

# **S&P 500 Oil Hedged Index** *Methodology*

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# Introduction

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The S&P 500 Oil Hedged Index seeks to simulate the returns of an investment strategy which is long the S&P 500 and hedged against changes in the US\$ as measured by oil prices.

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.

## **Highlights**

The index is calculated by hedging the beginning-of-period S&P 500 Total Return index value using rolling NYMEX Oil and ICE Brent Crude Oil futures contracts.

The hedge only protects against adverse movements in the relative value of the US\$, as expressed in the dollar price of oil. Stock market risk is not hedged in any way.

The results of an oil-hedged index strategy, versus that of an un-hedged strategy, vary depending upon the movement of US\$-based oil futures contracts. Those holding long oil futures contracts gain when oil prices increase. Conversely, they lose when the opposite occurs.

The index is rebalanced monthly to equalize notional exposure to equity and oil.

# Index Construction

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## Approaches

The S&P 500 Oil Hedged Index is calculated as a combination of a long S&P 500 position overlaid with long positions in NYMEX Oil futures and ICE Brent Crude Oil futures. The equity and futures positions are rebalanced to equal weights monthly.

The index uses NYMEX Crude Oil and ICE Brent Crude Oil futures as a hedge. The hedge position has 50% in NYMEX Crude Oil and 50% in ICE Brent Crude Oil at the close of each rebalancing day. The index is rebalanced monthly.

## Index Calculations

### *Calculating the Daily Return Series*

The index is calculated based on the total return of a hypothetical portfolio consisting of long S&P 500 and long NYMEX Crude Oil and ICE Brent Crude Oil futures positions. The return and the index value are calculated as follows:

$$R_{SPTR} = \frac{SPTR_t}{SPTR_{ME}} - 1 \quad (1)$$

$$R_{Oil} = 0.5 * \left( \frac{Crude_t}{Crude_{ME}} - 1 \right) + 0.5 * \left( \frac{Brent_t}{Brent_{ME}} - 1 \right)$$

$$R_{hedged} = R_{SPTR} + HedgeRatio * R_{Oil}$$

$$I_t = (1 + R_{hedged}) * I_{ME}$$

where:

- $R_{SPTR}$  = Total return of the S&P 500 since the previous rebalancing day
- $R_{Oil}$  = Return of Oil futures since the previous rebalancing day
- $R_{hedged}$  = Return of the S&P 500 Oil Hedged total return index since the previous rebalancing day
- $I_t$  = S&P 500 Oil Hedged total return index value on day  $t$
- $SPTR_{ME}$  = S&P 500 total return index value on the previous rebalancing day
- $SPTR_t$  = S&P 500 total return index value on day  $t$

- $Crude_{ME}$**  = Crude Oil futures closing price on the previous rebalancing day (based on the contract that was being used on that month's rebalancing day, see table below)
- $Crude_t$**  = Oil futures closing price on day  $t$
- $Brent_{ME}$**  = Brent Oil futures closing price on the previous rebalancing day (based on the contract that was being used on that month's rebalancing day, see table below)
- $Brent_t$**  = Brent Oil futures closing price on day  $t$
- $I_{ME}$**  = S&P 500 Oil Hedged total return index value on the previous rebalancing day
- $HedgeRatio$**  = 1 for the S&P 500 Oil Hedged Index

### **Monthly Roll and Rebalancing**

The S&P 500 Oil Hedged Index uses the designated Oil futures on the NYMEX (ticker CL) and Brent Oil futures on the ICE (ticker CO) as illustrated in Table 1. Oil futures are not held to maturity. Instead, the long futures positions roll to the next designated contract at the close of business on the first Wednesday of the month, when it is both an equity and a commodity exchange business day. If that date is not a business day for all exchanges, the roll date is the next common business date. The positions are rebalanced to equal weights on the roll day.

**Table 1: Futures Contracts Rolled Into in the S&P 500 Oil Hedged Index**

Oil Hedged S&P 500 Index Futures Roll Schedule														
Trading Facility	Commodity (Contract)	Ticker	Designated Contract At Month End											
		Month	1	2	3	4	5	6	7	8	9	10	11	12
NYMEX	Crude Oil	CL	H	J	K	M	N	Q	U	V	X	Z	F	G
ICE	Brent Oil	CO	H	J	K	M	N	Q	U	V	X	Z	F	G

Futures months included in the S&P 500 Oil Hedged Index at month-end. Month letter codes are shown in Table 2.

**Table 2: Month Letter Codes**

Month	Letter Code	Month	Letter Code	Month	Letter Code
January	F	May	K	September	U
February	G	June	M	October	V
March	H	July	N	November	X
April	J	August	Q	December	Z

For example, at the end of November 2010, the index portfolio holds the January 2011 contracts. On December 1<sup>st</sup> 2010, the first Wednesday of December, the futures are rolled into the February 2011 contracts. The positions are rebalanced so that the notional value of the February 2011 futures contracts equals the equity position. The equal-weight rebalancing occurs monthly.

*For more information on the index calculation methodology, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.*

# Index Maintenance

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## **Rebalancing**

The index is rebalanced monthly so that the notional exposure to equity and oil is equal after the close on the first Wednesday of the month, when it is both an equity and a commodity exchange business day. If this date is not a business day, the next common business day is used. The positions are rebalanced to equal weights on that day. No announcement is made.

## **Limited Loss Provision**

If at the close of any given business day the S&P 500 Oil Hedged Index has declined by 80% or more since the last rebalancing day then the Index will rebalance at the close of the next business day. The Index rebalances again normally after the close on the first Wednesday of the month.

The above provision does include the rebalancing day itself. So, if on the first Wednesday of the month the index has lost 80% or more since the last rebalancing day (or, if such day is not an equity and commodity exchange business day, the next common business day), the scheduled monthly rebalancing is postponed to the next business day.

The index level has a floor of 0.01 to prevent the loss of the S&P 500 Oil Hedged Index from exceeding 100%. If the floor is reached at the close of any business day the index is terminated. If the index touches the floor during intra-day trading, but closes above the floor, the index remains and continues calculating.

## **Base Date**

The index base date is December 24<sup>th</sup> 1998 at a base value of 1000.

# Index Governance

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## **Index Committee**

The S&P Dow Jones Indices' Americas Thematic & Strategy Index Committee maintains the S&P 500 Oil Hedged Index. The Index Committee meets regularly. At each meeting, the Index Committee reviews any significant market events. In addition, the Index Committee may revise index policy for timing of rebalancing 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' *Equity Indices Policies & Practices* document located on our Web site, [www.spdji.com](http://www.spdji.com).*

# Index Policy

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## **Announcements**

Announcements of the daily index values are made after the equity and futures market close each day. The index is calculated daily when the U.S. stock exchanges are open for official trading, excluding holidays and weekends.

*For more information on S&P Dow Jones Indices' announcements, please refer to the Announcement Policy located on our Web site, [www.spdji.com](http://www.spdji.com).*

## **Unscheduled Market Closures**

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 will calculate the closing price of the indices based on (1) the closing prices published by the exchange, or (2) if no closing price is available, the last regular trade reported for each security before the exchange closed. If an exchange fails to open due to unforeseen circumstances, S&P Dow Jones Indices treats this closure as a standard market holiday. The index will use the prior day's closing prices and shifts any corporate actions to the following business day. If all exchanges fail to open or in other extreme circumstances, S&P Dow Jones Indices may determine not to publish the index for that day.

*For further information on Unexpected Exchange Closures, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document located on our Web site, [www.spdji.com](http://www.spdji.com).*

## **Recalculation Policy**

S&P Dow Jones Indices reserves the right to recalculate an index under certain limited circumstances. S&P Dow Jones Indices may choose to recalculate and republish an index if it is found to be incorrect or inconsistent within two trading days of the publication of the index level in question for one of the following reasons:

1. Incorrect or revised closing price
2. Missed corporate event
3. Late announcement of a corporate event
4. Incorrect application of corporate action or index methodology

Any other restatement or recalculation of an index is only done under extraordinary circumstances to reduce or avoid possible market impact or disruption as solely determined by the Index Committee.

*For more information on the recalculation policy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document located on our Web site, [www.spdji.com](http://www.spdji.com).*

*For information on Calculations and Pricing Disruptions, Expert Judgment and Data Hierarchy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document located on our Web site, [www.spdji.com](http://www.spdji.com).*

# Index Dissemination

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

## **Tickers**

<b>Index</b>	<b>Bloomberg</b>
S&P 500 Oil Hedged Total Return	SPOILH

## **FTP**

Daily stock level and index data are available via FTP subscription.

*For product information, please contact S&P Dow Jones Indices, [www.spdji.com/contact-us](http://www.spdji.com/contact-us).*

## **Web site**

*For further information, please refer to S&P Dow Jones Indices' Web site at [www.spdji.com](http://www.spdji.com).*

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