

S&P Merger Arbitrage Index *Methodology*

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Introduction

Index Objective

The S&P Merger Arbitrage Index is comprised of stocks that are active in pending merger deals. The index is based on a risk arbitrage strategy that exploits commonly observed price changes associated with publicly announced mergers, acquisitions or other corporate reorganizations.

Highlights

The index includes a maximum of 40 companies that are currently targets in merger deals are represented in the index in long positions and a maximum of 40 companies that are currently acquirers for the same stock merger deals are represented in short positions. The index includes a cash component, which earns the three-month U.S. Treasury Bill rate.

The long positions are comprised of target companies involved in cash, stock and cash/stock deals. The short positions are comprised of acquiring companies involved in the corresponding stock and cash/stock deals.

The index is calculated using the Domestic Currency Return (DCR) methodology. Under this scheme currency movements are eliminated from the index currency calculation.

Please refer to the Domestic Currency Return Index Calculation section in S&P Dow Jones Indices' Index Mathematics Methodology for complete details.

Deals are screened on the basis of size, liquidity, premium and exchange listing to ensure that the underlying positions are tradable and offer upside potential if the deal does close.

Index Family

The S&P Merger Arbitrage Index belongs to the S&P Merger Arbitrage Indices Family. Other indices in the family include:

- S&P Merger Arbitrage - Long Index
- S&P Merger Arbitrage - Short Index
- S&P Long Only Merger Arbitrage Index
- S&P Long Only Ex-Cash 10% Capped Merger Arbitrage Index

Supporting Documents

This methodology is meant to be read in conjunction with supporting documents providing greater detail with respect to the policies, procedures and calculations described herein. References throughout the methodology direct the reader to the relevant supporting document for further information on a specific topic. The list of the main supplemental documents for this methodology and the hyperlinks to those documents is as follows:

Supporting Document	URL
S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology	Equity Indices Policies & Practices
S&P Dow Jones Indices' Index Mathematics Methodology	Index Mathematics Methodology
S&P Dow Jones Indices' Float Adjustment Methodology	Float Adjustment Methodology

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.

Eligibility Criteria

The S&P Merger Arbitrage Index is comprised of stocks currently involved in pending mergers. At any given time, a maximum of 40 companies that are currently targets in merger deals are represented in the index in long positions and a maximum of 40 companies that are currently acquirers for the same stock merger deals are represented in short positions.

Additions

Domicile. Each company must be domiciled and listed in a developed market with deliverable settlement. The eligible countries are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the United States.

Deal Size. The deal size, based on the terms of the merger as of the date of the merger announcement, must be greater than US\$ 500 million. The deal size is defined as the total value of stock and cash used to acquire the target company. Debt is not included.

Liquidity. Each target company must have a minimum median value traded of US\$ 5 million over the preceding three months, as of the date of the merger announcement. Value traded is defined as the daily trading volume of the target company multiplied by its closing price. For stock and cash/stock deals, median value traded of the acquiring company as well as the target company must be above US\$ 5 million.

Premium. As of the time of the merger announcement, the deal must have a premium above 2%. In other words, the implied price of the deal must be at least 2% greater than the stock price of the target company one day prior to the announcement of the deal.

Currency. For deals that contain net foreign currency exposure, the index excludes any transaction where the interest rate differential between the U.S. dollar and the other currency exceeds a certain threshold. The interest rate differential is the annualized forward discount or premium using the spot rate and the one month forward rate between the U.S. dollar and the other currency. The threshold is 500 bps or less in a short currency position and 500 bps or more in a long currency position.

There are only two scenarios where currency exposure is not an issue. In all other cases, the above rules apply.

1. A cash deal where the target is a U.S. listed stock
2. A cash/stock deal where both the target and acquirer are U.S. listed stocks

Short Sale Ban. Deals that include a short component directly impacted by a short sale ban in the relevant market are excluded.

Deal Terms. The compensation offered to shareholders of the target company must be cash, stock or a combination of cash and stock.

The following types of deals are included in the deal universe. The percentage of ownership sought in each type must be greater than or equal to 50%.

- Acquisition
- Merger
- Leveraged Buy Out
- Private Equity

The following types of deals are excluded from the deal universe:

- Minority Divestitures
- Hostile Takeover
- Deals Where Target Company Immediately Rejects the Offer from the Acquirer
- Unit Divestitures
- Merger of Equals

Deletions

Withdrawal from a Merger Plan. If the acquiring company withdraws from a merger plan, the target company is removed from the index two business days following the withdrawal announcement. However, if the stock is a target of two or more potential acquirers, it remains in the index as long as any of the offers are still active.

Completion of Merger. If a pending merger is completed, the company is removed from the index. The deletion is effective on the earlier of the date the company is deleted from any standard S&P Dow Jones' index or the date immediately after the last date of trading in the target company, and announced at least two days in advance.

New Offer for a Target Company. In the event that a target company in the index receives a separate offer from a new acquirer and both offers are for cash, or for a cash or stock option, then the initial deal remains in the index and the second deal is not added. If either the initial offer or the new offer is for stock or a combination of cash and stock, then the second deal is not added and the initial deal is removed after the new offer, with an announcement at least two days in advance.

Replacement. At any given time, the index contains a maximum of 40 long positions. If, at the time of a merger announcement where the merger is eligible for the index, there are 40 positions in the index:

- The deal which has been in the index for at least 11 months is removed. If there are multiple deals that have been in the index for more than 11 months but less than one year, the oldest among those is removed.
- If no deals qualify from the above, the position with the lowest return since it entered the index is deleted. The return calculated uses U.S. dollar total return (price + cash dividends) from the time the stock was added to the index until the day it is reviewed for possible deletion. The company being deleted, however, must have been an index member for at least 30 days. In other words, the return calculation must be based on at least 30 trading days of data. In addition, the company will not be eligible to re-enter the index if it is part of a new offer.
- If, at the time of a merger announcement where the merger is eligible for the index, there are less than 40 positions in the index and less than 1.5% cash in the index, the worst performing long-only deal(s) are removed until the index cash position becomes at least 2% to accommodate the inclusion of the new deal.

Maximum Inclusion Time. A company may be included in the index for a maximum of one year. If the merger has not closed within a year, the company is deleted effective on the one-year anniversary of its inclusion, with a two day advanced announcement.

All eligibility criteria are reviewed and subject to change from time to time based on market conditions.

Index Construction

Constituent Selection and Timings

After 03:00 PM (New York Time) every U.S. trading date, S&P Dow Jones Indices identifies any additions and deletions as per the eligibility criteria.

If a new company qualifies, it is added to the index at the close of the U.S. market with two days' notice. At the time of the eligible merger announcement, if there are 40 stocks in the index, the stock with the lowest return since entering the index is deleted. If there are fewer than 40 stocks in the index at the time of the latest merger announcement no deletion is made.

When a deletion is made from the S&P Merger Arbitrage Index for any reason – merger completion, merger withdrawal, the stock being in the index for one year or a replacement to maintain a maximum of 40 stocks – the value of the deleted company is put into the index's cash component. If a stock is deleted, it is deleted at the close of the U.S. market with two days' notice.

Constituent Weightings

At any given time, the S&P Merger Arbitrage Index contains a cash position. The value of this cash position changes over time as constituents are added to or deleted from the index and as interest accrues daily, based on the three-month U.S Treasury Bill rate. In general, the weight of the cash position is higher given a lower number of stocks in the index.

All target stocks from cash-only deals are added to the S&P Merger Arbitrage Index at a weight of 3%, based on closing prices taken on the reference day, which is the two days before the deal goes into the index. For stock and cash/stock deals, the target is added in the long position at 3% while the acquirer is added in the short position at the deal ratio. If the terms of a cash/stock deal are set in which there is an election process with capped cash or stock consideration percentages, the deal ratio applied to the short position will be adjusted to represent the stock portion of the overall deal compensation. In these scenarios, it is assumed the maximum potential cash consideration will be elected by shareholders.

There is one exception to cash-only, stock and cash/stock deals:

- If, at the time of the addition, the projected cash position represents less than 3%, is negative or would be potentially negative at the time of the addition, the long position index shares will be based on the deal price. It will be assigned a weight equal to the weight of the cash component on the effective date of the addition, as projected on the reference date, less a 5% buffer. The short position is added at the deal ratio.

The daily cash position in the index may have a negative value. In this circumstance, the index shares for the next addition to the index will be adjusted as detailed above to allow the cash position to return to a positive value. All additions come at the expense of the cash position, which is maintained in the index as described previously. The weight of each stock is then allowed to float over time based on market movements.

The net effect of the cash distribution to take a long position in the target and cash receipt to take a short position in the acquirer is the net exposure of a deal. This net exposure shall not exceed 100%, as the index must always maintain a cash position. In the event that the current rules result in net exposure exceeding 100%, either the number of deals is reduced to less than 39 or the fixed weight is reduced to less than 3%.

Index Calculations

The index is calculated by means of the divisor methodology used in all S&P Dow Jones Indices' equity indices.

For more information on the index calculation methodology, please refer to the Modified Market Capitalization Weighted Indices section of S&P Dow Jones Indices' Index Mathematics Methodology.

Calculations for the Long and Short Sub-Indices. The S&P Merger Arbitrage Index is comprised of the short and long sub-index components and cash.

Index shares are set for each stock two days prior to effective date at which the stock is added to the index in the following manner.

For the i^{th} long position in the S&P Merger Arbitrage - Long Index:

$$\text{Index Shares}_i = (\text{Index Market Value} * 3\%) / \text{Price}_{\text{close}, i} \quad (1)$$

For the i^{th} short position in the S&P Merger Arbitrage - Short Index,

$$\text{Index Shares}_i = \text{Index Shares}_{i,l} * \text{Stock Exchange Ratio} \quad (2)$$

where:

$$\text{Index Market Value} = \text{Cash} + \sum_{i=1}^N \text{Index Shares}_i * (\text{Price})_{\text{close}, i}$$

$\text{Price}_{\text{close}, i}$ = Price of stock i as of the market close two days prior to the day it is added to the index.

$\text{Index Shares}_{i,l}$ = Index shares of the corresponding long position.

$\text{Stock Exchange Ratio}$ = Ratio at which the acquirer's shares are offered in exchange for each target share tendered, as provided in the domestic filing or press release.

Cash. Cash accounts for the un-invested position in the index and accrues or gets depleted in four ways:

1. Proceeds from the sale of deleted stocks add to the cash position
2. When a deal is added to the index, the net exposure, which is the net of payment for the long position and the collection of payment for the short position, increases or depletes the cash position
3. Dividend payments made for the short positions and collected from long positions
4. Accrued interest

The cash position accrues interest daily, based on the three-month U.S. Treasury Bill rate. The cash position also increases as the long index constituents make any regular or special dividend payments. The initial cash position on the base date is equal to the difference between the initial index market value, which is 1000, and the market value of the stocks present in the index on the base date.

Therefore, on any given day t :

$$\text{Cash}_t = \text{Cash}_{t-1} * (3\text{M Treasury Bill Rate}_{t-1} * (t - (t-1)) / 360) + \text{Index Dividend Value}_t + \text{Cash Proceeds from Corporate Actions} \quad (3)$$

where:

$t-1$ = The prior business date.

$$\text{Index Dividend Value}_t = \sum_{i=1}^N \text{Index Shares}_{i,t} * (\text{Ex - dividends})_{i,t} \quad (4)$$

Ex-dividends represent the per share gross dividend amount of any stock with a dividend effective on day t , in U.S. dollars.

Please refer to S&P Dow Jones Indices' Index Mathematics Methodology for more information on total return calculations.

The index assumes proceeds from deletions are added to the cash position, while additions are financed by the cash position. Therefore, in order to maintain basket series continuity, it is also necessary to adjust cash after the close of any date on which there is an addition to or deletion from the index (*Cash Proceeds from Corporate Actions*).

Note that cash at the close of day t before any adjustment is equal to the prior day's cash after any adjustment plus any interest accrued and dividends paid on day t .

$$(\text{Index Market Value})_{\text{before change}} = (\text{Index Market Value})_{\text{after change}} \quad (5)$$

Therefore,

$$(\text{Cash})_{t-1} = (\text{Index Market Value})_{\text{before change}} - \sum_{i=1}^{N'} (\text{Index Shares})_i * (\text{Price})_i \quad (6)$$

Where N' is the number of stocks in the index after accounting for additions and deletions.

Index Maintenance

Rebalancing

Frequency. Changes to the S&P Merger Arbitrage Indices are made on an as-needed basis. There is no calendar-driven rebalancing. Rather, changes are made to the index as required by merger announcements, withdrawals and completions.

Corporate Actions

Corporate Action	Adjustment Made to Index	Divisor Adjustment?
Spin-off	As a general policy, a spin-off security is added to all indices where the parent security is a constituent, at a zero price at the market close of the day before the ex-date (with no divisor adjustment). If a spin-off security is determined to be ineligible to remain in the index, it will be removed after at least one day of regular way trading (with a divisor adjustment). Spin-offs are ineligible to remain in the S&P Merger Arbitrage indices.	No
Rights Offering	No weight change. The price is adjusted to the Price of Parent Company minus (Price of the Rights Offering/Rights Ratio). Index shares change so that the company's weight remains the same as its weight before the rights offering.	No
Stock Split	Index shares are multiplied by and the price is divided by the split factor.	No
Share Issuance or Share Repurchase	None. Actual shares outstanding of the company play no role in the daily index calculation.	No
Special Dividends	The price of the stock making the special dividend payment is reduced by the per share special dividend amount after the close of trading on the day before the dividend ex-date. The proceeds of the dividend are put in the cash position.	No
Cash Dividends	The proceeds of the dividend are put in the cash position.	No

For more information on Corporate Actions, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Currency, Currency Hedged, and Risk Control Indices

Additional currency, currency hedged, and risk control versions of the indices may be available. For a list of available currency, currency hedged, and risk control indices, please contact Client Services at index_services@spglobal.com.

For more information on currency, currency hedged, and risk control indices, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.

Base Date

The index base date for the S&P Merger Arbitrage Index and its sub-indices is December 31, 2005. The base value is 1000. Daily returns are available from December 31, 2005.

Index Data

Calculation Return Types

S&P Dow Jones Indices calculates multiple return types which vary based on the treatment of regular cash dividends. The classification of regular cash dividends is determined by S&P Dow Jones Indices.

- Price Return (PR) versions are calculated without adjustments for regular cash dividends.
- Gross Total Return (TR) versions reinvest regular cash dividends at the close on the ex-date without consideration for withholding taxes.
- Net Total Return (NTR) versions, if available, reinvest regular cash dividends at the close on the ex-date after the deduction of applicable withholding taxes.

In the event there are no regular cash dividends on the ex-date, the daily performance of all three indices will be identical.

For a complete list of indices available, please refer to the daily index levels file (“SDL”).

For more information on the classification of regular versus special cash dividends as well as the tax rates used in the calculation of net return, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

For more information on the calculation of return types, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.

Index Governance

Index Committee

The S&P Dow Jones Indices' Global Benchmarks Index Committee maintains the S&P Merger Arbitrage Indices. The Committee meets regularly. At each meeting, the Committee reviews pending corporate actions that may affect index constituents and any significant market events. In addition, the Committee may revise index policy covering rules for selecting companies 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.

S&P Dow Jones Indices' Index Committees reserve the right to make exceptions when applying the methodology if the need arises. In any scenario where the treatment differs from the general rules stated in this document or supplemental documents, clients will receive sufficient notice, whenever possible.

In addition to the daily governance of indices and maintenance of index methodologies, at least once within any 12-month period, the Index Committee reviews the methodology to ensure the indices continue to achieve the stated objectives, and that the data and methodology remain effective. In certain instances, S&P Dow Jones Indices may publish a consultation inviting comments from external parties.

For information on Quality Assurance and Internal Reviews of Methodology, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Index Policy

Announcements

All index constituents are evaluated daily for data needed to calculate index levels and returns. All events affecting the daily index calculation are typically announced in advance via the Index Corporate Action report (SDE), delivered daily via ftp to all clients. Any unusual treatment of a corporate action or short notice of an event may be communicated via email to clients.

All methodology changes are posted to the S&P Dow Jones Indices' Web site and announced via email to all clients. The latest available version is posted on the Web site, www.spdji.com.

Holiday Schedule

Each index is calculated daily, throughout the calendar year. The only days the index is not calculated are on days when all exchanges where the S&P Merger Arbitrage Index constituents are listed are officially closed or if WM Reuters' exchange rates services are not published.

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

Unexpected Exchange Closures

For information on Unexpected Exchange Closures, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Recalculation Policy

For information on the recalculation policy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

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.

Contact Information

For questions regarding an index, please contact: index_services@spglobal.com.

Index Dissemination

Index levels are available through S&P Dow Jones Indices' Web site at www.spdji.com, major quote vendors (see codes below), numerous investment-oriented Web sites, and various print and electronic media.

Tickers

The table below lists headline indices covered by this document. All currency, currency hedged, risk control, and return type versions of the below indices that may exist are also covered by this document. Please contact index_services@spglobal.com for a complete list of indices covered by this document.

Index (Currency)	Bloomberg	Reuters
S&P Merger Arbitrage Index (USD)	SPLSAUP	.SPLSAUP
S&P Merger Arbitrage - Long Index (USD)	SPLSALUP	.SPLSALUP
S&P Merger Arbitrage - Short Index (USD)	SPLSASUP	.SPLSASUP
S&P Merger Arbitrage Index TR (USD)	SPLSAUT	.SPLSAUT
S&P Merger Arbitrage - Long Index TR (USD)	SPLSALUT	.SPLSALUT
S&P Merger Arbitrage - Short Index TR (USD)	SPLSASUT	.SPLSASUT
S&P Merger Arbitrage Index (LCL)	SPLSALP	.SPLSALP
S&P Merger Arbitrage - Long Index (LCL)	SPLSALLP	.SPLSALLP
S&P Merger Arbitrage - Short Index (LCL)	SPLSASLP	.SPLSASLP
S&P Merger Arbitrage Index TR (LCL)	SPLSALT	.SPLSALT
S&P Merger Arbitrage - Long Index TR (LCL)	SPLSALLT	.SPLSALLT
S&P Merger Arbitrage - Short Index TR (LCL)	SPLSASLT	.SPLSASLT

FTP

Daily constituent and index level 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.

Appendix

Methodology Changes

Methodology changes since January 1, 2015 are as follows:

Change	Effective Date (After Close)	Methodology	
		Previous	Updated
Liquidity	11/18/2016	Each target company must have a three-month average daily trading value above US\$ 2 million, as of the date of the merger announcement. Trading value is defined as the daily trading volume of the target company multiplied by its closing price. For stock and cash/stock deals, average trading value of the acquiring company as well as the target company must be above US\$ 2 million.	Each target company must have a minimum median value traded of US\$ 5 million over the preceding three months, as of the date of the merger announcement. Value traded is defined as the daily trading volume of the target company multiplied by its closing price. For stock and cash/stock deals, median value traded of the acquiring company as well as the target company must be above US\$ 5 million.
Constituent Weighting	08/09/2016	If, at the time of the addition, the projected cash position represents less than 3%, the long position will be based on the deal price and assigned a weight equal to the weight of the cash component on the effective date of the addition. The short position is added at the deal ratio.	If, at the time of the addition, the projected cash position represents less than 3%, the long position will be based on the deal price. It will be assigned a weight equal to the weight of the cash component on the effective date of the addition, as projected on the reference date, less a 5% buffer. The short position is added at the deal ratio.

Disclaimer

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