CoinDesk Indices

Trend Indicator Return Series Methodology

January 2025

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Introduction

Objective

The Trend Indicator Return Series ("TIRS") family is an expandable set of indices. The objective of each TIRS index is to capture the performance of a trend signal informed strategy that dynamically allocates between a digital asset and an alternate asset.

The digital asset (the "Primary Constituent") may be represented by a digital asset price index, an investible product, or an index that reflects the performance of futures contracts on a digital asset. The alternate asset (the "Secondary Constituent") may be reflected by a fiat currency, a stablecoin, a yield-bearing instrument, a yield-bearing investment product, or an index of any of these.

Each trend signal (the "Trend Indicator") is provided by one of the Trend Indicator family of signals published by CoinDesk Indices ("CDI"), whose methodology can be found here.

Variations of TIRS indices share the same calculation and parameters, which are applied to an underlying index corresponding to the relevant digital asset it is measuring.

Parameters for each current TIRS index are specified in Appendix 1. Additional variations may be added through an update to this methodology.

Highlights

The TIRS family was created by CDI and launched in October 2023. The Trend Indicator family, whose values are used as allocation signals in each TIRS variation, was created by CoinDesk Indices ("CDI") and launched in March 2023.

This methodology was created by CDI to achieve the above-stated Objective. There may be circumstances or market events that require CDI, in its sole discretion, to deviate from or amend these rules to ensure each TIRS variation continues to meet the Objective. This document should be read in conjunction with the applicable methodology of the underlying component indices and Trend Indicator signals.

Input data

For each TIRS index, the pricing of the underlying constituents and current and historical Trend Indicator values, as specified in Appendix 1, are the sole input data for calculation.

Calculation

Index calculation

Each TIRS Index is calculated at the Calculation Frequency specified in that TIRS Index's parameters as indicated in Appendix 1.

Constituent weighting

The weights of the Primary and Secondary Constituents are set at each rebalancing event. As defined in Appendix 1, the weight of the Primary Constituent is set to the specified allocation based on the appropriate Trend Indicator value subject to a Max Indicator Change[1] as defined in Appendix 1. The weight of the Secondary Constituent is calculated as:

Weight of Secondary Constituent = 1 - Primary Constituent weight

In the event the underlying Trend Indicator value for the current rebalance is the same as the trend indicator used to determine weights for the prior rebalancing event (including any adjustments made due to Max Indicator Change), the rebalancing event will not be implemented, and calculation will continue to use the data from the last implemented rebalance.

Calculation formula

For each TIRS index whose parameters are indicated in Appendix 1,

$$Index_t = Index_{RB} \times \left(1 + w_{PC,RB} \times \left(\frac{PC_t}{PC_{RB}} - 1\right) + \left(1 - w_{PC,RB}\right) \times \left(\frac{SC_t}{SC_{RB}} - 1\right)\right)$$

where,

$Index_t$ = TIRS index value at time *t*,
$Index_{RB}$ = TIRS index value as of the most recent rebalance,
PC_t = value of the Primary Constituent at time *t,* rounded to 2 decimals, PC_{RB} = value of the Primary Constituent as of the most recent rebalance, rounded to 2 decimals,
$w_{PC,RB}$ = the Primary Constituent Allocation as of the most recent rebalance,

[1] For certain TIRS, as defined in Appendix 1, a Max Indicator Change is enforced at each rebalancing event to reduce turnover. The Max Indicator Change defines the maximum number of level changes an indicator can move since the prior rebalance. (For example, if the trend signal value determined at the prior rebalance is -0.5 and the Max Indicator Change is set to 2 then the possible values at the next rebalance are limited to -1.0, -0.5, 0.0 or 0.5. In the event the new Trend Indicator Value is 1.0 it will be adjusted to 0.5 to determine constituent weights.)

SC_t = value of the Secondary Constituent at time t[2], rounded to 2 decimals,
SC_{RB} = value of the Secondary Constituent as of the most recent rebalance, rounded to 2 decimals.

Index Maintenance

Index Rebalancing

Each TIRS Index is rebalanced based on the schedule and parameters specified in Appendix 1. Rebalancing events will only be implemented if the applicable Trend Indicator Value for the current rebalance is different than that Trend Indicator Value determined on the prior rebalance. In the event the Trend Indicator Value is equal to that of the prior rebalance, the rebalancing event will be skipped.

Rebalances take place on the Rebalancing Day at the Rebalancing Time, at which time the Primary Constituent Allocation is set to equal the value corresponding to the Trend Indicator Value determined on that Rebalancing Day subject to any lag as detailed by the Trend Indicator Lag Days in Appendix 1. Rebalances are only implemented on calculation days and may be adjusted, or skipped, due to holidays as detailed in Appendix 1.

Constituent Replacement

In the event a Primary or Secondary Constituent of a TIRS index is discontinued or no longer appropriate, the Index Committee will determine and announce a replacement. In the event a suitable replacement is not available, the Index Committee reserves the right to discontinue the impacted TIRS index.

Trend Indicator Disruption

In the event there is a delay publishing the Trend Indicator Value required to rebalance a TIRS index, the scheduled index rebalancing event may be postponed or skipped. This will be determined by the Index Committee and announced to subscribers.

Data distribution

Each TIRS index will be available through a CoinDesk Indices API. Calculation days and times for each TIRS Index are as indicated in Appendix 1. Please contact sales@coindesk-indices.com for details.

[2] If the Secondary Constituent is "CASHIDX", SC_t and SC_{RB} are both equal to 1,000.00.

Index Governance

The CoinDesk Index Committee provides ongoing oversight of each Index and its Methodology. For more details on the Index Committee, please refer to the Index Governance section of the CoinDesk Digital Asset Indices Policy Methodology.

Appendix 1: TIRS Indices

The table below provides parameters for each TIRS index.

CoinDesk Bitcoin Trend Indicator Futures Index (Symbol: BTIUSF)		
Trend Indicator	BTI	
Primary Constituent	CoinDesk Bitcoin Futures Excess Return Index (Ticker: BFIC)[3]	
Secondary Constituent	Global X 1-3 Month T-Bill ETF (NYSE Ticker: CLIP)[4]	
Rebalance Day(s)	Wednesday (prior calculation day if Wednesday is a holiday)	
Rebalance Time	4:00pm Eastern time	
Trend Indicator Lag Days	1 calendar day	
Max Indicator Change	2	
Allocations	**Trend Indicator Value**	**Primary Constituent Allocation**
	1	100%
	0.5	75%
	0	50%
	-0.5	25%
	-1	0%
Calculation Days	Follows CME trading calendar found here	
Calculation Time	Daily using 4:00pm closing prices	
Calculation Frequency	Daily, at the Calculation Time	
Launch Date	2/7/2024	
Base Date	12/27/2017	
Base Value	1000.00	

[3] For more details on BFIC please refer to the CoinDesk Bitcoin Futures Index Methodology.
[4] CLIP dividends will be reinvested back into CLIP at the close of the ex-dividend date. A CLIP return series will be derived based on the CLIP ETF price and CLIP dividends to accurately reflect the performance of reinvested dividends and serve as the input for the Secondary Constituent (SC) prices in the calculation formula.

CoinDesk Bitcoin Trend Indicator Series 1 Index (Symbol: BTIS1)		
Trend Indicator	Bitcoin Trend Indicator (BTI)	
Primary Constituent	CoinDesk Bitcoin Price Index (Ticker: XBX)	
Secondary Index	Cash Index - No Yield (Ticker: CASHIDX)	
Rebalance Day(s)	Monday, Tuesday, Wednesday, Thursday, Friday except U.S. Bank Holidays	
Rebalance Time	8:00 pm Eastern Time	
Trend Indicator Lag Days	0	
Max Indicator Change	2	
Allocations	**Trend Indicator Value**	**Primary Constituent Allocation**
	1	100%
	0.5	75%
	0	50%
	-0.5	25%
	-1	0%
Calculation Days	All days	
Calculation Times	24 hours	
Calculation Frequency	15 seconds	
Launch Date	10/13/2023	
Base Date	01/01/2018	
Base Value	1000.00	

CoinDesk Ether Trend Indicator Series 1 Index (Symbol: ETIS1)		
Trend Indicator	Ether Trend Indicator (ETI)	
Primary Constituent	CoinDesk Ether Price Index (ETX)	
Secondary Index	Cash Index - No Yield (Ticker: CASHIDX)	
Rebalance Day(s)	Monday, Tuesday, Wednesday, Thursday, Friday except U.S. Bank Holidays	
Rebalance Time	8:00 pm Eastern Time	
Trend Indicator Lag Days	0	
Max Indicator Change	2	
Allocations	**Trend Indicator Value**	**Primary Constituent Allocation**
	1	100%
	0.5	75%
	0	50%
	-0.5	25%
	-1	0%
Calculation Days	All days	
Calculation Times	24 hours	
Calculation Frequency	15 seconds	
Launch Date	10/13/2023	
Base Date	01/01/2019	
Base Value	1000.00	

AMINA CoinDesk BTC Momentum Index (Symbol: BTIAMINA, ISIN: US00171M1045)		
Trend Indicator	Bitcoin Trend Indicator (BTI)	
Primary Constituent	CoinDesk Bitcoin Price Index (Ticker: XBX)[5]	
Secondary Index	Cash Index - No Yield (Ticker: CASHIDX)	
Rebalance Day(s)	Tuesday (next Swiss business day if Tuesday is a holiday). Holidays based on Swiss trading calendar found here	
Rebalance Time	4:00 pm CET	
Trend Indicator Lag Days	1 calendar day	
Max Indicator Change	n.a.	
Allocations	**Trend Indicator Value**	**Primary Constituent Allocation**
	1	100%
	0.5	75%
	0	50%
	-0.5	25%
	-1	0%
Calculation Days	Monday through Friday	
Calculation Time	4:00 pm CET	
Calculation Frequency	Daily, at the Calculation Time	
Launch Date	July 1, 2024	
Base Date	01/01/2018	
Base Value	1000.00	

[5] XBX is calculated every one second. The value of XBX used in the calculation of BTIAMINA is an arithmetic average of a set of 15 official XBX ticks. The inputs to this calculation are the last calculated XBX tick in each of the 15 minutes leading up to the Calculation Time with the final input representing the XBX tick at 15:59:59 CET.

Appendix 2: Methodology Changes

The table below provides a summary of changes, if any, to this Index Methodology.

Effective Date	Prior Treatment	Updated Treatment	Material Change
6/1/2024	Calculation of Primary Constituent for BTIAMINA uses spot price of XBX as of the last calculation prior to 16:00 CET	Calculation of Primary Constituent for BTIAMINA uses an arithmetic average of a set of 15 official XBX ticks. The inputs to this calculation are the last calculated XBX ticks in each of the 15 minutes leading up to the Calculation Time with the final input representing the XBX tick at 15:59:59 CET.	Prior to launch date
6/22/2023	Secondary Constituent for BTIUSF tracked the performance of the Solactive US T-Bill Index (Ticker: SOLTBILL)	Secondary Constituent for BTIUSF tracks the performance of the Global X 1-3 Month T-Bill ETF (NYSE Ticker: CLIP) with dividends reinvested	Prior to launch date

Appendix 3: Document Revision History

Date	Description
Jan 13, 2025	Annual Methodology Review with minor edits and clarifications
Jan 16, 2024	Annual Methodology Review with minor edits and clarifications
Jun 27, 2024	Addition of BTIAMINA Index
Feb 6, 2024	Addition of BTIUSF Index
Oct 12, 2023	Initial Version

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