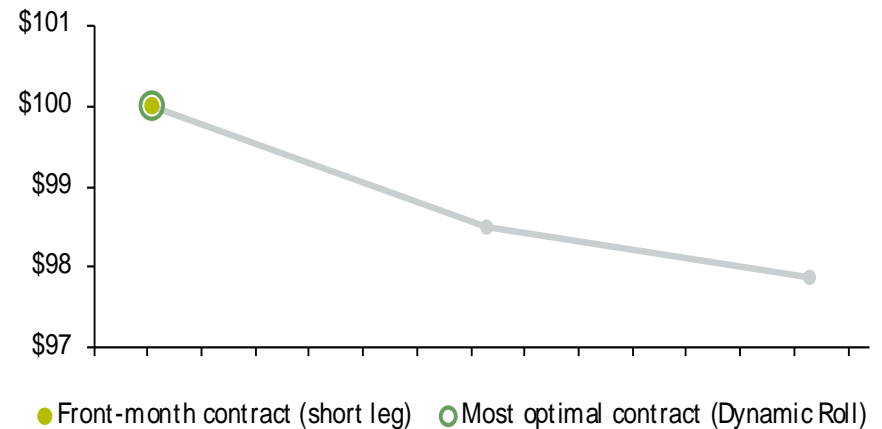


Source: WisdomTree. **Dynamic Roll** refers to the S&P GSCI® Dynamic Roll approach.

# Dynamic Roll maximises positive carry in backwardated markets

- + For a backwardated forward curve, **carry is positive, and higher on the front-month**
- + Being positioned closer to the **front-end of a forward curve will capture higher positive carry**
- + Importance of having a **dynamic contract selection approach for not losing in backwardation vs. front-month strategies**

## Positioning in Backwardation: front month positioning

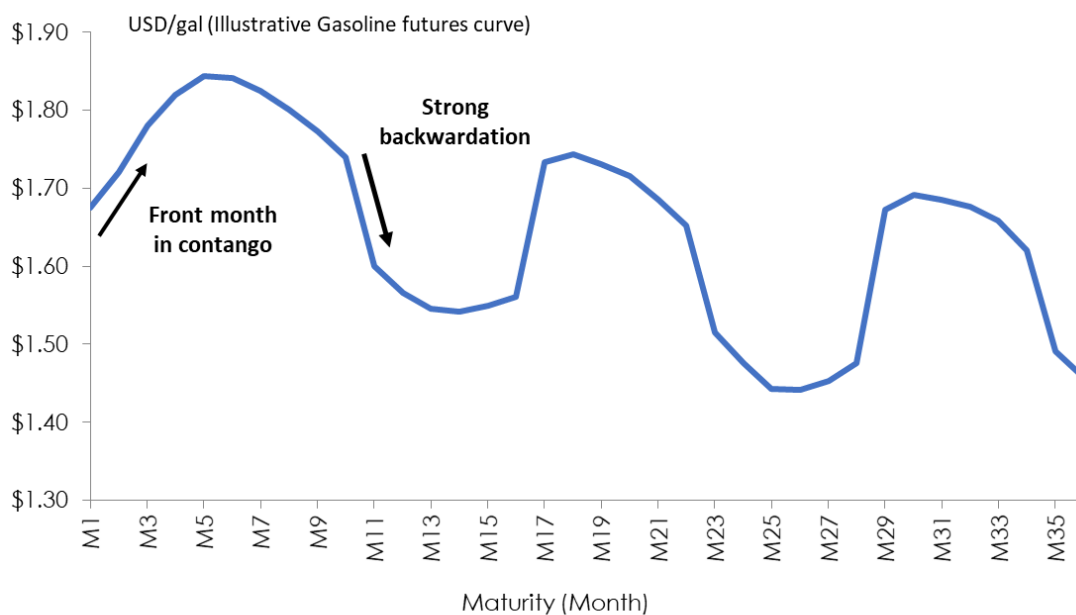


Source: WisdomTree. **Dynamic Roll** refers to the S&P GSCI® Dynamic Roll approach.

# Dynamic Roll maximises positive carry for cyclical curves

## Considering longer tenors helps select contracts with the strongest carry

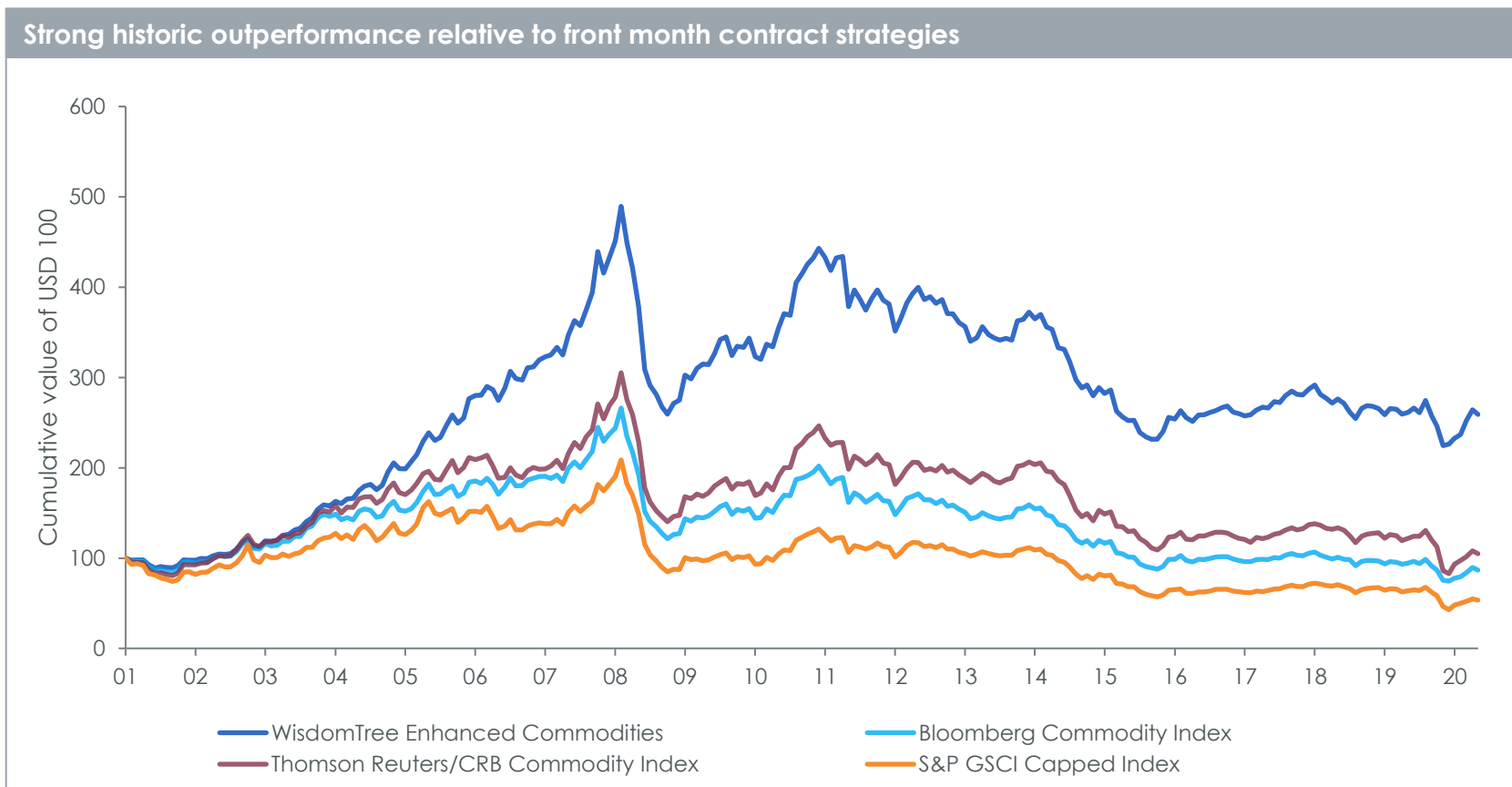
Subject to liquidity (\$100mn open interest), dynamic roll can consider longer contracts to achieve the most optimal carry from the curve



Source: WisdomTree. Sources: S&P Global, BNP Paribas. **Dynamic Roll** refers to the S&P GSCI® Dynamic Roll approach. Gold, Silver, Soybean Meal and Soybean Oil do not follow the Dynamic Roll methodology.

Commodity	Maximum tenor
Crude Oil	Up to 43-month
Brent Oil	Up to 36-month
Heating Oil	Up to 17-month
Gasoline	Up to 12-month
Gas Oil	Up to 31-month
Natural Gas	Up to 15-month
Live Cattle	Up to 7-month
Lean Hogs	Up to 7-month
Wheat	Up to 11-month
Kansas Wheat	Up to 11-month
Corn	Up to 18-month
Soybeans	Up to 13-month
Sugar	Up to 16-month
Coffee	Up to 11-month
Cotton	Up to 10-month
Aluminium	Up to 28-month
Zinc	Up to 11-month
Nickel	Up to 6-month
Copper	Up to 28-month

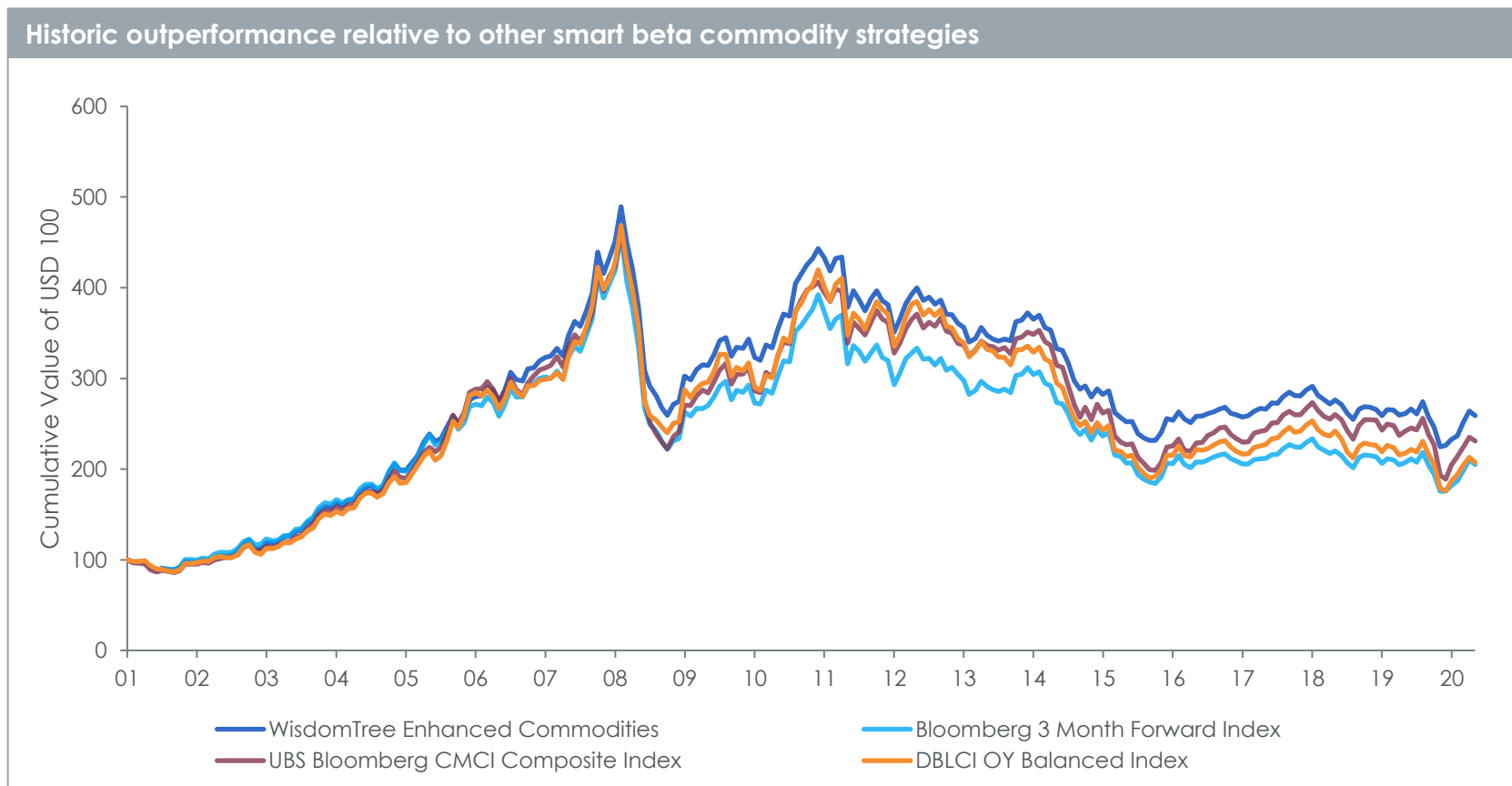
# Our enhanced approach has exceeded front month strategies...



Sources: WisdomTree, Bloomberg. Data from 31/05/01 to 30/09/20 and based on monthly returns. **WisdomTree Enhanced Commodities** refers to the Optimised Roll Commodity Total Return Index which started its live calculation on 30/07/13 and is the underlying index for the strategy. Calculations are based on total return indices and **include backtested data. Historical performance is not an indication of future performance and any investments may go down in value.**



# Our enhanced approach has exceeded smart competitors..



Sources: WisdomTree, Bloomberg. Data from 31/05/01 to 30/09/20 and based on monthly returns. **WisdomTree Enhanced Commodities** refers to the Optimised Roll Commodity Total Return Index which started its live calculation on 30/07/13 and is the underlying index for the strategy. \*DBLCI-OY Balanced Index represents the TRAC (total return after costs) Index. Calculations are based on total return indices and **include backtested data. Historical performance is not an indication of future performance and any investments may go down in value.**

# Quant-driven Single Commodity Rotation



# Using Quant Signals to rotate single commodities

## Academic literature has identified signals that can enhance performance

### + Momentum

- Recent winners tend to outperform recent losers
- Discovered in Equity markets first. See Jegadeesh & Titman (1993)
- Miffre & Rallis (2007), Shen et al. (2007) and Szakmary et al. (2010) show that winners outperform losers in commodities too.

### + Roll Yield/Term Structure

- Long positions in commodities with downward sloping term structures (or positive roll yields) tend to outperform short positions in commodities with upward sloping term structures (or negative roll yields)
- See Gorton et al. (2012)

### + Low Volatility

- Stocks with low idiosyncratic volatility tend to outperform stocks with high idiosyncratic volatility
- Discovered in Equity markets. See Ang et al. (2006,2009)
- Miffre et al. (2012) show that buying low idiosyncratic volatility commodities and shorting high idiosyncratic volatility commodities is profitable.

Source: WisdomTree. December 2020.

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# Operational Q&A

## Assumptions and Parameters for the Analysis

- + The following analysis is run on a set of 11 Single Commodity Strategies not covering Grains, Softs & Livestock (see Appendix for the full list)
- + The Single Commodity Strategies are proxied with the Bloomberg Single Commodities Sub Index which are sub indices of the Benchmark the Bloomberg Commodity Total Return index (BCOMTR Index) except for Gold and Silver that use Physical Benchmarks (see Appendix for the full list)
- + The Single Commodity Strategies are net of a 99bps replication costs i.e. are proxied by individual indices minus 99bps per annum calculated on a daily basis (15bps for Gold and 49bps for Silver)
- + All Tactical Simulated Portfolios are composed of 4 Single Commodity Strategies, equal weighted on a regular basis. They are net of transaction costs (see Appendix for bid ask assumptions).
- + Signals are observed 10 business days (Determination Date) before the effective rebalancing of the Portfolios (Rebalancing Date). Rebalancing Dates are always the last business day of a month
- + Momentum Signal is defined as the average of 2 sub-signals: the last 6 months and last 12 months performance of the Single Commodity Strategy
- + Roll Yield Signal is defined as the log of the daily ratio between the level of the current future and the second future for the relevant commodity averaged over the last month (see tickers in Appendix)
- + Low Vol Signal is defined as the volatility of the returns of the Single Commodity Strategy minus the returns of the benchmark multiplied by the Beta (over the last 252 Business days)

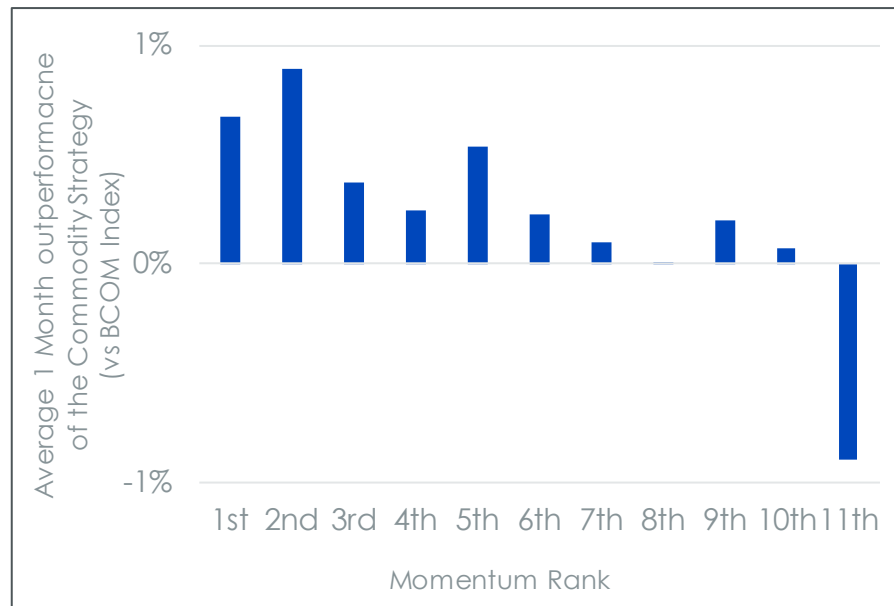
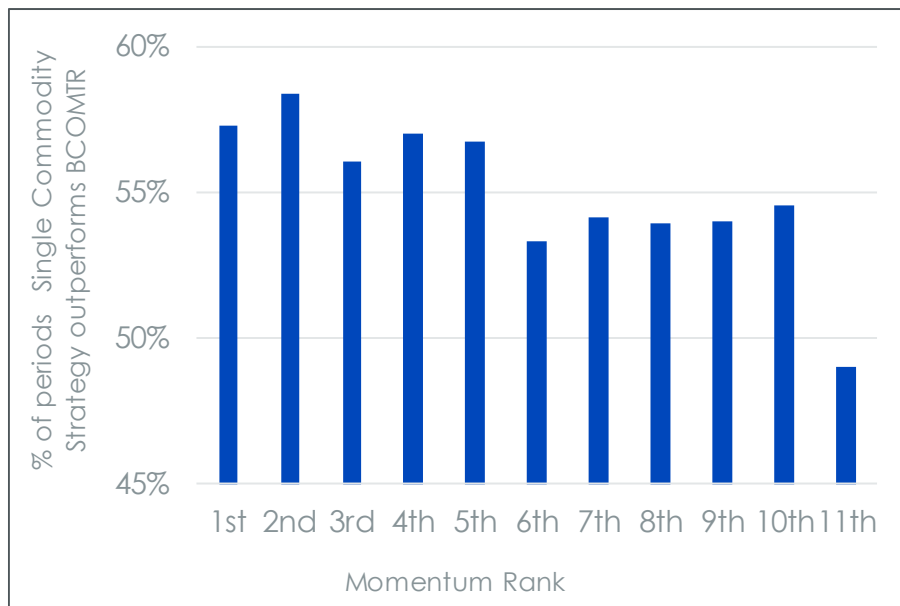
Source: WisdomTree. December 2020.

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# An analysis of Momentum in Commodities

## High Momentum Commodities have historically outperformed the benchmark



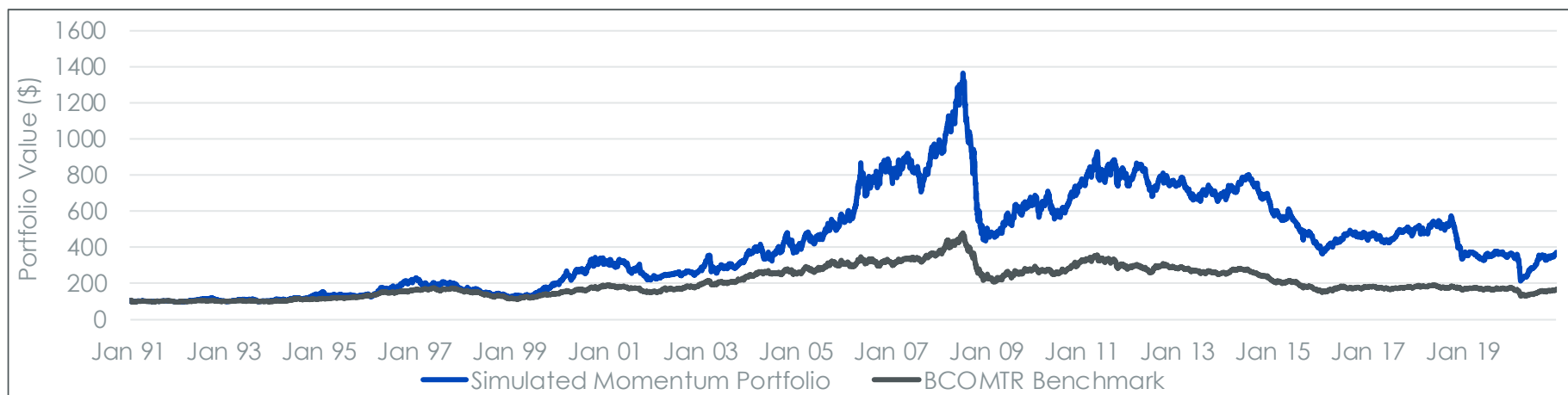
- + Methodology: Every Business Days in the period, Single Commodity Strategies are ranked by Momentum Score, and the next 1-month Performance is observed. Those results are then averaged over all observations to get the above results.
- + On average, the single commodities with the highest momentum have outperformed the BCOMTR Index around 60% of the time when the lower momentum commodities have outperformed closer to 50% of the time
- + On average, the single commodities with the highest momentum have outperformed the BCOMTR Index by north of 0.5% per month when the lower momentum commodities have not outperformed significantly or have underperformed

Source: WisdomTree. Period January 1991 to 21 December 2020. Calculations are based on daily returns. All returns are in US Dollars. The outperformance is calculated on the 1 month following the momentum calculations (vs BCOMTR Index). All stats are calculated using all days where a momentum score is available (from January 1992) and the next 1-month outperformance is available (January 1991 to November 2020).

**Backtested Data has been used. Historical performance is not an indication of future performance and any investments may go down in value.**

# An analysis of Momentum in Commodities

## A strategy with historically high returns and high volatility



	Simulated Momentum Portfolio	BCOMTR Benchmark
<b>Annualised Returns</b>	4.44%	1.70%
<b>Excess Return</b>	2.74%	
<b>Annualised Volatility</b>	22.6%	14.6%
<b>Tracking Error</b>	15.2%	
<b>Sharpe Ratio</b>	0.08	-0.07
<b>Information Ratio</b>	0.18	
<b>Max Drawdown</b>	-84.5%	-73.2%

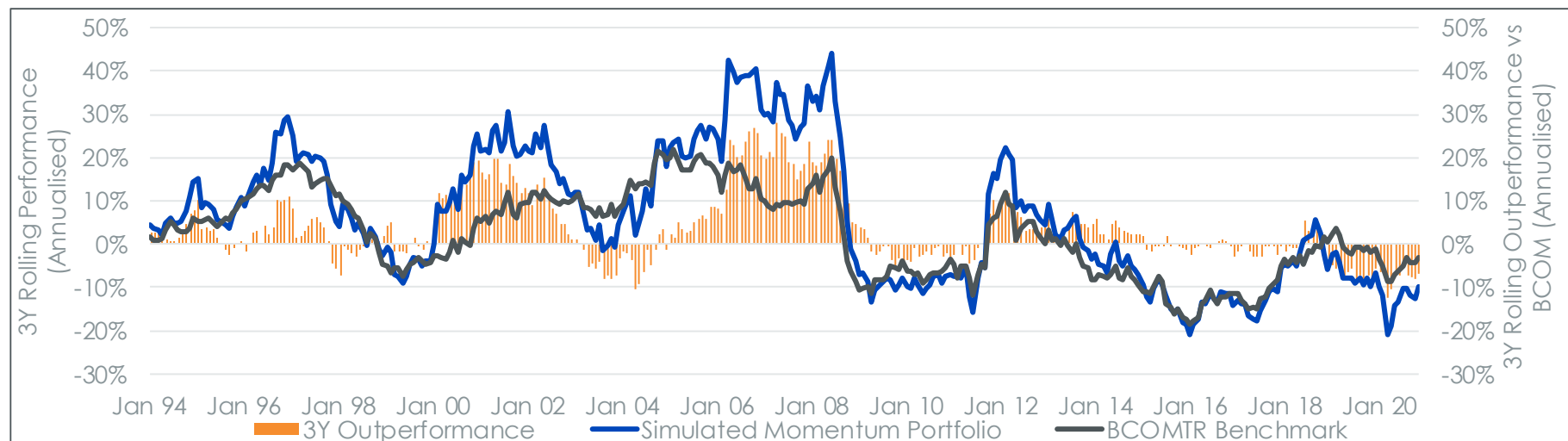
- + The Simulated Momentum Portfolio invests at the end of each month in equal proportion in the 4 Single Commodity Strategies with the highest Momentum Score as of the previous Determination Date.
- + The Simulated Momentum Portfolio has significantly outperformed the benchmark, with 2.74% per annum.
- + However, the Portfolio is also more volatile and exhibit very high max drawdown

Source: WisdomTree. Period January 1991 to 21 December 2020. Calculations are based on daily returns in US Dollars. The Portfolio is rebalanced on a monthly basis.

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# An analysis of Momentum in Commodities

## A strategy with historically high returns and high volatility



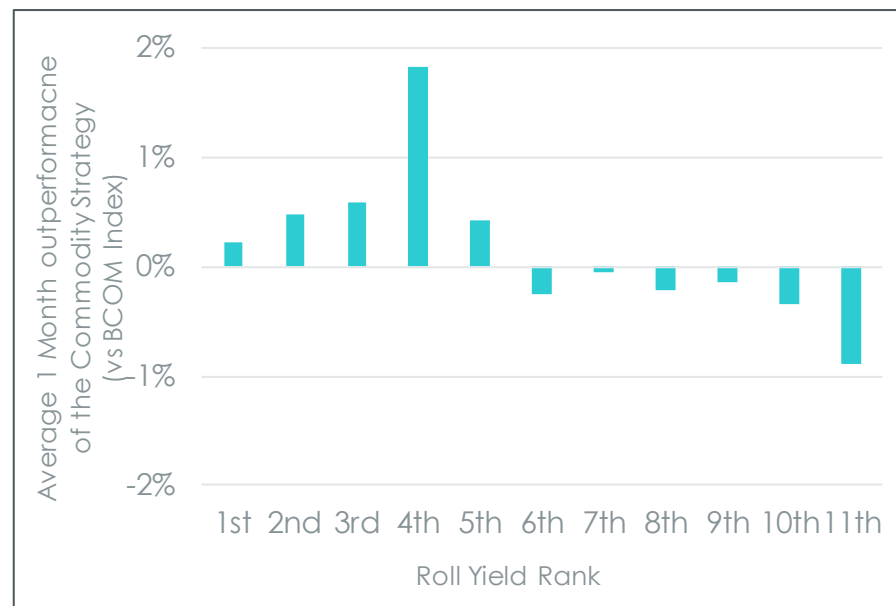
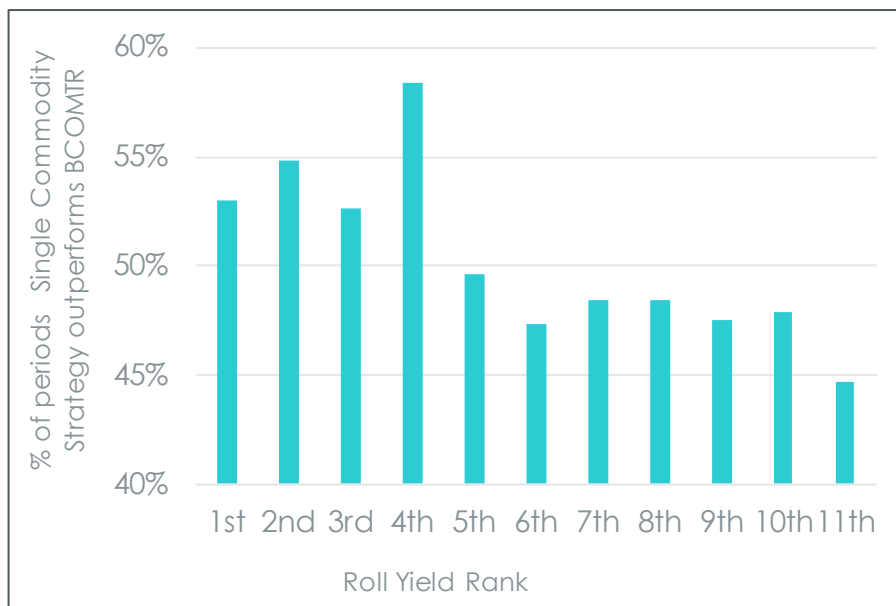
	Simulated Momentum Portfolio	BCOMTR Benchmark
Average returns in months where BCOMTR >= 0%	4.33%	3.05%
Average returns in months where BCOMTR < 0%	-4.0%	-3.22%
Average returns in months where BCOMTR < -5%	-9.2%	-7.66%
Upside Capture	142%	
Downside Capture	123%	

- + The Simulated Momentum Portfolio has outperformed in a large portion of the 3Y periods
- + However, the Portfolio has also large upside and downside capture ratios

Source: WisdomTree. Period January 1991 to 21 December 2020. Calculations are based on daily returns in US Dollars. The Portfolio is rebalanced on a monthly basis. **Backtested Data has been used. Historical performance is not an indication of future performance and any investments may go down in value.**

# An analysis of Roll Yield in Commodities

## High Roll Yield Commodities have historically outperformed the benchmark



- + Methodology: Every Business Days in the period, Single Commodity Strategies are ranked by Roll Yield Score, and the next 1-month Performance is observed. Those results are then averaged over all observations to get the above results.
- + On average, the single commodities with the highest roll yield have outperformed the BCOMTR Index 55% of the time when the lower roll yield commodities have outperformed closer to 45% of the time
- + On average, the single commodities with the highest roll yield have outperformed the BCOMTR Index by north of 0.5% per month when the lower roll yield commodities have underperformed

Source: WisdomTree. Period January 1991 to 21 December 2020. Calculations are based on daily returns. All returns are in US Dollars. The outperformance is calculated on the 1 month following the roll yield calculations (vs BCOMTR Index). All stats are calculated using all days where a roll yield score is available (from February 1991) and the next 1-month outperformance is available (January 1991 to July 2020).

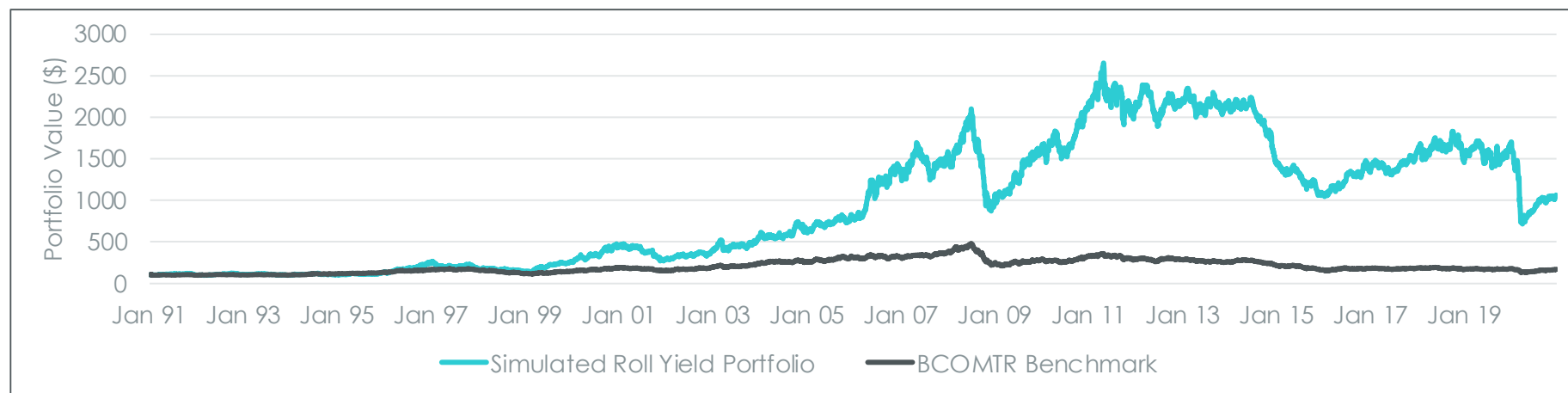
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# An analysis of Roll Yield in Commodities

## A strategy with historically high returns and high volatility



	Simulated Roll Yield Portfolio	BCOMTR Benchmark
<b>Annualised Returns</b>	8.17%	1.70%
<b>Excess Return</b>	6.47%	
<b>Annualised Volatility</b>	23.4%	14.6%
<b>Tracking Error</b>	15.6%	
<b>Sharpe Ratio</b>	0.23	-0.07
<b>Information Ratio</b>	0.42	
<b>Max Drawdown</b>	-73.2%	-73.2%

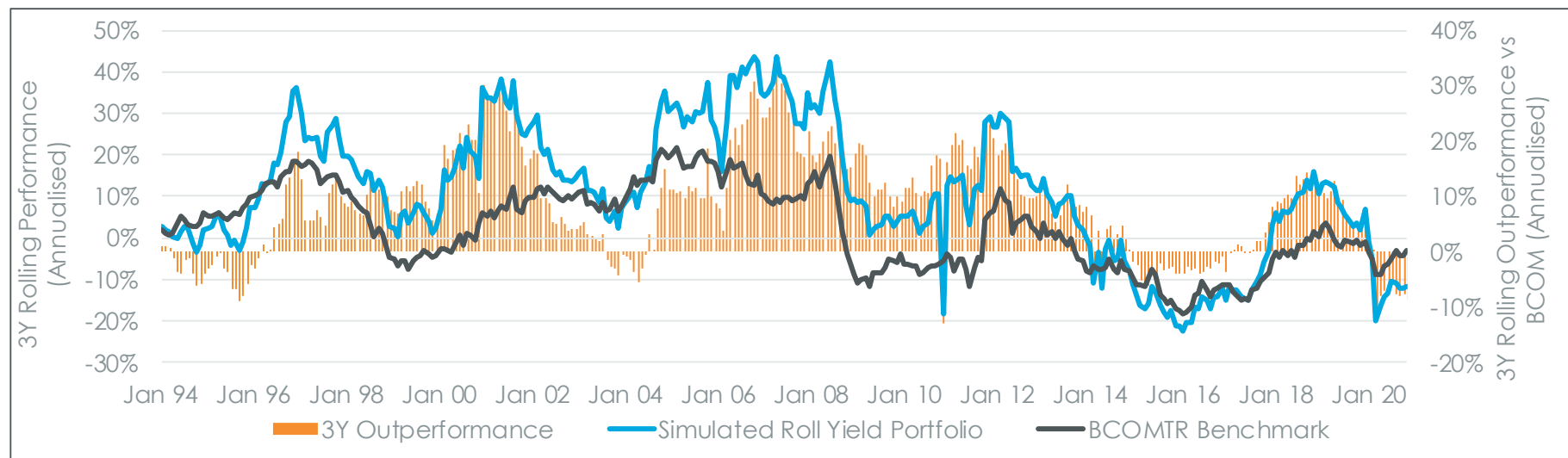
- + The Simulated Roll Yield Portfolio invests at the end of each month in equal proportion in the 4 Single Commodity Strategies with the highest Roll Yield Score as of the previous Determination Date.
- + The Simulated Roll Yield Portfolio has significantly outperformed the benchmark, with 6.47% per annum.
- + However, the Portfolio is also significantly more volatile

Source: WisdomTree. Period January 1991 to 21 December 2020. Calculations are based on daily returns in US Dollars. The Portfolio is rebalanced on a monthly basis.

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# An analysis of Roll Yield in Commodities

## A strategy with historically high returns and high volatility



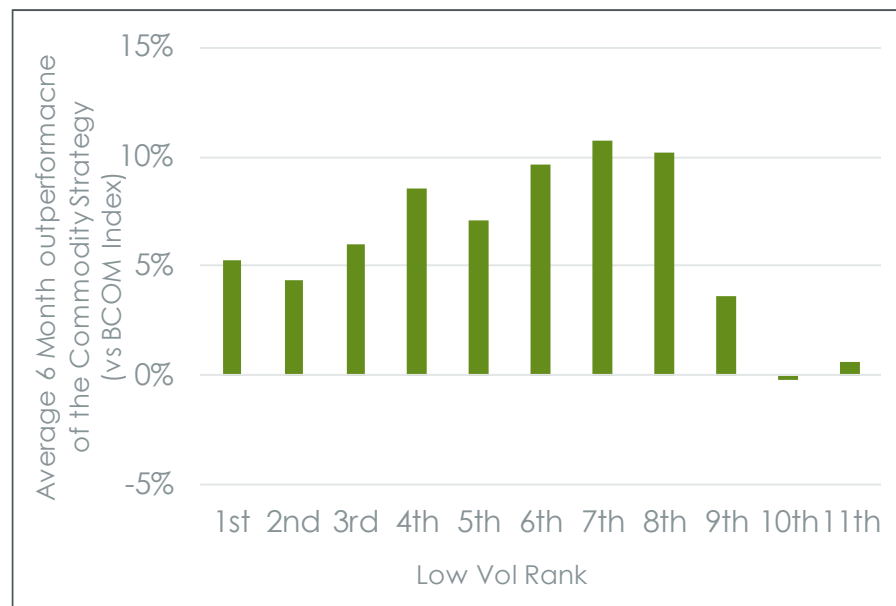
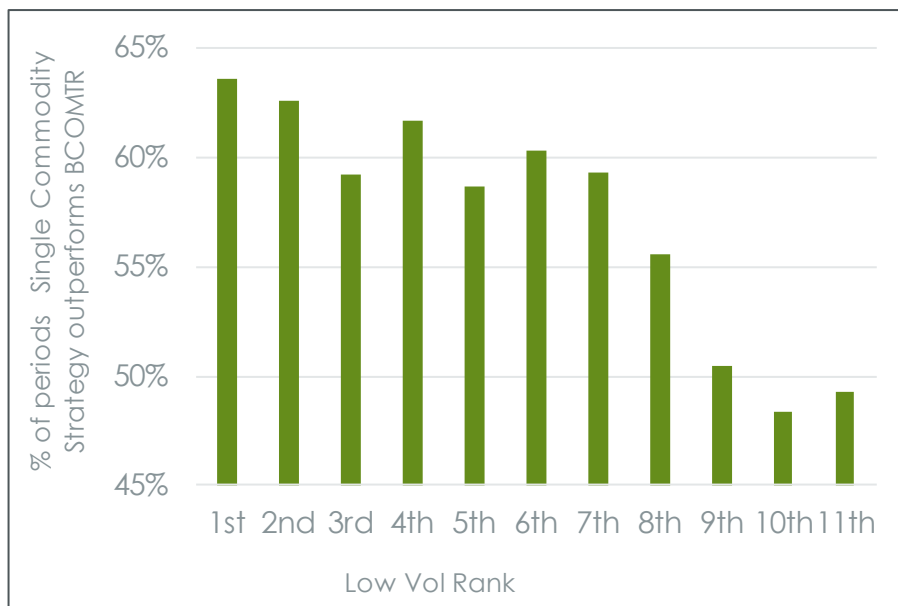
	Simulated Roll Yield Portfolio	BCOMTR Benchmark
Average returns in months where BCOMTR $\geq$ 0%	4.47%	3.05%
Average returns in months where BCOMTR $<$ 0%	-3.42%	-3.22%
Average returns in months where BCOMTR $<$ -5%	-9.02%	-7.66%
Upside Capture	146%	
Downside Capture	106%	

- + The Simulated Roll Yield Portfolio has outperformed in most 3Y periods
- + The Portfolio has also a large upside and very contained downside capture ratios

Source: WisdomTree. Period January 1991 to 21 December 2020. Calculations are based on daily returns in US Dollars. The Portfolio is rebalanced on a monthly basis. **Backtested Data has been used. Historical performance is not an indication of future performance and any investments may go down in value.**

# An analysis of Low Vol in Commodities

## Low Volatility Commodities have historically outperformed the benchmark



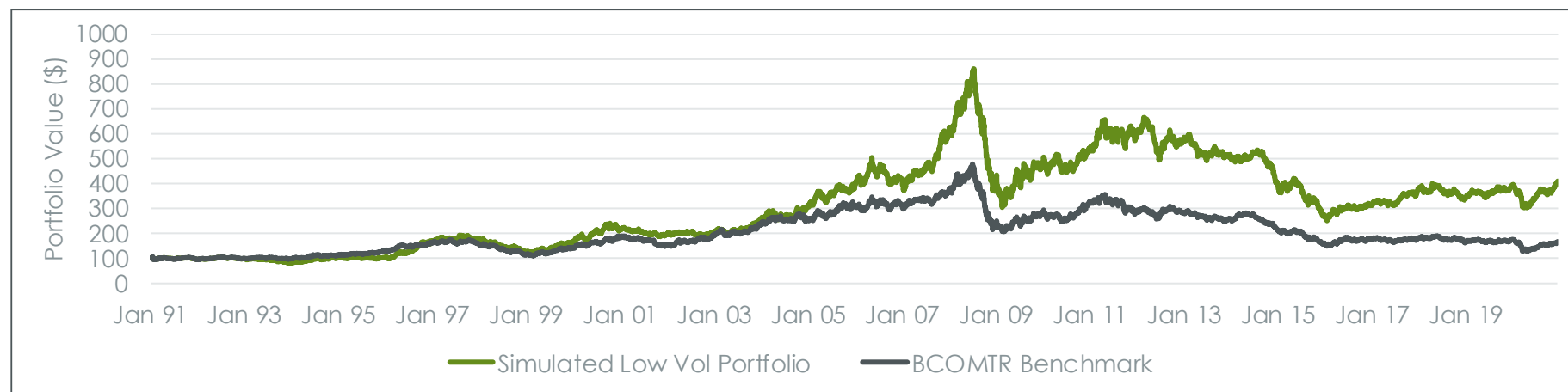
- + Methodology: Every Business Days in the period, Single Commodity Strategies are ranked by Volatility Score, and the next 6-month Performance is observed. Those results are then averaged over all observations to get the above results.
- + On average, the single commodities with the Lowest volatility have outperformed the BCOMTR Index 60% of the time when the higher volatility commodities have outperformed closer to 50% of the time
- + On average, the single commodities with the lowest volatility have outperformed the BCOMTR Index by north of 5% over 6 months when the higher volatility commodities have not outperformed significantly.

Source: WisdomTree. Period January 1991 to 21 December 2020. Calculations are based on daily returns. All returns are in US Dollars. The outperformance is calculated on the 6 months following the Volatility calculations (vs BCOMTR Index). All stats are calculated using all days where a volatility score is available (from January 1992) and the next 6-month outperformance is available (January 1991 to June 2020).

**Backtested Data has been used. Historical performance is not an indication of future performance and any investments may go down in value.**

# An analysis of Low Volatility in Commodities

## Strong historical performance outside of the early 2000s super cycle



	Simulated Low Vol Portfolio	BCOMTR Benchmark
Annualised Returns	4.77%	1.70%
Excess Return	3.07%	
Annualised Volatility	17.5%	14.6%
Tracking Error	11.1%	
Sharpe Ratio	0.12	-0.07
Information Ratio	0.28	
Max Drawdown	-70.9%	-73.2%

- + The Simulated Low Vol Portfolio invests at the end of each semester in equal proportion in the 4 Single Commodity Strategies with the highest Low Vol Score as of the previous Determination Date.
- + The Simulated Low Vol Portfolio has outperformed the benchmark, with 3.07% per annum.
- + The Portfolio exhibits lower volatility and lower drawdown than other portfolios

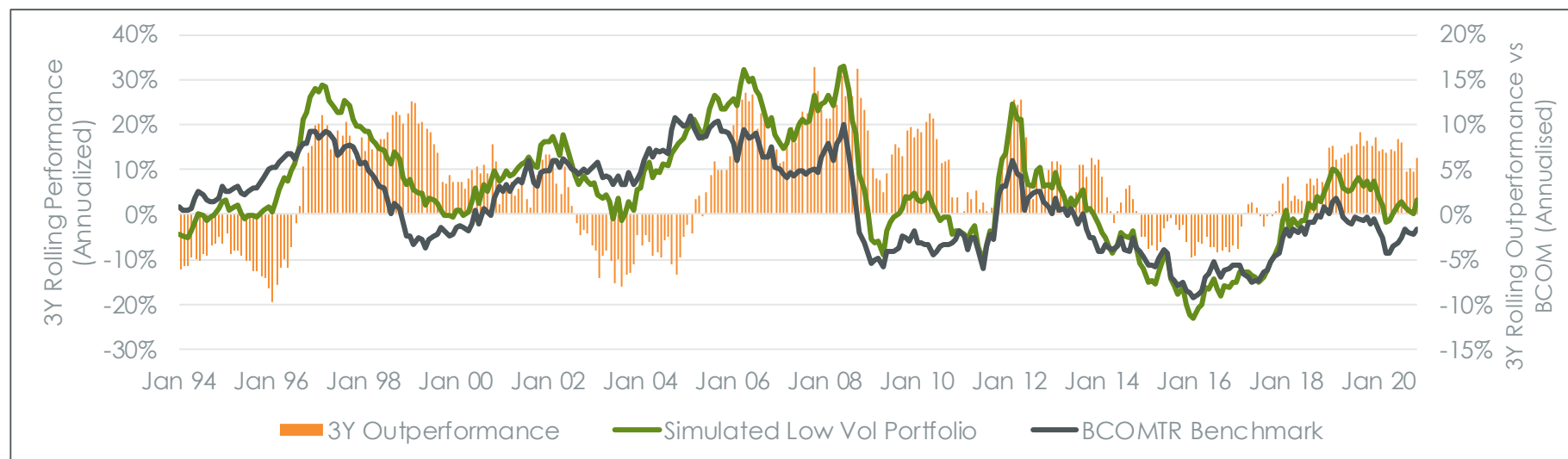
Source: WisdomTree. Period January 1991 to 21 December 2020. Calculations are based on daily returns in US Dollars. The Portfolio is rebalanced on a monthly basis.

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# An analysis of Low Volatility in Commodities

## Strong historical performance outside of bull runs



	Simulated Low Vol Portfolio	BCOMTR Benchmark
Average returns in months where BCOMTR $\geq$ 0%	3.25%	3.05%
Average returns in months where BCOMTR $<$ 0%	-2.83%	-3.22%
Average returns in months where BCOMTR $<$ -5%	-7.10%	-7.66%
Upside Capture	106%	
Downside Capture	88%	

- + The Simulated Low Vol Portfolio has outperformed in a significant part of the 3Y periods outside the early 2000s super cycle
- + The Portfolio exhibits a very interesting asymmetry with low downside capture and higher upside capture

Source: WisdomTree. Period January 1991 to 21 December 2020. Calculations are based on daily returns in US Dollars. The Portfolio is rebalanced on a monthly basis.

**Backtested Data has been used. Historical performance is not an indication of future performance and any investments may go down in value.**

# A multi-factor Strategy

## Combining the signals to deliver a more stable, more robust performance

- + All 3 signals deliver strong performance over the long term
- + However, they all exhibit weaknesses, being period of underperformance, high drawdowns or high volatility
- + Fuertes, Miffre, Fernandez-Perez (2013) have shown that those 3 signals in commodity markets are not overlapping
- + This provide us with the incentive to create a Combined Simulated Portfolio
- + The Portfolio
  - Is rebalanced monthly
  - Uses a Combined Score defined as the average of the Momentum Score, Roll Yield Score and Low Vol Score. All 3 Scores are normalized (using a cross sectional Z-Score) to land between -3 and 3.
  - Invests in 4 Single Commodity Strategy with the highest Combined Score (caveat is that the strategy does not allow the 4 strategy to be in the same sector)

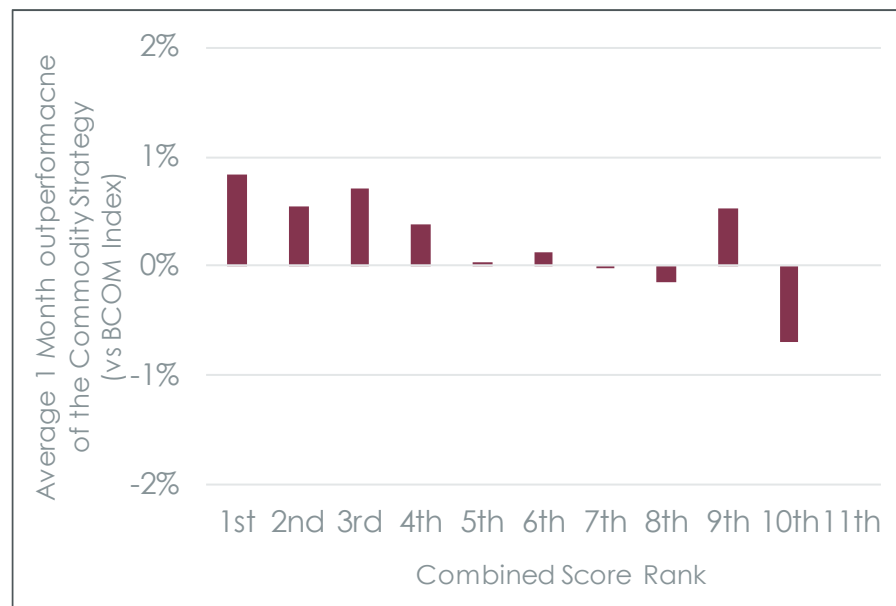
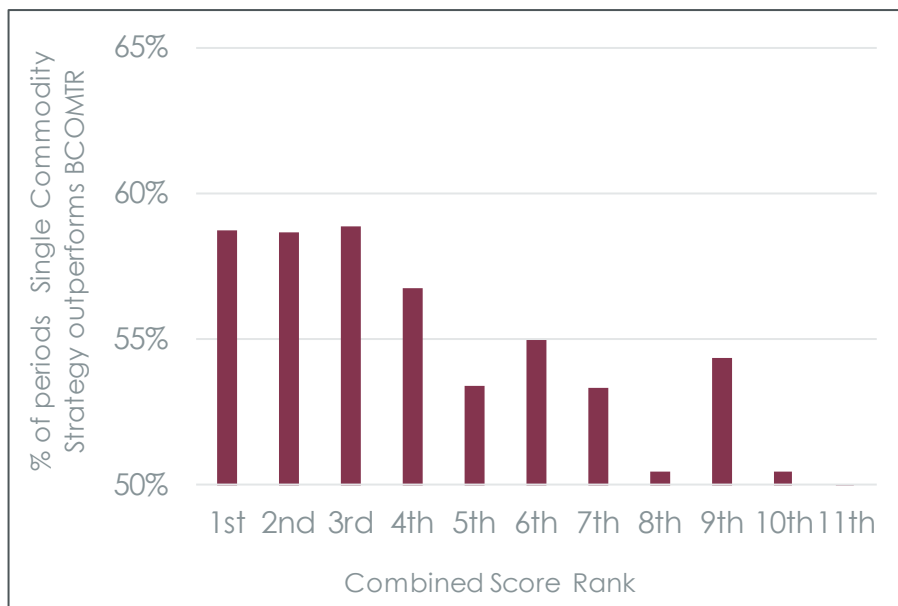
Source: WisdomTree. December 2020.

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# An analysis of the Combined Score

## High Combined Score Commodities have historically outperformed BCOMTR



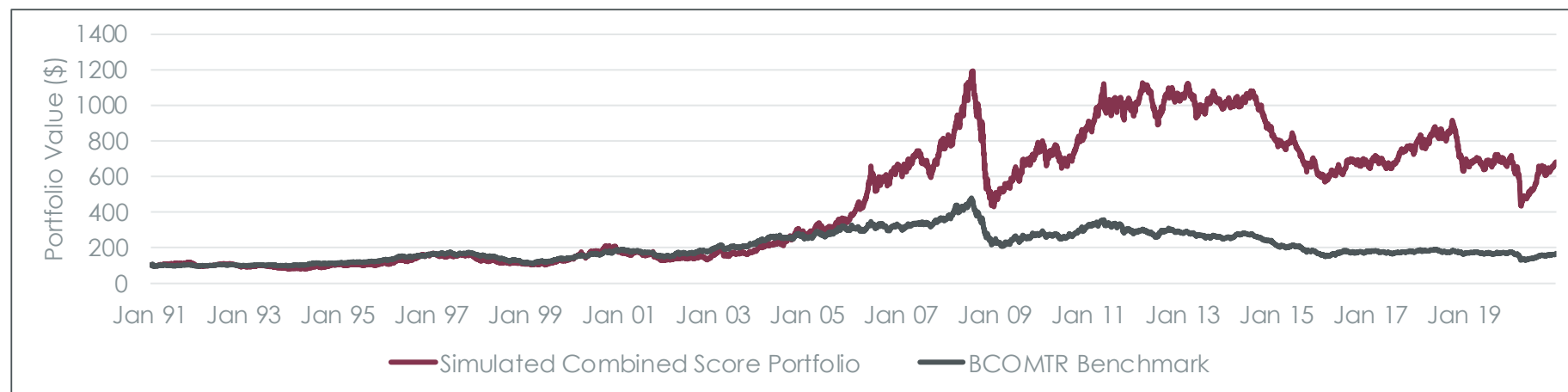
- + Methodology: Every Business Days in the period, Single Commodity Strategies are ranked by Combined Score, and the next 1-month Performance is observed. Those results are then averaged over all observations to get the above results.
- + On average, the single commodities with the highest combined score have outperformed the BCOMTR Index 60% of the time when the lower combined score commodities have outperformed closer to 50% of the time
- + On average, the single commodities with the highest combined score have outperformed the BCOMTR Index by almost 1% per month when the lower combined score commodities have not outperformed significantly or have underperformed

Source: WisdomTree. Period January 1991 to 21 December 2020. Calculations are based on daily returns. All returns are in US Dollars. The outperformance is calculated on the 1 month following the Combined Score calculations (vs BCOMTR Index). All stats are calculated using all days where a combined score is available (from January 1992) and the next 1-month outperformance is available (January 1991 to November 2020).

**Backtested Data has been used. Historical performance is not an indication of future performance and any investments may go down in value.**

# An Analysis of the Combined Score

## Strong risk return profile over the long term



	Simulated Combined Score Portfolio	BCOMTR Benchmark
<b>Annualised Returns</b>	6.57%	1.70%
<b>Excess Return</b>	4.87%	
<b>Annualised Volatility</b>	20.4%	14.6%
<b>Tracking Error</b>	13.4%	
<b>Sharpe Ratio</b>	0.19	-0.07
<b>Information Ratio</b>	0.36	
<b>Max Drawdown</b>	-64.1%	-73.2%

- + The Simulated Combined Score Portfolio invests at the end of each month in equal proportion in the 4 Single Commodity Strategies with the highest Combined Score as of the previous Determination Date.
- + The Simulated Portfolio exhibits
  - Strong Outperformance (4.87% per annum)
  - Reduced Max Drawdown
  - Reduced Volatility compared to single signal Simulated Portfolios on average

Source: WisdomTree. Period January 1991 to 21 December 2020. Calculations are based on daily returns in US Dollars. The Portfolio is rebalanced on a monthly basis.

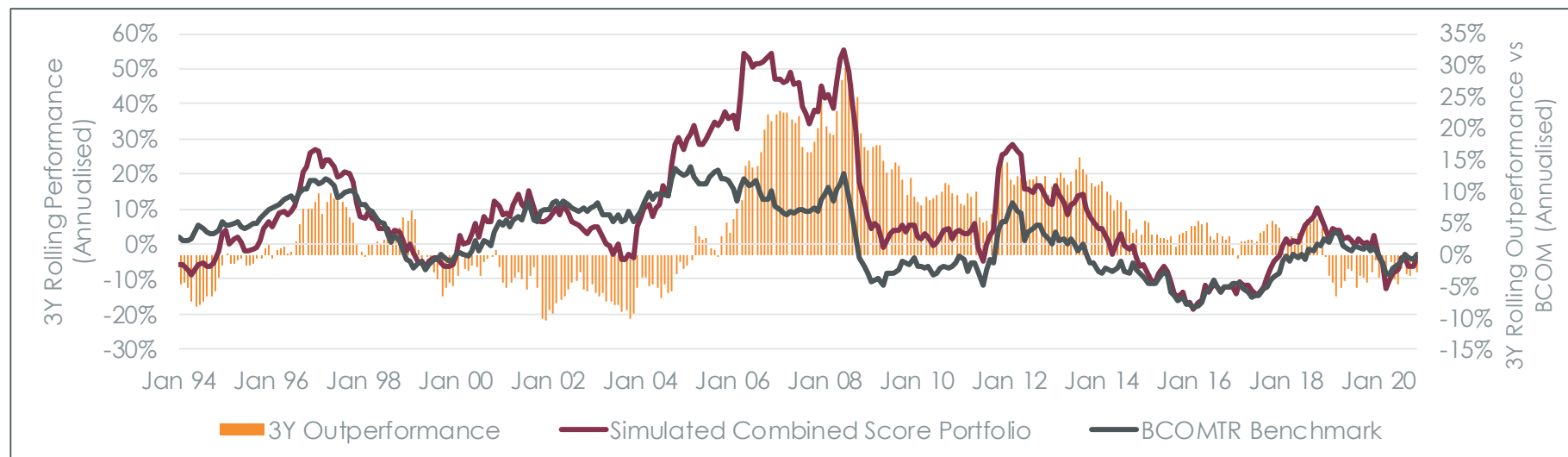
**Backtested Data has been used. Historical performance is not an indication of future performance and any investments may go down in value.**





# An Analysis of the Combined Score

## Strong Risk Return Profile over the long term



	Simulated Combined Score Portfolio	BCOMTR Benchmark
Average returns in months where BCOMTR >= 0%	4.00%	3.05%
Average returns in months where BCOMTR < 0%	-3.28%	-3.22%
Average returns in months where BCOMTR < -5%	-7.28%	-7.66%
Upside Capture	131%	
Downside Capture	102%	

- + The Simulated Portfolio has outperformed in a large number of the 3Y periods
- + The Portfolio exhibits a very interesting asymmetry with low downside capture and high upside capture

Source: WisdomTree. Period January 1991 to 21 December 2020. Calculations are based on daily returns in US Dollars. The Portfolio is rebalanced on a monthly basis. **Backtested Data has been used. Historical performance is not an indication of future performance and any investments may go down in value.**

# WisdomTree Example



# A strategic exposure to Commodities with a tactical twist

## WCOA delivers strong performance

- + The Simulated Portfolio combines
  - A Strategic Allocation to WisdomTree Enhanced Broad Commodities (80% on rebalancing)
  - A Tactical Allocation to the Combined Signal Portfolio (20% on rebalancing)
  
- + Simulated Portfolio Holdings(as of end of December 2020)

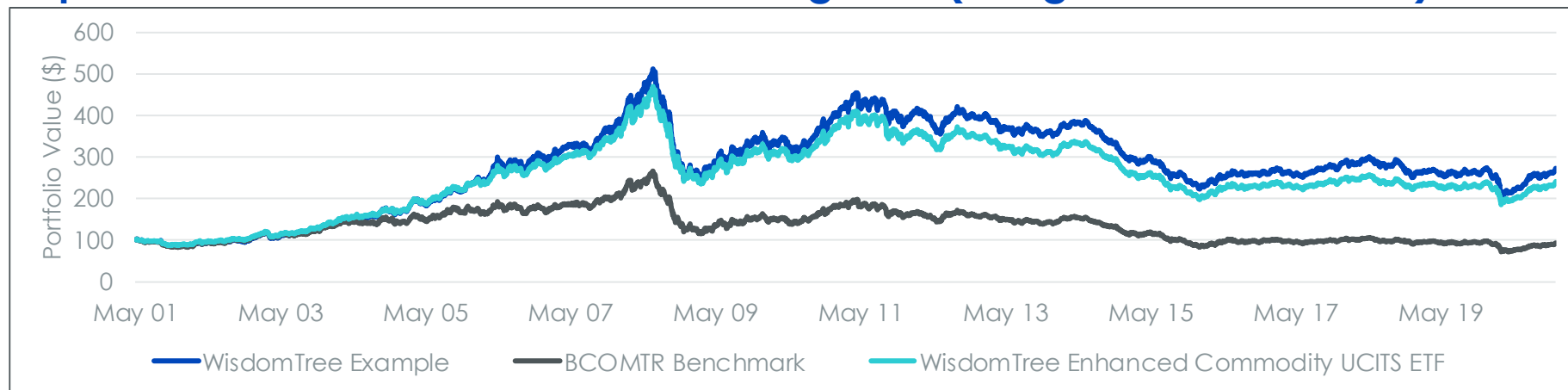
WisdomTree Example					
	Bloomberg Ticker	ISIN	Allocation (%)	Sector	Expenses (in bps)
WisdomTree Enhanced Commodity UCITS ETF	WCOA	IE00BYMLZY74	80.00%	Diversified	35
WisdomTree Copper	COPA LN	GB00B15KXQ89	5.00%	Industrial Metals	49
WisdomTree Zinc	ZINC LN	GB00B15KY872	5.00%	Industrial Metals	49
WisdomTree Aluminium	ALUM LN	GB00B15KXN58	5.00%	Industrial Metals	49
WisdomTree Physical Swiss Gold	SGBS IM	JE00B588CD74	5.00%	Precious Metal	15
	<b>Total</b>		<b>100.00%</b>	<b>Weighted Sum</b>	<b>36.1</b>

Source: WisdomTree. December 2020.

Historical performance is not an indication of future performance and any investments may go down in value.

# WisdomTree Example

## Improved Risk Return Profile over the long term (using backtested data)



	WisdomTree Example	WisdomTree Enhanced Commodity UCITS ETF	BCOMTR Benchmark
<b>Annualised Returns</b>	5.21%	4.56%	-0.42%
<b>Excess Return</b>	5.63%	4.97%	
<b>Annualised Volatility</b>	14.6%	13.6%	16.2%
<b>Tracking Error</b>	5.2%	4.9%	
<b>Sharpe Ratio</b>	0.09	0.05	-0.26
<b>Information Ratio</b>	1.08	1.02	
<b>Max Drawdown</b>	-60.6%	-60.7%	-73.2%

- + The WisdomTree Example exhibits
  - Strong Outperformance (5.63% per annum)
  - Reduced Max Drawdown
  - Improved Information Ratio vs the WT Enhanced Commodity UCITS ETF
  - Significantly Reduced Volatility compared to single signal Simulated Portfolios

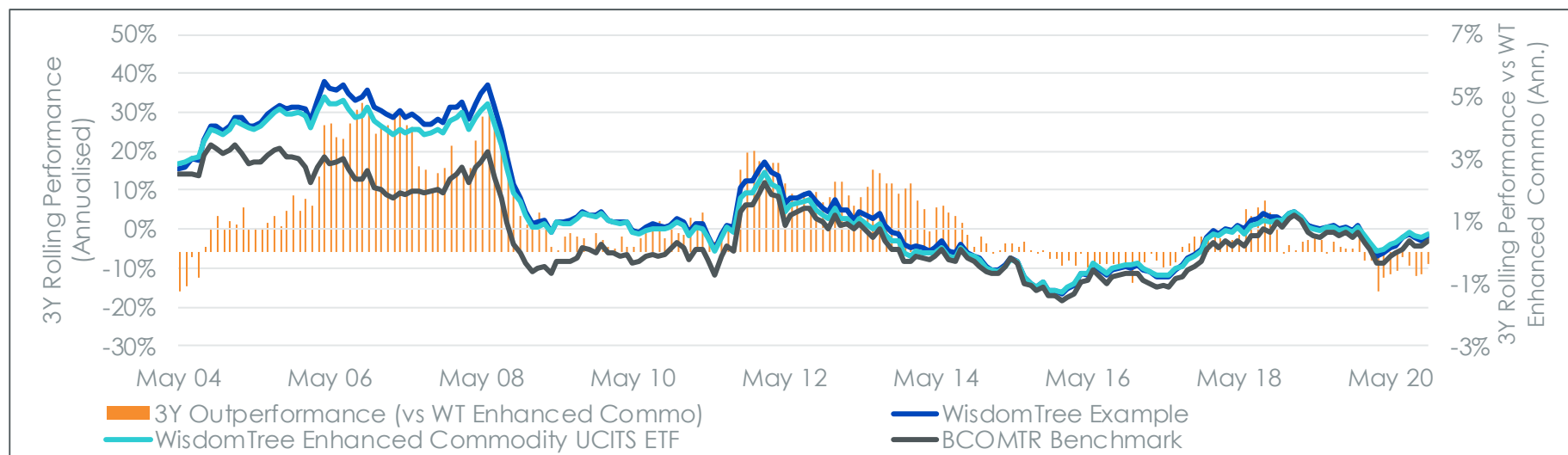
Source: WisdomTree. Period January 1991 to 21 December 2020. Calculations are based on daily returns. All returns are in US Dollars. The Portfolio is rebalanced on a monthly basis. The Optimised Roll Commodity Total Return Index started its live calculation on 30/07/13. Calculations are based on total return indices

**Backtested Data has been used. Historical performance is not an indication of future performance and any investments may go down in value.**



# WisdomTree Example

## Improved Risk Return Profile over the long term (using backtested data)



	WisdomTree Example	WisdomTree Enhanced Commodity UCITS ETF	BCOMTR Benchmark
<b>Average returns in months where BCOMTR &gt;= 0%</b>	3.48%	3.20%	3.33%
<b>Average returns in months where BCOMTR &lt; 0%</b>	-2.89%	-2.72%	-3.67%
<b>Average returns in months where BCOMTR &lt; -5%</b>	-6.55%	-6.22%	-7.98%
<b>Upside Capture</b>	104%	96%	
<b>Downside Capture</b>	79%	74%	

- + The WisdomTree Example has outperformed in a large number of the 3Y periods
- + The WisdomTree Example exhibits a very interesting asymmetry with low downside capture and high upside capture

Source: WisdomTree. Period January 1991 to 21 December 2020. Calculations are based on daily returns. All returns are in US Dollars. The Portfolio is rebalanced on a monthly basis. The Optimised Roll Commodity Total Return Index started its live calculation on 30/07/13. Calculations are based on total return indices

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# WisdomTree Example

## Calendar Performance (using backtested data)

	YTD	Last 1Y	Last 3Y	Last 5Y	Last 10Y
WisdomTree Example	0.3%	0.8%	-0.5%	2.8%	-3.7%
BCOMTR Benchmark	-4.5%	-3.8%	-1.9%	1.0%	-6.4%
WisdomTree Enhanced Commodity UCITS ETF	0.8%	1.6%	0.2%	2.8%	-4.1%

	2019	2018	2017	2016	2015	2014
WisdomTree Example	7.8%	-11.7%	8.7%	10.9%	-22.4%	-15.6%
BCOMTR Benchmark	7.7%	-11.2%	1.7%	11.8%	-24.7%	-17.0%
WisdomTree Enhanced Commodity UCITS ETF	7.0%	-9.6%	5.6%	11.6%	-21.8%	-13.9%

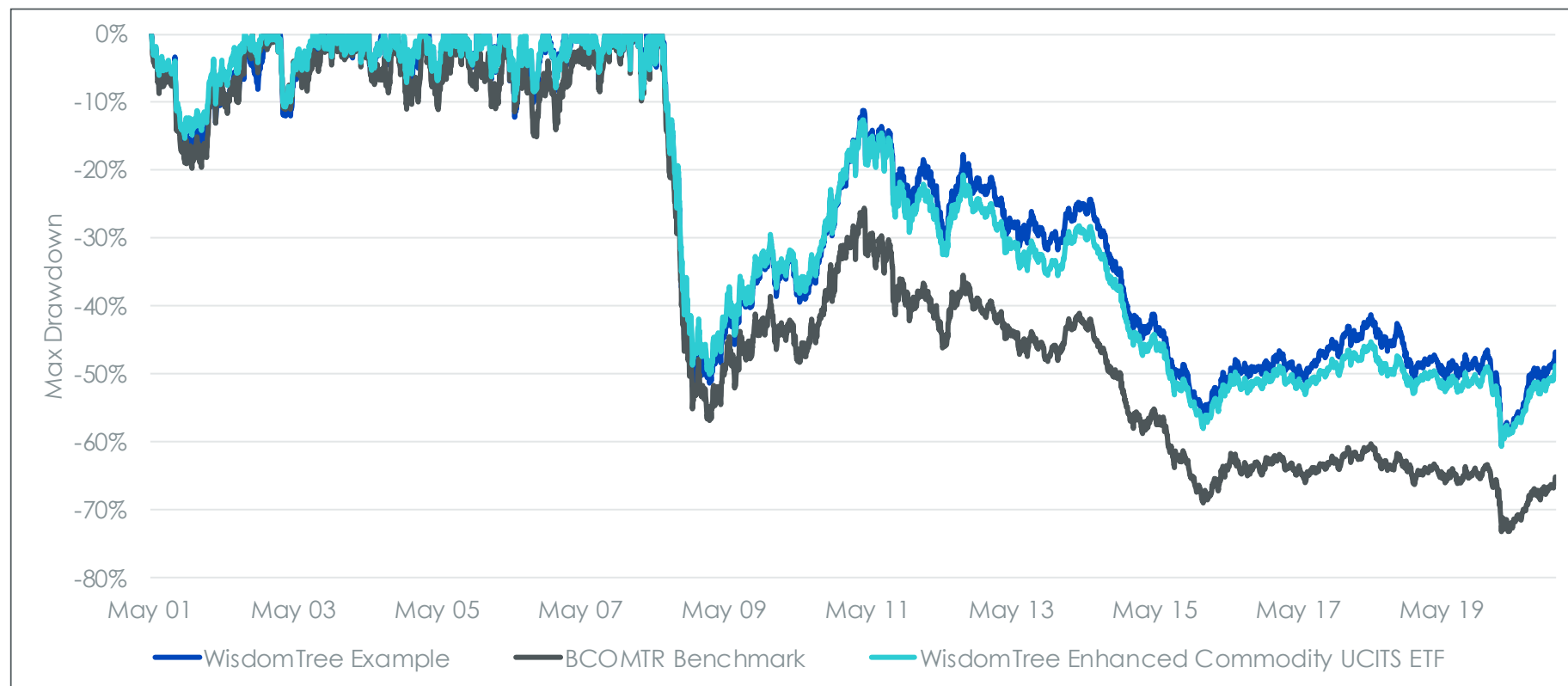
	2013	2012	2011	2010	2009	2008
WisdomTree Example	-8.9%	2.8%	-5.4%	17.2%	28.5%	-28.5%
BCOMTR Benchmark	-9.5%	-1.1%	-13.3%	16.8%	18.9%	-35.6%
WisdomTree Enhanced Commodity UCITS ETF	-10.7%	1.3%	-8.1%	16.6%	21.9%	-25.5%

Source: WisdomTree. Period January 1991 to 21 December 2020. Calculations are based on daily returns. All returns are in US Dollars. The Portfolio is rebalanced on a monthly basis. The Optimised Roll Commodity Total Return Index started its live calculation on 30/07/13. Calculations are based on total return indices

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# WisdomTree Example

## Drawdown over time (using backtested data)



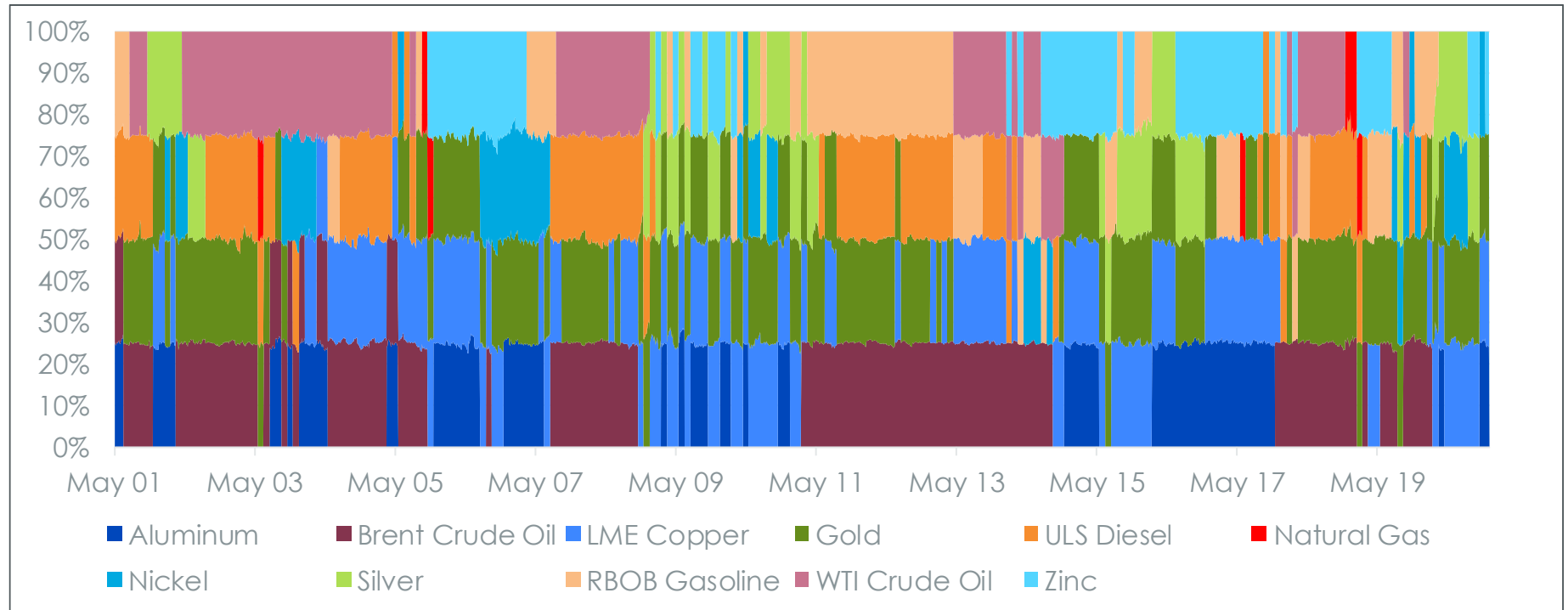
+ The WisdomTree Example exhibits a lower Max Drawdown than the BCOM index

Source: WisdomTree. Period January 1991 to 21 December 2020. Calculations are based on daily returns. All returns are in US Dollars. The Portfolio is rebalanced on a monthly basis. The Optimised Roll Commodity Total Return Index started its live calculation on 30/07/13. Calculations are based on total return indices

**Backtested Data has been used. Historical performance is not an indication of future performance and any investments may go down in value.**



## Historical holdings of the tactical part of Simulated Portfolio



+ | 2 way turnover of the WisdomTree Example is 89% per year

Source: WisdomTree. Period January 1991 to 21 December 2020. Calculations are based on daily returns in US Dollars. The Portfolio is rebalanced on a monthly basis. **Backtested Data has been used. Historical performance is not an indication of future performance and any investments may go down in value.**



# Appendix



# General Parameters

## Assumptions and Parameters for the Analysis

Commodity Name	Future Ticker	Sector	Bloomberg Sub Index Ticker	Estimated Bid Ask (bps)
Aluminum	LA	Industrial Metal	BCOMALTR	47
Brent Crude Oil	CO	Energy	BCOMCOT	16
LME Copper	LP	Industrial Metal	BCOMHGTR	11
Gold	GC	Precious Metal	GOLDLNPM	7
ULS Diesel	HO	Energy	BCOMHOTR	42
Natural Gas	NG	Energy	BCOMNGTR	68
Nickel	LN	Industrial Metal	BCOMNTR	64
Silver	SI	Precious Metal	XAG	16
RBOB Gasoline	XB	Energy	BCOMRBTR	39
WTI Crude Oil	CL	Energy	BCOMCLTR	10
Zinc	LX	Industrial Metal	BCOMZSTR	93

- + WisdomTree Enhanced Commodity UCITS ETF is proxied by the Optimized Roll Commodity Total Return Index (EBCIWTT Index) net of 70bps per annum replication cost.
- + BCOMTR Benchmark is the BCOM Total Return Index (BCOMTR)

Source: WisdomTree, December 2020.

**Historical performance is not an indication of future performance and any investments may go down in value.**



# Appendix: Structural features

- + The WisdomTree Enhanced Commodity UCITS ETF (“the Fund”) tracks the Enhanced Roll Commodity Index (the “Index”) by holding a portfolio of US T-Bills\* and entering into unfunded swap arrangements (“Swaps”) with highly rated swap counterparties. The Fund’s portfolio is composed of:
  - A portfolio of 91-day US T-Bills acquired with subscription proceeds which replicates the Index cash return element
  - Swaps passing the performance of the Index (from swap counterparties to Fund if performance is positive, the other way around if negative)
- + Swap prices are calculated daily in a formulaic and transparent manner by reference to the latest Index closing level, which is published by an independent Index calculation agent. Such prices are also reconciled daily by the parties
- + The Fund implements best practices in counterparty risk management:
  - Swaps are unfunded. The Fund is fully invested in a portfolio of short-term T-Bills (diversified across issuances)
  - Daily collateralisation of swap exposures under ISDA documentation with following features:
    - Eligible collateral: Cash (in USD) + US, UK, France and Germany government bonds with min ratings (AA-/Aa3). The Fund would post T-Bills it holds in its portfolio
    - Haircuts: margin percentages for the bonds vary from 99% to 85%, depending on issuing sovereign and residual maturity
    - Transfer of title to the collateral assets (i.e. collateral is owned, rather than pledged)
    - Minimum swap exposure “threshold” of 50k for the exchange of collateral
- + All swap exposures are settled at the end of each month and at on any other day at the request of the Fund (same-day notice)
- + The Fund also complies with all UCITS rules on the use of derivatives and their risk management, including maximum swap counterparty limits of 5%, dealing only with EU regulated counterparties with minimum credit ratings, calculation and reporting of global exposures, etc

\*Treasury Bills (T-Bills): a short-dated, typically 90 day, US government security that yields no interest and is issued at a discount to its redemption price

# Definitions

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- + **BCOM:** Bloomberg Commodity Indices (BCOM) are a family of financial benchmarks designed to provide liquid and diversified exposure to physical commodities via futures contracts. Index live date 14/07/1998
- + **RJ/CRB:** Formerly known as the Reuters/Jefferies CRB Index, currently called Thomson Reuters/CoreCommodity CRB Index. the RJ/CRB index is one of the oldest commodity price indices, dating back to 1957
- + **S&P GSCI Capped:** The S&P GSCI Capped Component Index caps the highest weight component at 35% and the rest at 20% on a quarterly basis. Index live date 22/09/2009
- + **EBCIWTT:** The Optimised Roll Commodity Total Return Index uses a combination of Bloomberg Commodity Index (BCOM) weights and S&P GSCI Dynamic Roll Indices to enhance the efficiency of investing in commodity futures. Index live date 30/07/2013
- + **BCOM3F:** Bloomberg 3 Month Forward Index is a version of the Bloomberg Commodity (BCOM) Index where the lead and future contracts look 3 months ahead of the BCOM index contract calendar. Index live date 18/07/2008
- + **CMCI:** The UBS Bloomberg Constant Maturity Commodity Index introduces a time dimension to commodity investment to mitigate drag from rolling futures contracts. Index live date 01/01/2007
- + **DBLCI-OY:** The Deutsche Bank Liquid Commodity Index Optimum Yield Balanced selects the futures according to “optimum yield” rules which seek to minimise potential losses from rolling contracts. Index live date 11/01/2007.

Source: WisdomTree



# Acronyms

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- + **CME** – the Chicago Mercantile Exchange, owned by the CME Group
- + **Nymex** – the New York Mercantile Exchange, owned by the CME Group
- + **CBOT** – the Chicago Board of Trade, owned by the CME Group
- + **KBOT** – the Kansas City Board of Trade, owned by the CME Group
- + **ICE** – Intercontinental Exchange
- + **LME** – the London Metal Exchange

Source: WisdomTree



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