

REFINITIV INDICES

PRIVATE EQUITY BUYOUT INDEX METHODOLOGY

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INTRODUCTION

Refinitiv Private Equity Buyout Index

The **Refinitiv Private Equity Buyout Index** (“RF 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 Refinitiv Private Equity Buyout *Research* Index (“RF PE Buyout *Research* Index”). The RF 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 RF PE Buyout Index seeks to track the medium-term performance of the RF PE Buyout *Research* Index, but unlike the RF PE Buyout *Research* Index, returns to the RF 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 RF PE Buyout *Research* Index **is** subject to revisions. As such the RF PE Buyout Index is an appropriate benchmark for investable products seeking to track private equity returns.

The RF 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 RF 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 RF 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 RF PE Buyout *Research* Index returns are published on a quarterly basis, and are subject to revision for 8 quarters (See “The Refinitiv Private Equity Buyout *Research* Index Methodology” for more details).

INDEX COMPOSITION

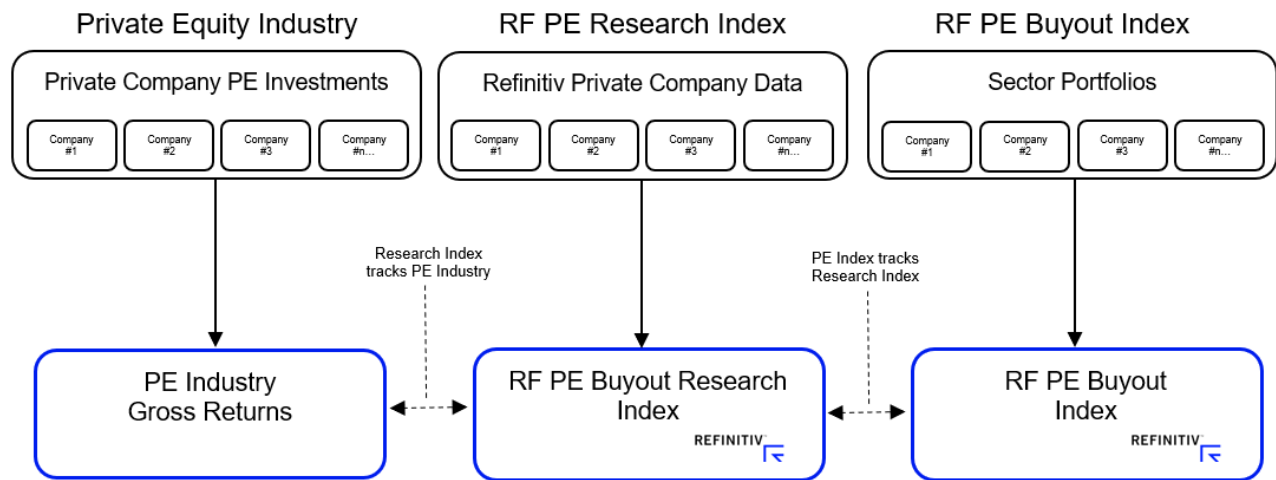
The RF PE Buyout *Research* Index tracks the performance of private equity-owned firms across a number of economic sectors. Each private equity-backed firm in the RF PE Buyout *Research* Index is mapped to a Refinitiv sector. These firms collectively make up the private equity buyout universe. The penultimate result of the RF 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 RF 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 RF 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 RF PE Buyout Index.

It should be noted that the RF PE Buyout *Research* and RF 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
RF PE Buyout <i>Research</i> Index:	16.91%
RF PE Buyout Index:	16.55%



SECTOR PORTFOLIOS

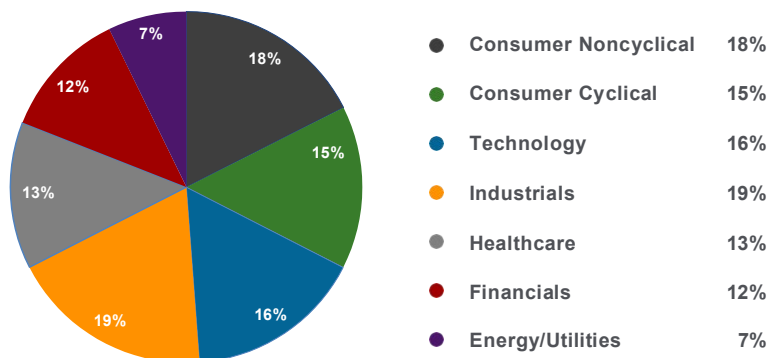
The RF PE Buyout Index is computed as the weighted return of seven sector portfolios.

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 RF PE Buyout *Research Index*:

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

INDEX REBALANCE

Since the RF PE Buyout *Research Index* and RF 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 RF PE Buyout Research Index. However, a new set of weights is received when the RF 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 RF 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 RF 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 RF 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 RF PE Buyout Index seeks to track the non-investable RF PE Buyout *Research* Index, its sector portfolios are made up of exchange-traded assets. Therefore, the RF PE Buyout Index returns are computed in a similar fashion to other weighted total- return indices. The RF 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 Refinitiv 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 RF PE Buyout Index levels are then computed:

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

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

GOVERNANCE

Index Action Committee (IAC)

The Index Action Committees (IAC) for the RF PE Buyout Index is composed of representation from the Refinitiv 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 RF PE Buyout Index claims to possess are indeed present. These reviews take place a week before the quarterly rebalance results are published (3rd 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 REFINITIV INDICES

Refinitiv Indices

Refinitiv is the world's leading source of intelligent information for businesses and professionals. We combine industry expertise with innovative technology to deliver critical information to leading decision makers in the financial, legal, tax and accounting, scientific, healthcare and media markets, powered by the world's most trusted news organization.

Refinitiv provides trusted and innovative indices and index-related services to the investment community. Our index business leverages Refinitiv global footprint and unparalleled depth and breadth of the financial markets to provide our clients with:

- **Beta-generating Indices**
- **Alpha-creating Indices**
- **Custom Index Services**
- **Index Calculation Services**
- **Sector Classification with TRBC**

Whether you require indices for benchmarking or for the development of investment vehicles, Refinitiv offers a range of index solutions to satisfy your requirements. Delivered via Refinitiv platforms and data feeds, Refinitiv Indices leverage the latest technologies for ease of use and convenient delivery.

Refinitiv Indices are used by investors such as plan consultants, investment managers, mutual fund providers, ETF providers, financial advisors, investment banks, stock exchanges and the media. Refinitiv does not provide financial advice to clients, which allows for the provision of truly objective market information.

Each index is constructed employing content sets with the highest data integrity. They are transparent and designed to provide unbiased and neutral measures of the markets. Our rigorous financial models, analytics and classifications provide insight needed to make better investment decisions.

CONTACT US:

For further information, visit the Refinitiv Indices [website](#) or Index_Queries@refinitiv.com