MSCI Short and Leveraged Daily Indexes Methodology

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1. Introduction

The MSCI Short and Leveraged Daily Indexes[1] ("the Indexes") aim to replicate the payoff to daily shorting and leveraged investment strategies, respectively. These Indexes can serve as benchmarks for strategies that involve short or leveraged exposure to certain segments of the equity market or hedge existing portfolio exposures without the need to short individual stocks or use derivative instruments.

[1] The Indexes are governed by a set of methodology and policy documents ("Methodology Set"), including the present index methodology document. Please refer to Appendix II for more details.

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2. Short Daily Index Methodology Highlights

The objective of the MSCI Short Daily Indexes is to replicate the payoff to daily shorting investment strategies. The MSCI Short Daily Indexes take into account four main components of the payoff to daily shorting investment strategies:

(1) Capital gains associated with the underlying equity securities.

(2) Cash dividends paid by the underlying equity securities.

(3) Interest earned on the initial capital as well as on the proceeds of the short sale.

(4) Stock borrowing costs, typically fees paid to the beneficial owners of the borrowed stocks.

The formula used in the daily return calculation of the MSCI Short Daily Indexes is as follows:

$$R_S = -R + 2 \times r_f \times \frac{T}{360} - r_c \times \frac{T}{360}$$

The terms in this formula correspond to the different components of daily shorting investment strategies. Assuming that t denotes the day of calculation and t-1 denotes the previous business day, the terms in the above calculation formula can be interpreted as follows:

- R_S is the short daily index total return, including gross dividends, between dates *t-1* and *t*
- *R* is the underlying index total return, including gross dividends, between dates *t-1* and *t*
- r_f is the annual overnight short-term rate, for example[2]
  - EONIA / ESTR for EUR
  - USD LIBOR / SOFR for USD
  - GBP LIBOR / SONIA for GBP
  - CHF LIBOR / SARON for CHF
  - JPY LIBOR / TONA for JPY

  Refer to Appending for more information on short-term rates
- r_c is the annual stock borrowing cost
- *T* is the number of actual calendar days between dates *t-1* and *t*

The MSCI Short Daily Indexes are derived from existing underlying MSCI Indexes. As a result, corporate events are reflected in the MSCI Short Daily Indexes as they occur and as they are captured in the underlying MSCI Indexes.

The MSCI Short Daily Indexes are calculated daily using the formula presented and discussed above. The daily accrual of interest income and daily amortization of stock borrowing costs implied by this formula means that using the same formula to calculate short index returns over a horizon other than daily would result in different calculated index returns.

[2] MSCI Indexes may use other rates as applicable

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Stock borrowing costs used in the calculation of the MSCI Short Daily Indexes will be updated quarterly.

2.1 Rationale for Including Borrowing Costs in Short Daily Indexes

Investors pay stock borrowing fees to borrow securities and return them at a later date in the same way that they pay interest when they borrow cash and repay it at a future date. Therefore, stock borrowing costs, unlike transaction costs, are an inventory cost, more akin to interest and dividend payments. Given that MSCI includes interest and dividend payments in the calculation of short daily indexes, it is also appropriate to reflect stock borrowing costs in these indexes.

MSCI held extensive consultations with market participants during the development of the methodology used to construct the MSCI Short Daily Indexes. In these consultations, the majority of market participants commented that it is appropriate to take stock borrowing costs into account.

2.2 Borrowing Costs Calculation

Borrowing costs used in calculation of the MSCI Short Daily Indexes are computed using constituents of the parent index. Borrowing costs are updated on a quarterly basis in line with the effective date of Index Review dates.

Index borrowing cost at day t is computed as the weighted sum of security level borrowing cost using the following formula:

$$Index\ Borrowing\ cost_t = \frac{\sum_i w_{i,t} * r_{i,t}}{\sum_i w_{i,t}}$$

- $w_{i,t}$ is the weight of security i in the Parent Index at t
- $r_{i,t}$ is the borrowing cost of security i at t

For a particular quarter starting from T (effective date of the Index Review), 60 day average Index borrowing cost is computed based on the following formula:

$$r_c = \frac{\sum_{T-72<t\leq T-12} Index\ Borrowing\ Cost_t}{60}$$

r_c is then rounded to nearest 0.0005 multiple. For example if the calculated value is 0.004744 then it will be rounded to 0.0045 i,e. 45 bps.

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3. Leveraged Daily Index Methodology Highlights

The objective of the MSCI Leveraged Daily Indexes is to replicate the payoff to daily leveraged investment strategies. The MSCI Leveraged Daily Indexes take into account three main components of the payoff to daily leveraged investment strategies:

(1) Capital gains associated with the underlying equity securities.

(2) Cash dividends paid by the underlying equity securities.

(3) Interest paid to the lender of the capital that is used to lever the portfolio.

The formula that computes the daily return of the MSCI Leveraged Daily Indexes is as follows:

$$R_L = \; g \times R + (1 - g) \times r_f \times \frac{T}{360}$$

The terms in this formula correspond to the different components of daily leveraged investment strategies. Assuming that t denotes the day of calculation and t-1 denotes the previous business day, the terms in the above calculation formula can be interpreted as follows:

- R_L is the leveraged daily index total return, including gross dividends, between dates *t-1* and *t*
- *R* is the underlying index total return, including gross dividends, between dates *t-1* and *t*
- r_f is the annual overnight short-term rate, for example[3]
  - EONIA / ESTR for EUR
  - USD LIBOR / SOFR for USD
  - GBP LIBOR / SONIA for GBP
  - CHF LIBOR / SARON for CHF
  - JPY LIBOR / TONA for JPY

  Refer to Appendix for more information on short-term rates
- *g* is the strictly higher than one leverage ratio, defined as total capital over initial capital
- *T* is the number of actual calendar days between dates *t-1* and *t*

The MSCI Leveraged Daily Indexes are derived from existing underlying MSCI Indexes. As a result, corporate events are reflected in the MSCI Leveraged Daily Indexes as they occur and as they are captured in the underlying MSCI Indexes. With respect to calculation frequency, the MSCI Leveraged Daily Indexes are calculated daily using the above formula. The daily amortization of interest expense implied by this formula means that using the same formula to calculate leveraged index returns over a horizon other than daily would result in different calculated index returns.

[3] MSCI Indexes may use other rates as applicable

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Appendix I: Short Term Rates

Coinciding with the August 2021 Quarterly Index Review, MSCI Short and Leveraged Daily Indexes transition away from LIBOR to the short-term rates highlighted below.

Overnight LIBOR	USD	GBP	CHF	JPY
Short-term Rate	Overnight SOFR	Overnight SONIA	Overnight SARON	Overnight TONA

EONIA will be replaced by overnight ESTR.

MSCI Indexes may use other rates as applicable.

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Appendix II: Methodology Set

The Indexes are governed by a set of methodology and policy documents ("Methodology Set"), including the present index methodology document as mentioned below:

- Description of methodology set – https://www.msci.com/index/methodology/latest/ReadMe
- MSCI Corporate Events Methodology – https://www.msci.com/index/methodology/latest/CE
- MSCI Fundamental Data Methodology – https://www.msci.com/index/methodology/latest/FundData
- MSCI Index Calculation Methodology – https://www.msci.com/index/methodology/latest/IndexCalc
- MSCI Index Glossary of Terms – https://www.msci.com/index/methodology/latest/IndexGlossary
- MSCI Index Policies – https://www.msci.com/index/methodology/latest/IndexPolicy
- MSCI Global Industry Classification Standard (GICS) Methodology – https://www.msci.com/index/methodology/latest/GICS
- MSCI Global Investable Market Indexes Methodology – https://www.msci.com/index/methodology/latest/GIMI

The Methodology Set for the Indexes can also be accessed from MSCI's webpage https://www.msci.com/index-methodology in the section 'Search Methodology by Index Name or Index Code'.

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Appendix III: Changes to this Document

The following sections have been modified since November 2014:

Appendix 1: Annual Stock Borrowing Costs

The following sections have been modified since February 2015:

Appendix 1: Annual Stock Borrowing Costs – Deleted

The following sections have been modified since May 2015:

Section 1: Introduction

- Updates to the description.

Section 2: Short Daily Index Methodology Highlights

- Updates to the data description.

Section 3: Leveraged Daily Index Methodology Highlights

- Updates to the data description.

Appendix 1: Examples of Simulated Short and Leveraged Daily Index Performance – Deleted

The following sections have been modified effective August 2021:

- The methodology book has been updated to reflect the transition to shortterm rates from LIBOR and EONIA. An appendix has been added to the methodology to highlight the transition of rates.

The following sections have been modified since August 2024:

Section 2: Short Daily Index Methodology Highlights

- Added section 2.2: Borrowing Cost Calculation to explain how index level borrowing cost is being computed

Appendix II: Methodology Set

- Added details on the Methodology Set for the Index.

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