

S&P VIX Futures Indices *Methodology*

January 2015

Table of Contents

Introduction	3
Highlights	3
Family	3
Index Construction	5
Approaches	5
Calculation of the VIX/VXEEM Futures Index Excess Return (ER)	6
Contract Rebalancing	7
Calculation of the VIX/VXEEM Futures Index Total Return (TR)	9
Calculation of the VIX Futures Term-Structure Excess Return (ER)	9
Calculation of the VIX Futures Term-Structure Total Return (TR)	10
Calculation of the VIX Short Term Futures Daily Inverse Excess Return (ER)	10
Calculation of the VIX Short Term Futures Daily Inverse Total Return (TR)	11
Calculation of the VIX Mid Term Futures Daily Inverse Excess Return (ER)	11
Calculation of the VIX Mid Term Futures Daily Inverse Total Return (TR)	11
Base Date	12
Historical Assumptions	12
Index Governance	13
Index Committee	13
Index Policy	14
Announcements	14
Holiday Schedule	14
Unscheduled Market Closures and New Holidays	14
Delisting of Futures Contracts	15

Index Dissemination	16
Tickers	16
FTP	16
Web site	16
S&P Dow Jones Indices' Contact Information	17
Index Management	17
Product Management	17
Media Relations	17
Client Services	17
Disclaimer	18

Introduction

The S&P VIX[®] Futures Index Series seeks to model the outcome of holding long and/or short positions in VIX¹ futures contracts or other volatility indices, as defined below.

Highlights

Historically, the VIX Index has a negative correlation to the S&P 500 and is considered a useful tool to hedge against the potential downside of the broad equity market. While the spot VIX is difficult to replicate as a practical matter, there is a market in VIX futures and options, and investors trade them to express their view on the S&P 500's implied volatility.

Family

The S&P VIX Futures Index Series is comprised of the S&P 500 VIX Short-Term Futures Index, the S&P 500 VIX 2M Futures Index, the S&P 500 VIX 3M Futures Index, the S&P 500 VIX 4M Futures Index, the S&P 500 VIX Mid-Term Futures Index, the S&P 500 VIX 6M Futures Index, the S&P 500 VIX Futures Term-Structure Index, the S&P 500 VIX Short Term Futures Daily Inverse Index, the S&P 500 VIX Mid Term Futures Daily Inverse Index and the S&P Emerging Markets Volatility Short-Term Futures Index.

The S&P 500 VIX Short-Term Futures Index measures the return from a daily rolling long position in the first and second month VIX futures contracts.

The S&P 500 VIX 2M Futures Index measures the return from a daily rolling long position in the second and third month VIX futures contracts.

The S&P 500 VIX 3M Futures Index measures the return from a daily rolling long position in the third and fourth month VIX futures contracts.

The S&P 500 VIX 4M Futures Index measures the return from a daily rolling long position in the fourth and fifth month VIX futures contracts.

The S&P 500 VIX Mid-Term Futures Index measures the return from a daily rolling long position in the fourth, fifth, sixth and seventh month VIX futures contracts.

¹ The VIX[®] methodology is the property of the Chicago Board Options Exchange ("CBOE"). CBOE has granted Standard & Poor's Financial Services LLC ("S&P"), a license to use the VIX methodology to create the S&P 500 VIX Futures Index.

The S&P 500 VIX 6M Futures Index measures the return from a daily rolling long position in the fifth, sixth, seventh and eighth month VIX futures contracts.

The S&P 500 VIX Futures Term-Structure Index measures the return from a long position, with 100% weight, in the S&P 500 VIX Mid-Term Futures Index and a short position, with 50% weight, in the S&P 500 VIX Short-Term Futures Index. The weights are rebalanced daily.

The S&P 500 VIX Short Term Futures Daily Inverse Index measures the performance of the inverse of the S&P 500 VIX Short-Term Futures Index.

The S&P 500 VIX Mid Term Futures Daily Inverse Index measures the performance of the inverse of the S&P 500 VIX Mid-Term Futures Index.

The S&P Emerging Markets Volatility Short-Term Futures Index measures the return from a daily rolling long position in the first and second month CBOE Emerging Markets ETF Volatility Index (VXEEM) futures contracts.

A total return version of each index is calculated, which includes interest accrual on the notional value of the index based on the three-month U.S. Treasury rate and reinvestment into the index.

This methodology was created by S&P Dow Jones Indices to achieve the aforementioned objective of measuring the underlying interest of each index governed by this methodology document. Any changes to or deviations from this methodology are made in the sole judgment and discretion of S&P Dow Jones Indices so that the index continues to achieve its objective.

Index Construction

Approaches

The indices model returns from long VIX futures positions (and/or short positions in other indices, as described in the *Introduction*) that are rolled continuously throughout the period between futures expiration dates. The total return version of the indices incorporates interest accrual on the notional value of the indices and reinvestment into the indices. Interest accrues based on the three-month U.S. Treasury rate.

The S&P 500 VIX Short-Term Futures Index, the S&P 500 VIX 2M Futures Index, the S&P 500 VIX 3M Futures Index and the S&P 500 VIX 4M Futures Index measure the return from a rolling long position in two VIX futures contracts with adjacent maturities. The index rolls continuously throughout each month from the shorter-term VIX futures contract into the longer-term VIX futures contract. Please refer to Table 1 below.

The S&P 500 VIX Mid-Term Futures Index and the S&P 500 VIX 6M Futures Index measure the return from a rolling long position in four VIX futures contracts with adjacent maturities. The index rolls continuously throughout each month from the shortest-term contract into the longest-term contract while maintaining positions in the other two contracts.

The S&P 500 VIX Futures Term-Structure Index measures the return from taking a 100% long position in the S&P 500 VIX Mid-Term Futures Index, and a 50% short position in the S&P 500 VIX Short-Term Futures Index. The weights of long and short positions are rebalanced daily.

The S&P 500 VIX Short Term Futures Daily Inverse Index measures the performance of the inverse of the S&P 500 VIX Short-Term Futures Index.

The S&P 500 VIX Mid Term Futures Daily Inverse Index measures the performance of the inverse of the S&P 500 VIX Mid-Term Futures Index.

The S&P Emerging Markets Volatility Short-Term Futures Index measures the return from a daily rolling long position in the first and second month VXEEM futures contracts. The index rolls continuously throughout each month from the first month VXEEM futures contract into the second month VXEEM futures contract.

Table 1: Underlying contracts and rolling contracts

Index Name	Underlying Contracts	Roll Out (m)	Roll In (n)
S&P 500 VIX Short-Term Futures Index	1 st , 2 nd	1 st	2 nd
S&P 500 VIX 2M Futures Index	2 nd , 3 rd	2 nd	3 rd
S&P 500 VIX 3M Futures Index	3 rd , 4 th	3 rd	4 th
S&P 500 VIX 4M Futures Index	4 th , 5 th	4 th	5 th
S&P 500 VIX Mid-Term Futures Index	4 th , 5 th , 6 th , 7 th	4 th	7 th
S&P 500 VIX 6M Futures Index	5 th , 6 th , 7 th , 8 th	5 th	8 th
S&P Emerging Markets Volatility Short-Term Futures Index	1 st , 2 nd	1 st	2 nd

Calculation of the VIX/VXEEM Futures Index Excess Return (ER)

On any business day of the underlying futures, t , the index ER is calculated as follows:

$$IndexER_t = IndexER_{t-1} * (1 + CDR_t) \quad (1)$$

where:

$IndexER_{t-1}$ = The Index Excess Return on the preceding business day, defined as any date on which the index is calculated.

CDR_t = Contract Daily Return, as determined by the following formula:

$$CDR_t = \frac{TDWO_t}{TDWI_{t-1}} - 1 \quad (2)$$

where:

$t-1$ = The preceding business day.

$TDWO_t$ = Total Dollar Weight Obtained on t , as determined by the following formula for each of the Indices:

$$TDWO_t = \sum_{i=m}^n CRW_{i,t-1} * DCRP_{i,t} \quad (3)$$

$TDWI_{t-1}$ = Total Dollar Weight Invested on $t-1$, as determined by the following formula for each of the Indices:

$$TDWI_{t-1} = \sum_{i=m}^n CRW_{i,t-1} * DCRP_{i,t-1} \quad (4)$$

where:

$CRW_{i,t}$ = Contract Roll Weight of the i^{th} VIX/VXEEM Futures Contract on date t .

$DCRP_{i,t}$ = Daily Contract Reference Price of the i^{th} VIX/VXEEM Futures Contract on date t .

m = The term of the futures contract that is rolled out on date t . Please refer to Table 1.

n = The term of the futures contract that is rolled in on date t . Please refer to Table 1.

Contract Rebalancing

The Roll Period starts on the Tuesday prior to the monthly CBOE VIX/VXEEM Futures Settlement Date (the Wednesday falling 30 calendar days before the S&P 500 option expiration for the following month), and runs through the Tuesday prior to the subsequent month's CBOE VIX/VXEEM Futures Settlement Date. Thus, the indices are rolling on a continual basis. On the business date after the current Roll Period ends the following Roll Period begins.

In calculating the Excess Return of each of the indices, the Contract Roll Weights ($CRW_{i,t}$) of each of the contracts in the index, on a given day, t , are determined as follows:

S&P 500 VIX Short-Term / 2M / 3M / 4M Futures Index, S&P Emerging Markets Volatility Short-Term Futures Index

$$CRW_{m,t} = 100 * \frac{dr}{dt}$$

$$CRW_{n,t} = 100 * \frac{dt - dr}{dt}$$

where:

dt = The total number of business days in the current Roll Period beginning with, and including, the starting CBOE VIX/VXEEM Futures Settlement Date and ending with, but excluding, the following CBOE VIX/VXEEM Futures Settlement Date. The number of business days stays constant in cases of a new holiday introduced intra-month or an unscheduled market closure.

dr = The total number of business days within a Roll Period beginning with, and including, the following business day and ending with, but excluding,

the following CBOE VIX/VXEEM Futures Settlement Date. The number of business days includes a new holiday introduced intra-month up to the business day proceeding such a holiday.

At the close on the Tuesday, corresponding to the start of the Roll Period, all of the weight is allocated to the shorter-term (i.e. m^{th} month) contract. Then on each subsequent business day a fraction of the m^{th} month VIX/VXEEM futures holding is sold and an equal notional amount of the longer-term (n^{th} month) VIX/VXEEM futures is bought. The fraction, or quantity, is proportional to the number of m^{th} month VIX futures contracts as of the previous index roll day, and inversely proportional to the length of the current Roll Period. In this way the initial position in the m^{th} month contract is progressively moved to the n^{th} month one over the course of the month, until the following Roll Period starts when the old n^{th} month VIX/VXEEM futures contract becomes the new m^{th} month VIX/VXEEM futures contract and gets sold every day afterward as the process begins again.

In addition to the transactions described above, the weight of each index component is also adjusted every day to ensure that the change in total dollar exposure for the index is only due to the price change of each contract and not due to using a different weight for a contract trading at a higher price.

S&P 500 VIX Mid-Term / 6M Futures Index

$$CRW_{m,t} = 100 * \frac{dr}{dt}$$

$$CRW_{i,t} = 100$$

$$CRW_{j,t} = 100$$

$$CRW_{n,t} = 100 * \frac{dt - dr}{dt}$$

At the close on the Tuesday, corresponding to the start of the Roll Period, an equal weight is allocated to the m^{th} , i^{th} , j^{th} and n^{th} month contracts. Then on each subsequent business day a fraction of the shortest term (i.e. m^{th} month) VIX futures holding is sold and an equal notional amount of the longest-term (i.e. n^{th} month) VIX futures is bought. The fraction, or quantity, is proportional to the number of m^{th} month VIX futures contracts as of the previous index roll day, and inversely proportional to the length of the current Roll Period. In this way the initial position in the m^{th} month contract is progressively moved to the n^{th} month contract over the course of the month, until the following Roll Period start when the old i^{th} month VIX futures contract becomes the new m^{th} month VIX futures contract and gets sold every day afterwards as the process begins again.

In addition to the transactions described above, the weight of each index component is also adjusted every day to ensure that the change in total dollar exposure for the index is only due to the price change of each contract and not due to using a different weight for a contract trading at a higher price.

Calculation of the VIX/VXEEM Futures Index Total Return (TR)

A total return version of each of the Indices is calculated, which includes interest accrual on the notional value of the index based on the three-month U.S. Treasury rate, as follows:

$$IndexTR_t = IndexTR_{t-1} * (1 + CDR_t + TBR_t) \quad (5)$$

where:

$IndexTR_{t-1}$ = The index TR on the preceding business day.

CDR_t = Contract Daily Return as defined in equation (2).

TBR_t = Treasury Bill Return, as determined by the following formula:

$$TBR_t = \left[\frac{1}{1 - \frac{91}{360} * TBAR_{t-1}} \right]^{\frac{Delta_t}{91}} - 1 \quad (6)$$

where:

$Delta_t$ = The number of calendar days between the current and previous business days.

$TBAR_{t-1}$ = The most recent weekly high discount rate for 91-day U.S. Treasury bills effective on the preceding business day. Generally the rates are announced by the U.S. Treasury on each Monday. On Mondays that are bank holidays, Friday's rates apply.

Calculation of the VIX Futures Term-Structure Excess Return (ER)

The Term-Structure Index is a composite index that consists of taking a long position on the S&P 500 VIX Mid-Term Futures Index with 100% weight, and a short position on the S&P 500 VIX Short-Term Futures Index with 50% weight. On any S&P 500 VIX Futures Business Day, t , the index ER is calculated as follows:

$$IndexER_t = IndexER_{t-1} * (1 + Excess Return_t) \quad (7)$$

where:

$IndexER_{t-1}$ = The Index Excess Return on the preceding business day, defined as any date on which the index is calculated,

and

$$Excess Return_t = (W_{Long} * Excess Return_{Long} - W_{Short} * Excess Return_{Short}) \quad (8)$$

where:

W_{Long} = 100%, is the weight of the long position.

$ExcessReturn_{Long}$ = Excess Return of the long position in S&P 500 VIX Mid-term Futures Index.

W_{Short} = 50%, is the weight of the short position.

$ExcessReturn_{Short}$ = Excess Return of the short position in S&P 500 VIX Short-term Futures Index.

Calculation of the VIX Futures Term-Structure Total Return (TR)

A total return version of the Index is calculated, which includes interest accrual on the notional value of the index based on the three-month U.S. Treasury rate, as follows:

$$IndexTR_t = IndexTR_{t-1} * (1 + Excess Return_t + TBR_t) \quad (9)$$

where:

$IndexTR_{t-1}$ = The index's total return on the preceding business day.

$ExcessReturn_t$ = Excess Return, as defined in equation (8).

TBR_t = Treasury Bill Return, as defined in equation (6).

Calculation of the VIX Short Term Futures Daily Inverse Excess Return (ER)

The S&P 500 VIX Short Term Futures Daily Inverse Index measures the performance of the inverse of the S&P 500 VIX Short-Term Futures Index. On any S&P 500 VIX Futures Business Day, t , the index ER is calculated as follows:

$$IndexER_t = IndexER_{t-1} * (1 + Excess Return_t) \quad (10)$$

where:

$IndexER_{t-1}$ = The Index Excess Return on the preceding business day, defined as any date on which the index is calculated,

and

$$Excess Return_t = -1 * VIXShortTermFuturesCDR_t \quad (11)$$

where:

$VIXShortTermFuturesCDR_t$ = Excess Return of the long position on the S&P 500 VIX Short-term Futures Index, as calculated in (2).

Calculation of the VIX Short Term Futures Daily Inverse Total Return (TR)

A total return version of the Index is calculated, which includes interest accrual on the notional value of the index based on the three-month U.S. Treasury rate, as follows:

$$IndexTR_t = IndexTR_{t-1} * (1 + Excess Return_t + TBR_t) \quad (12)$$

where:

$IndexTR_{t-1}$ = The index's total return on the preceding business day.

$ExcessReturn_t$ = Excess Return, as defined in equation (11).

TBR_t = Treasury Bill Return, as defined in equation (6).

Calculation of the VIX Mid Term Futures Daily Inverse Excess Return (ER)

The S&P 500 VIX Mid Term Futures Daily Inverse Index measures the performance of the inverse of the S&P 500 VIX Mid-Term Futures Index. On any S&P 500 VIX Futures Business Day, t , the index ER is calculated as follows:

$$IndexER_t = IndexER_{t-1} * (1 + Excess Return_t) \quad (13)$$

where:

$IndexER_{t-1}$ = The Index Excess Return on the preceding business day, defined as any date on which the index is calculated,

and

$$ExcessReturn_t = -1 * VIXMidTermFuturesCDR_t \quad (14)$$

where:

$VIXMidTermFuturesCDR_t$ = Excess Return of the long position on the S&P 500 VIX Mid-term Futures Index, as calculated in (2).

Calculation of the VIX Mid Term Futures Daily Inverse Total Return (TR)

A total return version of the Index is calculated, which includes interest accrual on the notional value of the index based on the three-month U.S. Treasury rate, as follows:

$$IndexTR_t = IndexTR_{t-1} * (1 + Excess Return_t + TBR_t) \quad (15)$$

where:

$IndexTR_{t-1}$ = The index's total return on the preceding business day.

$ExcessReturn_t$ = Excess Return, as defined in equation (14).

TBR_t = Treasury Bill Return, as defined in equation (6).

Base Date

The base dates of the S&P 500 VIX Futures indices are December 20, 2005 at base values of 100,000. The base date of the S&P Emerging Markets Volatility Short Term Futures Index is January 17, 2012 at a base value of 100,000.

Historical Assumptions

Prior to April 2008, not all consecutive first to seventh month VIX futures were listed. For the purpose of the historical S&P 500 VIX Futures Index series calculations, the following assumptions have been made in interpolating VIX futures contract prices from near-by listed contracts.

When the i^{th} future was not listed, but $i^{th}+1$ and $i^{th}-1$ futures were listed, the following interpolation has been assumed:

$$DCRP_{i,t}^2 = DCRP_{i-1,t}^2 + \frac{BDays(T_i - T_{i-1})}{BDays(T_{i+1} - T_{i-1})} (DCRP_{i+1,t}^2 - DCRP_{i-1,t}^2)$$

When i^{th} and $i^{th}+1$ futures were not listed, but $i^{th}+2$ and $i^{th}-1$ futures were listed, the following interpolation has been assumed:

$$DCRP_{i,t}^2 = DCRP_{i-1,t}^2 + \frac{BDays(T_i - T_{i-1})}{BDays(T_{i+2} - T_{i-1})} (DCRP_{i+2,t}^2 - DCRP_{i-1,t}^2)$$

When i^{th} , $i^{th}+1$ and $i^{th}+2$ futures were not listed, the following interpolation has been assumed:

$$DCRP_{i,t}^2 = DCRP_{i-1,t}^2 + \frac{BDays(T_i - T_{i-1})}{BDays(T_{i-1} - T_{i-2})} (DCRP_{i-1,t}^2 - DCRP_{i-2,t}^2)$$

where:

T_i = Expiration Day of the i^{th} VIX Futures contract

$BDays$ = Number of Business days between VIX Futures Expiration Days

Index Governance

Index Committee

The Commodities Index Committee maintains the S&P 500 VIX Futures Indices. All members of the Committee are full-time professionals at S&P Dow Jones Indices. The Committee meets quarterly. At each meeting, the Committee reviews any significant market events. In addition, the Committee may revise index policy for timing of rebalancings or other matters.

S&P Dow Jones Indices considers information about changes to its Indices and related matters to be potentially market moving and material. Therefore, all Index Committee discussions are confidential.

For information on [Quality Assurance and Internal Reviews of Methodology](#), please refer to S&P Dow Jones Indices' [Commodities Indices Policies & Practices](#) document located on our Web site, www.spdji.com.

Index Policy

Announcements

Announcements of the daily index values are made after the market close each day.

Holiday Schedule

The index is calculated daily when the CBOE Futures Exchange is open, excluding holidays and weekends.

A complete holiday schedule for the year is available at www.spdji.com.

Unscheduled Market Closures and New Holidays

In situations where an exchange is forced to close early due to unforeseen events, such as computer or electric power failures, weather conditions or other events, S&P Dow Jones Indices calculates the value of the index based on the most recent prior closing futures price published by the CBOE Futures Exchange and the roll for that day is carried to the next CBOE business day as described in the Contract Rebalancing section. If an exchange fails to open due to unforeseen circumstances, S&P Dow Jones Indices may determine not to publish the index for that day. The daily roll percentage is determined on the day when the index is fully rolled from the first month contract to the second month contract, and stays constant throughout the month. If the index is not calculated or published due to unforeseen circumstances during the month, the unrolled portion for that day is carried to the next CBOE business day. It does not change the daily roll percentage on the remaining days of the month.

In situations where an exchange introduces a holiday during the month of the index calculation the index is not be published and the roll for that day is carried to the next CBOE business day as described in the Contract Rebalancing section.

Please see example provided below

Normal Roll Schedule	ER Calculated Weights	
	% Current	% Next
10/25/2012	0.76	0.24
10/26/2012	0.72	0.28
10/29/2012	0.68	0.32
10/30/2012	0.64	0.36
10/31/2012	0.60	0.40
11/01/2012	0.56	0.44
11/02/2012	0.52	0.48

Unscheduled Market Closure	ER Calculated Weights	
	% Current	% Next
10/25/2012	0.76	0.24
10/26/2012	0.72	0.28
10/29/2012	Unscheduled Market Closure	
10/30/2012	Unscheduled Market Closure	
10/31/2012	0.68	0.32
11/01/2012	0.56	0.44
11/02/2012	0.52	0.48

For more information on Unexpected Exchange Closures, please refer to S&P Dow Jones Indices' Commodities Indices Policies & Practices document located on our Web site, www.spdji.com.

Delisting of Futures Contracts

If one or more futures contracts included in one of the indices is no longer listed, S&P Dow Jones Indices may choose to cease publication of the effected index at that time.

For information on Calculations and Pricing Disruptions, Expert Judgment, Data Hierarchy and Error Corrections, please refer to S&P Dow Jones Indices' Commodities Indices Policies & Practices document located on our Web site, www.spdji.com.

Index Dissemination

Historical index returns are available through S&P Dow Jones Indices' index data group for subscription via FTP.

Tickers

Index	Bloomberg	Reuters
S&P 500 VIX Short-Term Futures Index ER	SPVXSP	--
S&P 500 VIX Short-Term Futures Index TR (Real-Time)	SPVIXSTR	.SPVIXSTR
S&P 500 VIX Short-Term Futures Index TR (End of Day)	SPVXSTR	--
S&P 500 VIX Mid-Term Futures Index ER	SPVXMP	--
S&P 500 VIX Mid-Term Futures Index TR (Real-Time)	SPVIXMTR	.SPVIXMTR
S&P 500 VIX Mid-Term Futures Index TR (End of Day)	SPVXMTR	--
S&P 500 VIX Futures Term-Structure Index ER	SPVXTSER	.SPVXTSER
S&P 500 VIX Futures Term-Structure Index TR	SPVXTSTR	--
S&P 500 VIX 2M Futures Index ER	SPVIX2ME	.SPVIX2ME
S&P 500 VIX 2M Futures Index TR	SPVIX2MT	.SPVIX2MT
S&P 500 VIX 3M Futures Index ER	SPVIX3ME	.SPVIX3ME
S&P 500 VIX 3M Futures Index TR	SPVIX3MT	.SPVIX3MT
S&P 500 VIX 4M Futures Index ER	SPVIX4ME	.SPVIX4ME
S&P 500 VIX 4M Futures Index TR	SPVIX4MT	.SPVIX4MT
S&P 500 VIX 6M Futures Index ER	SPVIX6ME	.SPVIX6ME
S&P 500 VIX 6M Futures Index TR	SPVIX6MT	.SPVIX6MT
S&P 500 VIX Short Term Futures Daily Inverse Index ER	SPVXSPI	.SPVXSIER
S&P 500 VIX Short Term Futures Daily Inverse Index TR	SPVXSPIIT	.SPVXSITR
S&P 500 VIX Mid Term Futures Daily Inverse Index ER	SPVXMPI	.SPVXMPI
S&P 500 VIX Mid Term Futures Daily Inverse Index TR	SPVXMPIIT	.SPVXMPIIT
S&P Emerging Markets Volatility Short Term Futures Index ER	SPVXESP	.SPVXESP
S&P Emerging Markets Volatility Short Term Futures Index TR	SPVXESTR	.SPVXESTR

FTP

Index returns and data are available via FTP subscription.

For product information, please contact S&P Dow Jones Indices, www.spdji.com/contact-us.

Web site

For further information, please refer to S&P Dow Jones Indices' Web site at www.spdji.com.

S&P Dow Jones Indices' Contact Information

Index Management

David M. Blitzler, Ph.D. – Managing Director & Chairman of the Index Committee david.blitzler@spdji.com	+1.212.438.3907
Mark Berkenkopf – Team Leader, Commodity mark.berkenkopf@spdji.com	+1.212.438.3244

Product Management

Reid Steadman – Managing Director reid.steadman@spdji.com	+1.212.438.4675
--	-----------------

Media Relations

David Guarino – Communications dave.guarino@spdji.com	+1.212.438.1471
--	-----------------

Client Services

index_services@spdji.com

Beijing	+86.10.6569.2770
Dubai	+971.4.371.7131
Hong Kong	+852.2532.8000
London	+44.20.7176.8888
New York	+1.212.438.2046 or +1.877.325.5415
Sydney	+61.2.9255.9802
Tokyo	+81.3.4550.8564

Disclaimer

© S&P Dow Jones Indices LLC, a part of McGraw Hill Financial 2015. All rights reserved. Standard & Poor's and S&P are registered trademarks of Standard & Poor's Financial Services LLC ("S&P"), a part of McGraw Hill Financial. Dow Jones is a registered trademark of Dow Jones Trademark Holdings LLC ("Dow Jones"). Trademarks have been licensed to S&P Dow Jones Indices LLC. Redistribution, reproduction and/or photocopying in whole or in part are prohibited without written permission. This document does not constitute an offer of services in jurisdictions where S&P Dow Jones Indices LLC, Dow Jones, S&P or their respective affiliates (collectively "S&P Dow Jones Indices") do not have the necessary licenses. All information provided by S&P Dow Jones Indices is impersonal and not tailored to the needs of any person, entity or group of persons. S&P Dow Jones Indices receives compensation in connection with licensing its indices to third parties. Past performance of an index is not a guarantee of future results.

It is not possible to invest directly in an index. Exposure to an asset class represented by an index is available through investable instruments based on that index. S&P Dow Jones Indices does not sponsor, endorse, sell, promote or manage any investment fund or other investment vehicle that is offered by third parties and that seeks to provide an investment return based on the performance of any index. S&P Dow Jones Indices makes no assurance that investment products based on the index will accurately track index performance or provide positive investment returns. S&P Dow Jones Indices LLC is not an investment advisor, and S&P Dow Jones Indices makes no representation regarding the advisability of investing in any such investment fund or other investment vehicle. A decision to invest in any such investment fund or other investment vehicle should not be made in reliance on any of the statements set forth in this document. Prospective investors are advised to make an investment in any such fund or other vehicle only after carefully considering the risks associated with investing in such funds, as detailed in an offering memorandum or similar document that is prepared by or on behalf of the issuer of the investment fund or other vehicle. Inclusion of a security within an index is not a recommendation by S&P Dow Jones Indices to buy, sell, or hold such security, nor is it considered to be investment advice.

These materials have been prepared solely for informational purposes based upon information generally available to the public and from sources believed to be reliable. No content contained in these materials (including index data, ratings, credit-related analyses and data, research, valuations, model, software or other application or output therefrom) or any part thereof (Content) may be modified, reverse-engineered, reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written permission of S&P Dow Jones Indices. The Content shall not be used for any unlawful or unauthorized purposes. S&P Dow Jones Indices and its third-

party data providers and licensors (collectively “S&P Dow Jones Indices Parties”) do not guarantee the accuracy, completeness, timeliness or availability of the Content. S&P Dow Jones Indices Parties are not responsible for any errors or omissions, regardless of the cause, for the results obtained from the use of the Content. **THE CONTENT IS PROVIDED ON AN “AS IS” BASIS. S&P DOW JONES INDICES PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT’S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION.** In no event shall S&P Dow Jones Indices Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs) in connection with any use of the Content even if advised of the possibility of such damages.

S&P Dow Jones Indices keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of S&P Dow Jones Indices may have information that is not available to other business units. S&P Dow Jones Indices has established policies and procedures to maintain the confidentiality of certain non-public information received in connection with each analytical process.

In addition, S&P Dow Jones Indices provides a wide range of services to, or relating to, many organizations, including issuers of securities, investment advisers, broker-dealers, investment banks, other financial institutions and financial intermediaries, and accordingly may receive fees or other economic benefits from those organizations, including organizations whose securities or services they may recommend, rate, include in model portfolios, evaluate or otherwise address.