

The MSCI logo consists of the letters "MSCI" in a white, serif font, set against a dark blue rectangular background.A decorative graphic consisting of two thin, dark blue lines that curve upwards from the left and downwards from the right, meeting at a central point. The lines are positioned above the "Index Methodology" text.

Index Methodology

# MSCI Short and Leveraged Daily Indices Methodology

August 2013

# 1. INTRODUCTION

The MSCI Short and Leveraged Daily Indices aim to replicate the payoff to daily shorting and leveraged investment strategies, respectively. These indices can serve as benchmarks for the creation of exchange traded funds or other passive investment products that enable investors to gain 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.

# 2. SHORT DAILY INDEX METHODOLOGY HIGHLIGHTS

The objective of the MSCI Short Daily Indices is to replicate the payoff to daily shorting investment strategies. The MSCI Short Daily Indices 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 Indices is as follows:

$$R_s = -R + 2 \cdot r_f \cdot \frac{T}{360} - r_c \cdot \frac{T}{360}$$

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 risk-free rate (EONIA for EUR, LIBOR for other currencies)

$r_c$  is the annual stock borrowing cost (estimated from various sources including OTC swap data)

$T$  is the number of actual calendar days between dates  $t-1$  and  $t$

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

The MSCI Short Daily Indices 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.

The source for LIBOR rates is the British Banker's Association (BBA). The source for Eonia is the Euribor FBE (European Banking Federation). Eonia is a registered trademark of Euribor FBE.

Stock borrowing costs used in the calculation of the MSCI Short Daily Indices will be updated periodically using data from various sources including the OTC total return equity swap market. Initially, stock borrowing cost data will be updated at least annually; however, the update frequency of stock borrowing cost data may be reviewed in the future, depending on data availability. Please see Appendix 1 for the stock borrowing costs used.

## 2.1 Rationale for Including Borrowing Costs in Short Daily Indices

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 indices, it is also appropriate to reflect stock borrowing costs in these indices.

MSCI held extensive consultations with market participants during the development of the methodology used to construct the MSCI Short Daily Indices. In these consultations, the majority of market participants commented that it is appropriate to take stock borrowing costs into account. Also, market participants felt that even though there is no single universal stock borrowing cost rate applicable to all stocks and all investors, using proxies for stock borrowing costs such as total return equity swap repo rates or average stock borrowing fees would be acceptable and preferable to ignoring them completely.

# 3. LEVERAGED DAILY INDEX METHODOLOGY HIGHLIGHTS

The objective of the MSCI Leveraged Daily Indices is to replicate the payoff to daily leveraged investment strategies. The MSCI Leveraged Daily Indices 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 Indices is as follows:

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

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 risk-free rate (EONIA for EUR, LIBOR for other currencies)

$g$  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 Indices are derived from existing underlying MSCI Indices. As a result, corporate events are reflected in the MSCI Leveraged Daily Indices as they occur and as they are captured in the underlying MSCI Indices. With respect to calculation frequency, the MSCI Leveraged Daily Indices are calculated daily using the above formula. The daily amortisation 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.

The source for LIBOR rates is the British Banker's Association (BBA). The source for Eonia is the Euribor FBE (European Banking Federation). Eonia is a registered trademark of Euribor FBE.

The following section has been modified since May 2013:

#### *APPENDIX 1: ANNUAL STOCK BORROWING COSTS*

## APPENDIX 1: ANNUAL STOCK BORROWING COSTS

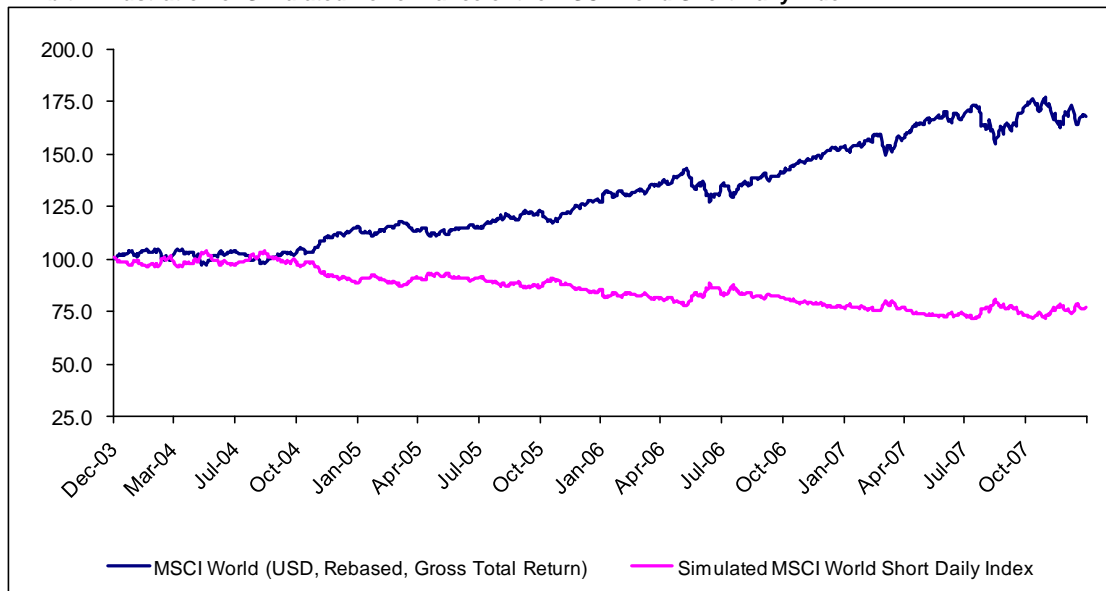
Country	Stock Borrowing Cost (bp annualized)
MSCI USA SHORT DAILY INDEX	5.00
MSCI JAPAN SHORT DAILY INDEX	20.00
Composite	
MSCI ACWI SHORT DAILY INDEX	25.00
MSCI WORLD SHORT DAILY INDEX	15.00
MSCI EUROPE SHORT DAILY INDEX	25.00
MSCI EAFE SHORT DAILY INDEX	25.00
MSCI EM SHORT DAILY INDEX	100.00

Data as of July 4, 2013

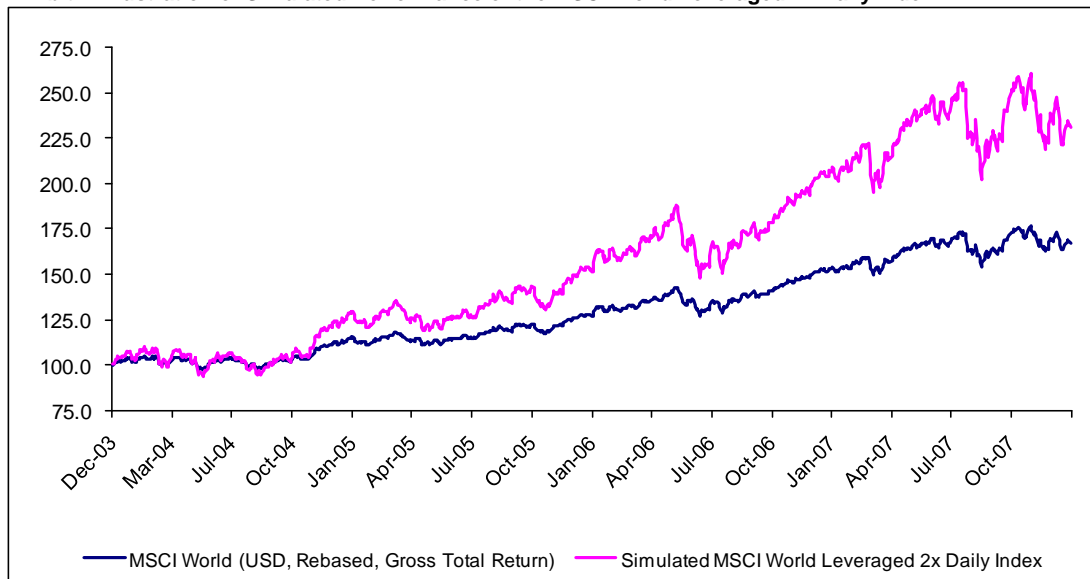
# APPENDIX 2: EXAMPLES OF SIMULATED SHORT AND LEVERAGED DAILY INDEX PERFORMANCE

The attached charts display examples of simulated performance for the MSCI World Short Daily Index and the MSCI World Leveraged Daily Index. Both simulations were carried out from a USD base currency perspective. Annual stock borrowing costs of 25 basis points were applied in the simulation of the MSCI World Short Daily Index and a leverage ratio of two was used in the simulation of the MSCI World Leveraged Daily Index. The USD overnight LIBOR interest rate was used to account for interest payments in both simulations.

**Exhibit 1: Illustration of Simulated Performance of the MSCI World Short Daily Index**



**Exhibit 2: Illustration of Simulated Performance of the MSCI World Leveraged 2x Daily Index**



## Client Service Information is Available 24 Hours a Day

[clientservice@msci.com](mailto:clientservice@msci.com)

### Americas

Americas	1.888.588.4567 (toll free)
Atlanta	+ 1.404.551.3212
Boston	+ 1.617.532.0920
Chicago	+ 1.312.675.0545
Montreal	+ 1.514.847.7506
Monterrey	+ 52.81.1253.4020
New York	+ 1.212.804.3901
San Francisco	+ 1.415.836.8800
Sao Paulo	+ 55.11.3706.1360
Stamford	+1.203.325.5630
Toronto	+ 1.416.628.1007

### Europe, Middle East & Africa

Cape Town	+ 27.21.673.0100
Frankfurt	+ 49.69.133.859.00
Geneva	+ 41.22.817.9777
London	+ 44.20.7618.2222
Milan	+ 39.02.5849.0415
Paris	0800.91.59.17 (toll free)

### Asia Pacific

China North	10800.852.1032 (toll free)
China South	10800.152.1032 (toll free)
Hong Kong	+ 852.2844.9333
Seoul	798.8521.3392 (toll free)
Singapore	800.852.3749 (toll free)
Sydney	+ 61.2.9033.9333
Tokyo	+ 81.3.5226.8222

## Notice and Disclaimer

- This document and all of the information contained in it, including without limitation all text, data, graphs, charts (collectively, the "Information") is the property of MSCI Inc. or its subsidiaries (collectively, "MSCI"), or MSCI's licensors, direct or indirect suppliers or any third party involved in making or compiling any information (collectively, with MSCI, the "Information Providers") and is provided for informational purposes only. The Information may not be reproduced or disseminated in whole or in part without prior written permission from MSCI.
- The Information may not be used to create derivative works or to verify or correct other data or information. For example (but without limitation), the Information may not be used to create indices, databases, risk models, analytics, software, or in connection with the issuing, offering, sponsoring, managing or marketing of any securities, portfolios, financial products or other investment vehicles utilizing or based on, linked to, tracking or otherwise derived from the Information or any other MSCI data, information, products or services.
- The user of the Information assumes the entire risk of any use it may make or permit to be made of the Information. NONE OF THE INFORMATION PROVIDERS MAKES ANY EXPRESS OR IMPLIED WARRANTIES OR REPRESENTATIONS WITH RESPECT TO THE INFORMATION (OR THE RESULTS TO BE OBTAINED BY THE USE THEREOF), AND TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, EACH INFORMATION PROVIDER EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES (INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF ORIGINALITY, ACCURACY, TIMELINESS, NON-INFRINGEMENT, COMPLETENESS, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) WITH RESPECT TO ANY OF THE INFORMATION.
- Without limiting any of the foregoing and to the maximum extent permitted by applicable law, in no event shall any Information Provider have any liability regarding any of the Information for any direct, indirect, special, punitive, consequential (including lost profits) or any other damages even if notified of the possibility of such damages. The foregoing shall not exclude or limit any liability that may not be excluded or limited, including without limitation (as applicable), any liability for death or personal injury to the extent that such injury results from the negligence or willful default of itself, its servants, agents or sub-contractors.
- Information containing any historical information, data or analysis should not be taken as an indication or guarantee of any future performance, analysis, forecast or prediction. Past performance does not guarantee future results.
- None of the Information constitutes an offer to sell (or a solicitation of an offer to buy), any security, financial product or other investment vehicle or any trading strategy. You cannot invest in an index.
- MSCI's indirect wholly-owned subsidiary Institutional Shareholder Services, Inc. ("ISS") is a Registered Investment Adviser under the Investment Advisers Act of 1940. Except with respect to any applicable products or services from ISS (including applicable products or services from MSCI ESG Research Information, which are provided by ISS), neither MSCI nor any of its products or services recommends, endorses, approves or otherwise expresses any opinion regarding any issuer, securities, financial products or instruments or trading strategies and neither MSCI nor any of its products or services is intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision and may not be relied on as such.
- The MSCI ESG Indices use ratings and other data, analysis and information from MSCI ESG Research. MSCI ESG Research is produced by ISS or its subsidiaries. Issuers mentioned or included in any MSCI ESG Research materials may be a client of MSCI, ISS, or another MSCI subsidiary, or the parent of, or affiliated with, a client of MSCI, ISS, or another MSCI subsidiary, including ISS Corporate Services, Inc., which provides tools and services to issuers. MSCI ESG Research materials, including materials utilized in any MSCI ESG Indices or other products, have not been submitted to, nor received approval from, the United States Securities and Exchange Commission or any other regulatory body.
- Any use of or access to products, services or information of MSCI requires a license from MSCI. MSCI, Barra, RiskMetrics, ISS, CFRA, FEA, and other MSCI brands and product names are the trademarks, service marks, or registered trademarks or service marks of MSCI or its subsidiaries in the United States and other jurisdictions. The Global Industry Classification Standard (GICS) was developed by and is the exclusive property of MSCI and Standard & Poor's. "Global Industry Classification Standard (GICS)" is a service mark of MSCI and Standard & Poor's.

## About MSCI

MSCI Inc. is a leading provider of investment decision support tools to investors globally, including asset managers, banks, hedge funds and pension funds. MSCI products and services include indices, portfolio risk and performance analytics, and governance tools.

The company's flagship product offerings are: the MSCI indices with close to USD 7 trillion estimated to be benchmarked to them on a worldwide basis<sup>1</sup>; Barra multi-asset class factor models, portfolio risk and performance analytics; RiskMetrics multi-asset class market and credit risk analytics; IPD real estate information, indices and analytics; MSCI ESG (environmental, social and governance) Research screening, analysis and ratings; ISS governance research and outsourced proxy voting and reporting services; FEA valuation models and risk management software for the energy and commodities markets; and CFRA forensic accounting risk research, legal/regulatory risk assessment, and due-diligence. MSCI is headquartered in New York, with research and commercial offices around the world.

<sup>1</sup>As of March 31, 2012, as published by eVestment, Lipper and Bloomberg in September 2012