

# THOMSON REUTERS INDICES

## THOMSON REUTERS PRIVATE EQUITY BUYOUT INDEX METHODOLOGY

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## INTRODUCTION

### Thomson Reuters Private Equity Buyout Index

The **Thomson Reuters Private Equity Buyout Index** (“Thomson Reuters PE Buyout Index”) is an index made up of independent portfolios intended to track the return of the private equity universe by replicating movements in the Thomson Reuters Private Equity Buyout *Research* Index (“Thomson Reuters PE Buyout *Research* Index”). The Thomson Reuters PE Buyout Index seeks to replicate the return profile of the private equity buyout asset class by constructing a combination of sector portfolio returns. These sector portfolios are designed to track the performance of private equity sector investments by holding liquid exchange traded instruments rather than investing directly in private equity firms.

The Thomson Reuters PE Buyout Index seeks to track the medium-term performance of the Thomson Reuters PE Buyout *Research* Index, but unlike the Thomson Reuters PE Buyout *Research* Index, returns to the Thomson Reuters PE Buyout Index are computed at the close of each trading day, providing immediate information about movements in the private equity universe. They are also **not** subject to historical revision whereas the Thomson Reuters PE Buyout *Research* Index **is** subject to revisions. As such the Thomson Reuters PE Buyout Index is an appropriate benchmark for investable products seeking to track private equity returns.

The Thomson Reuters PE Buyout *Research* Index is constructed from observed valuations of private equity-owned firms at discrete points in time. These observed valuations fuel a sophisticated econometric methodology that estimates the value of each firm in every month, not just months in which the firm value is observed. Aggregating this time-series of firm values, the Thomson Reuters PE Buyout *Research* Index constructs a value-weighted index of the returns to a theoretical fully-diversified portfolio of private equity-buyout transactions capturing a high percentage of all PE-buyout activity.

The nature of the valuation events used in the Thomson Reuters PE Buyout *Research* Index is such that only a portion of the data becomes available shortly after each quarter end with the remaining data coming in over time. As a result, the Thomson Reuters PE Buyout *Research* Index returns are published on a quarterly basis, and are subject to revision for 8 quarters (See “The Thomson Reuters Private Equity Buyout *Research* Index Methodology” for more details).

## INDEX COMPOSITION

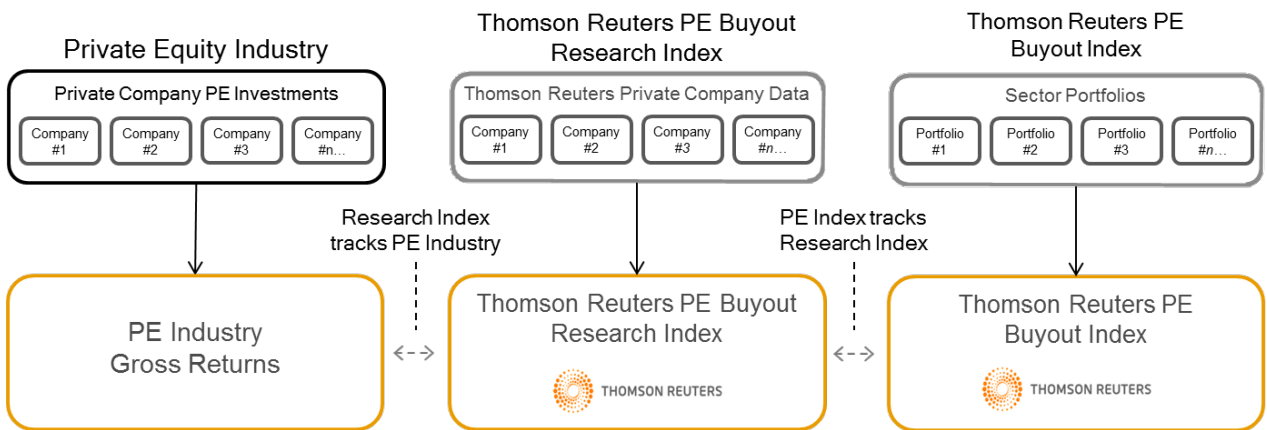
The Thomson Reuters PE Buyout *Research* Index tracks the performance of private equity-owned firms across a number of economic sectors. Each private equity-backed firm in the Thomson Reuters PE Buyout *Research* Index is mapped to a Thomson Reuters sector. These firms collectively make up the private equity buyout universe. The penultimate result of the Thomson Reuters PE Buyout *Research* Index computation is a list of the estimated values of each private equity portfolio firm in each month.

The approach of the Thomson Reuters PE Buyout Index is to combine, with appropriate weights, sector portfolio returns, each of which seeks to mimic return characteristics of the private equity firms in each economic sector in the private equity universe and, jointly, to capture the risk/reward characteristics of private equity as an asset class. The sector portfolios hold liquid exchange traded instruments.

Using these firm weights from the Thomson Reuters PE Buyout *Research* Index, we can compute the weight of each sector in the private equity universe. These weights are used in determining the final weights applied to the portfolios in order to create the final Thomson Reuters PE Buyout Index.

It should be noted that the Thomson Reuters PE Buyout *Research* and Thomson Reuters PE Buyout Indices seek to match the returns of the private equity buyout (asset class) **before** fund-level management and incentive fees.

Annualized Return	January 1997 - September 2013
Thomson Reuters PE Buyout <i>Research</i> Index:	16.91%
Thomson Reuters PE Buyout Index:	16.55%



## SECTOR PORTFOLIOS

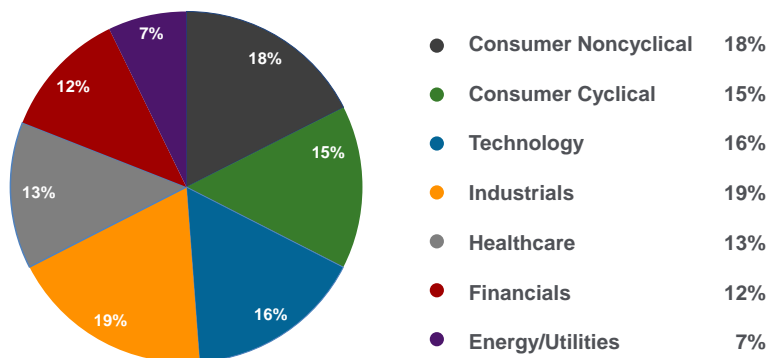
The Thomson Reuters PE Buyout Index is computed as the weighted return of seven sector portfolios.

### Sectors

1. Consumer Non-Cyclical
2. Consumer Cyclical
3. Technology
4. Industrials
5. Healthcare
6. Financials
7. Energy/Utilities

These sector portfolios correspond to the same sectors mapped out in the Thomson Reuters PE Buyout *Research Index*:

**Sector Distribution Across Thomson Reuters PE Buy Out Research Index - September 30, 2013**



The sector portfolios each seek to replicate a sector of the private equity universe, as well as universal characteristics of private equity-backed firms. They are constructed using discretion-free, proprietary econometric models and seek to mimic the risks and return characteristics of private equity portfolio firms associated with each economic sector. Each sector portfolio is rebalanced on the first day of each month. The sector portfolios contain liquid securities which may include equities, derivatives and indices, among others. These sector portfolios, when weighted appropriately, seek to mimic the behavior of the Thomson Reuters PE Buyout *Research Index*. Components of the sector portfolios are selected based on quantitative econometric models. Portfolio returns are computed and reported by an independent third party calculation agent. The combined portfolio of the seven sector portfolios conform to the following:

- All assets must be:
  - Publicly listed
  - U.S. exchange traded
- No single equity may exceed 7% of the total combined portfolio
- 90% of securities must be classified in the same corresponding economic sector of the *Research Index*

## SECTOR WEIGHTING

The Thomson Reuters PE Buyout *Research Index* is computed quarterly. This means that live sector weights are not immediately available for use in weighting the Thomson Reuters PE Buyout Index. Instead, the latest available sector weights from the Thomson Reuters PE Buyout *Research Index* are used along with an update accounting for relative performance of each sector in the Thomson Reuters PE Buyout Index.

## INDEX REBALANCE

Since the Thomson Reuters PE Buyout *Research Index* and Thomson Reuters PE Buyout Index are weighted by the value of the private equity firms in those sectors, no explicit rebalance is needed on a day-

to-day or month-to-month basis in months without an update to the Thomson Reuters PE Buyout *Research* Index. However, a new set of weights is received when the Thomson Reuters PE Buyout *Research* Index is updated/revised once a quarter. The new weights for the private equity sector portfolios and published on the last Friday of April, July, October and January (One month after each quarter end). Therefore, a quarterly rebalance is computed using the following approach:

Let the weights of each sector as of the last published Thomson Reuters PE Buyout *Research* Index month be denoted by  $W_{t-j}^i$ . Here  $i$  denotes the sector,  $t$  the current date,  $S$  is the performance of the matching sector portfolio, and  $j$  the number of months that have passed since the last available Thomson Reuters PE Buyout *Research* Index. The current weights can be computed using:

$$W_t^i = \frac{(1 + S_{t-j,t}^i) * W_{t-j}^i}{\sum_{k=1}^7 (1 + S_{t-j,t}^k) * W_{t-j}^k}$$

Thus, the required portfolio weights are the last known weights of those sectors in the private equity industry, updated using relative performance of corresponding sectors.

In months in which the Thomson Reuters PE Buyout *Research* index is not updated, the relative weights of the sectors change with relative performance so that rebalancing is not necessary. The weight to each sector is equal to the weight of that sector in the previous month times the performance of that sector, scaled so that weights sum to unity.

## INDEX COMPUTATION

Although the Thomson Reuters PE Buyout Index seeks to track the non-investable Thomson Reuters PE Buyout *Research* Index, its sector portfolios are made up of exchange-traded assets. Therefore, the Thomson Reuters PE Buyout Index returns are computed in a similar fashion to other weighted total-return indices. The Thomson Reuters PE Buyout Index monthly return is computed:

$$R_t = \sum R_t^i * W_t^i$$

These 7 sectors include the 7 portfolios associated with Thomson Reuters sectors. Notice that  $R_t^i$  in this equation denotes the return to sector portfolio  $i$  in period  $t$  and  $W_t^i$  is the weight sector index  $i$  receives in period  $t$  (that is, the weight implemented at time  $t - 1$  and affecting the return until time  $t$ ).

Once the returns are calculated, the Thomson Reuters PE Buyout Index levels are then computed:

$$L_t = L_{t-1} * (1 + R_t)$$

The base value of the Thomson Reuters PE Buyout Index is 100 as of January 1, 1997.

## GOVERNANCE

## Index Action Committee (IAC)

The Index Action Committees (IAC) for the Thomson Reuters PE Buyout Index is composed of representation from the Thomson Reuters Indices and independent outside members of the financial community (TBD).

The main activity of this Index Action Committee is to ensure that the attributes the Thomson Reuters PE Buyout Index claims to possess are indeed present. These reviews take place a week before the quarterly rebalance results are published (3<sup>rd</sup> Friday in April, July, October and January). The Index Action Committee deals with making sure algorithm that calculates the index is accurate. The committee will also review the results of the quarterly rebalance and reserves the right to make any necessary changes.

## ABOUT THOMSON REUTERS INDICES

### Thomson Reuters Indices

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## CONTACT US:

For further information, visit the Thomson Reuters Indices [website](#) or [Index\\_Queries@thomsonreuters.com](mailto:Index_Queries@thomsonreuters.com)

