



HFR Risk Parity Indices™

Defined Formulaic Methodology

2024

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Introduction

HFR is the Institutional Standard and the established, global leader in the indexation and comprehensive performance benchmarking of the global hedge fund industry. HFR publishes over 150 indices across the HFRI, HFRX and HFRU Index families which are recognized globally as the definitive benchmarks of hedge fund industry performance. None of the Indices take into account ESG factors or pursue ESG objectives. HFR Indices are effectively and actively utilized by leading pension and sovereign wealth funds, global financial institutions, individual investors and hedge fund managers.

HFR Research specializes in the collection, aggregation, and analysis of alternative investment information. HFR Research produces the HFR Hedge Fund Database, one of the industry's most widely used commercial databases of hedge fund and risk parity strategies, as well as a variety of other research products for the alternative investment industry, including the HFR Industry Report. The HFR Hedge Fund Database is currently comprised of over 6000 funds and fund of funds worldwide. Information on the hedge fund and risk parity universe of established and emerging managers is collected directly from the fund managers and/or their respective administrators, while other pertinent information is pulled from offering memoranda, onsite visits, and manager interviews. It also directly integrates the fund managers with the HFR Hedge Fund Database by providing them with their own website for updating their fund profile. In this manner HFR ensures current and accurate fund data that flows seamlessly from fund managers.



Methodology

The HFR Risk Parity Indices are a series of benchmarks designed to reflect the performance of the universe of managers that employ a portfolio allocation strategy based on targeting risk levels across the various components of an investment portfolio.

Risk Parity is an approach to investment portfolio management which focuses on allocation of risk, usually defined as volatility, rather than allocation of capital. Risk parity funds are classified into 3 main volatility targets: 10%, 12% and 15%.

- Funds with a volatility target of 10% or less are classified as *Volatility Target: 10%*.
- Funds with a volatility target of greater than 10% and less than 15% are classified as *Volatility Target: 12%*.
- Funds with a volatility target of 15% or greater are classified as *Volatility Target: 15%*.

The HFR Risk Parity Institutional Indices represent the performance of the largest managers in the risk parity fund industry. These funds must have assets under management of USD \$500MM or greater at time of inclusion in the index.

HFR Risk Parity Indices are rebalanced on an annual basis on the first business day of the year. At the time of rebalance all index constituents will be equally weighted.

Eligibility Criteria

Constituents included in the HFR Risk Parity Indices must:

- Report monthly returns in USD
- Report Net of All Fees returns
- Report assets under management

The following formula is used to define the representative Risk Parity Fund Universe (“Strategy Universe”) derived from the Global Risk Parity Fund Universe expressed as:

$$HFU = \bigcup HFS$$

where *HFS* is the set of risk parity funds classified according to their volatility target.



The funds comprising the HFS are filtered using the following formula to create the Strategy Universe for a given target volatility:

$$\delta(freq-12) \cdot \delta(fees) \cdot \delta(ISO-USD) \cdot \delta(Vol-Vol_{Tgt}) \cdot H(AUM_{t_0-1} - AUM_{min}) \neq 0$$

where $H(x)$ is the step function defined as

$$H(x) = \begin{cases} 1 & x \geq 0 \\ 0 & x < 0 \end{cases}$$

$\delta(x)$ is the delta function defined as

$$\delta(x) = \begin{cases} 1 & x = 0 \\ 0 & x \neq 0 \end{cases}$$

and

- $freq$ is the reporting frequency (12=monthly, 4=quarterly)
- $fees$ is the returns net of all fees (0=yes, 1=no)
- ISO is the reporting currency
- Vol_{Tgt} is the volatility target of the fund: $\leq 10\%$, $> 10\%$ and $< 15\%$ ("12%"), and $\geq 15\%$
- AUM_{t_0-1} is the fund assets under management in USD at time t_0-1
- t_0-1 corresponds to 1 months before the rebalance date t_0 , (i.e. the December prior to the January rebalance)
- AUM_{min} corresponds to the minimum AUM required for qualification (\$500 million USD for the HFR Risk Parity Institutional Indices and 0 for the rest)

In cases where a manager lists multiple funds with the same or similar investment profile, HFR chooses only the most representative fund for HFR Risk Parity Index inclusion.

Definitions

For the clarity of the rebalance process we define:

- Index Manager: HFR, Inc., responsible for the calculation of the Index.
- Rebalance Date: the first business date of the calendar year.
- Evaluation Date: the month starting 1 month prior to the Rebalance Date.



- Evaluation Criteria: performance reported monthly in USD, net of all fees, and with or without minimum assets under management of \$500 MM.

Annual Index Rebalance

The following rebalance methodology is applied on HFR Risk Parity Indices:

- The eligible universe of constituents is determined at the Evaluation Date.
- The constituents are selected based on their assets under management as of the Evaluation Date.
- Each constituent is assigned with the same weight on each Rebalance Date.
- A maximum number of constituents from each firm may be limited for optimal Index diversification purposes.
- The Index is rebalanced on an annual basis.

Additional Rebalance Considerations

- An Index constituent will be removed from the Index if it fails to meet the Evaluation Criteria on or before the Rebalance Date. In such a case, the weight of the constituent will be allocated equally to the remaining constituents of the Index or allocated to a replacement prospective constituent.
- An Index constituent will be subject for removal from the Index for due diligence concerns or failure. In such a case, upon removal, the weight of the constituent will be allocated equally to the remaining constituents of the Index or allocated to a replacement constituent.
- If an Index constituent's weight cannot be maintained between Rebalance Dates, the constituent will remain in the Index at a reduced weight, its NAV will be reallocated equally to the remaining constituents or be replaced with a similar qualifying prospective constituent as available.
- A fund may be added to the Index between Rebalance Dates if it meets the Evaluation Criteria and if in the determination of HFR the fund would enhance the representativeness of



the Index. In such instance, the weight of the constituents would then be allocated equally across the expanded list of constituents of the Index.

Index NAV Calculation

HFR Risk Parity Indices (the “Index” and collectively, “Indices”) are total return indices and are published by HFR at www.HFR.com and on Bloomberg. Computation of the Index NAV uses actual performance of constituent funds as reported to HFR, Inc. Performance reflects constituent fund management fees, incentive fees, dividends and other distributions. The HFR Risk Parity Indices are first published as estimates and then not finalized until the last business day of the same month.

The Index NAV is 1000 at inception where “ $t=0$ ”. The NAV changes are driven by the Index performance, which is defined as the percentage change in the value of the Index from a previous date “ $t-1$ ” to current date “ t ”.

At rebalance time “ t_0 ”, constituents are equal weighted so the NAV of the HFR Risk Parity Index is defined as

$$NAV_{t_0} = NAV_{t_0-1} \times (1 + ROR_{t_0})$$

where ROR_{t_0} is the percentage change in the total value of the Index from “ t_0-1 ” to “ t_0 ” computed as:

$$ROR_{t_0} = \frac{1}{n} \sum_{i=1}^n ROR_{t_0}^i$$

where $ROR_{t_0}^i$ is the rate of return of constituent i at time “ t_0 ” and n is the number of constituents in the Index.

The NAV of the HFR Risk Parity Index at any other times “ t ” is computed as

$$NAV_t = NAV_{t-1} \times (1 + ROR_t)$$

where ROR_t is the percentage change in the total value of the Index from “ $t-1$ ” to “ t ” as follows:



$$ROR_t = \sum_{i=1}^n w_t^i \times ROR_t^i - F$$

where ROR_t^i is the total return of constituent i at time “ t ”, and F corresponds to an index adjustment term which is specific to each family, strategy and sub-strategy index. The index adjustment is based on historical analysis performed by HFR. n is the number of constituents in the Index and w_t^i is the weight of constituent i at the beginning of month “ t ” computed as

$$w_t^i = \frac{(1 + R_{t-1}^i)}{\sum_{j=1}^n (1 + R_{t-1}^j)}$$

where R_{t-1}^i is the cumulative total return of constituent i between the rebalance date “ t_0 ” and time “ $t-1$ ”:

$$1 + R_{t-1}^i = \prod_{t'=t_0}^{t-1} (1 + ROR_{t'}^i).$$

If a constituent k ceases to be a constituent of the Index at given time t' before the rebalance date, its weight is then equally distributed to the remaining constituents in the Index; the new constituent weights are given by

$$w_{t'}^i = w_{t'}^i + \frac{1}{n-1} \cdot w_{t'}^k, \quad$$

with $i \neq k$.

Other Risk Parity Indices

HFR Risk Parity Volatility Balanced Institutional Index

The HFR Risk Parity Volatility Balanced Institutional Index is comprised of a combination of the HFR Risk Parity Institutional Indices which are weighted based on a quantitative methodology to result in a mean volatility across the full constituency. Funds must have assets under management of USD \$500MM or greater in order to be considered for inclusion in an HFR Risk Parity Institutional Index.



The performance of the HFR Risk Parity Volatility Balanced Institutional Index ROR_{VB} is constructed as:

$$ROR_{VB} = \sum_{i=1}^3 w_i \times ROR_{V_i}$$

where ROR_{V_i} corresponds to the return of the HFR Risk Parity Vol Institutional Index for target volatility V_i , with V_1 = Target Volatility 10%, V_2 = Target Volatility 12% and V_3 = Target Volatility 15%, and w_i is the corresponding index weight, with w_1 = 40%, w_2 = 33%, and w_3 = 27%.

Please note that the aforementioned index weights cited here are for illustrative purposes only and subject to change.



Index Disruption Event

“Index Disruption Event” means:

- (1) where, in the determination of HFR, Inc., it is not possible or it is not reasonably practicable for it to determine the price or value of a constituent; or
- (2) a value for a constituent is not announced or is otherwise unavailable when such announcement or availability would normally be scheduled; or
- (3) the occurrence of an event or circumstance (including, without limitation, a major market disruption, a systems failure, natural or man-made disaster, act of God, armed conflict, act of terrorism, riot or labor disruption or any similar intervening circumstance) that Hedge Fund Research Inc. determines affects the Index.
- (4) the occurrence of other event or circumstance (including, without limitation, a personnel loss, a significant client(s) redemption, an audit holdback, a side pocket implemented, redemptions suspended / Gate activated, reduced liquidity of liquidating constituent, money laundering charges, Cyber security breach / Client info leaked or stolen, Fraud, breach of any law, regulation or rule, Market specific short bans or suspensions, Major reputation hurting story or any similar intervening circumstance) that Hedge Fund Research Inc. determines affects the Index.

If, in the determination of HFR, Inc., any of the foregoing is material.

Upon the occurrence of an Index Disruption Event on any day on which the official closing level of the Index is scheduled to be published, HFR, Inc. (i) shall not calculate and publish the Index Level and/or (ii) if relevant, may make such adjustments to the provisions of the Index to account for such Index Disruption Event as it determines appropriate, including, without limitation, delaying the application of any procedures or requirements of the Index.

Notes regarding performance prior to 2017

Performance of the HFR Risk Parity Indices prior to 2017 reflects the strategy and asset grouping classification of the constituent funds as of January 2017. Funds have been included in the Indices since their first launch month. The Indices reflect annual rebalance as well as rebalances occurring when a new fund was added as constituents to the Indices.



HFR Risk Parity Indices Update Schedule

The HFR Risk Parity Indices are updated three times after month end. The Flash Estimate (5th US business day of the month), Mid Estimate (15th of the month - or nearest US business day afterwards), and Final Update (3rd to last US business day of the month).

Specific update schedule can be found in HFR's website:

www.HFR.com/hfr-risk-parity-indices-performance-update-schedule



Accompanying Notes

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Addendum – Changes to the Methodology

Date	Revision	Process
5/18/2020	An index adjustment term has been added to the index performance calculation. Beginning June 2020, HFR will adjust the performance of the HFR Risk Parity Indices by 2bps per month.	No performance has been affected.
3/22/2021	Updated page 6 to clarify other rebalance considerations.	No constituent or performance changes were made
6/30/2021	Beginning with July 2021 performance, the period of finalization of the index value has been changed to the third to last US business day of the month it is initially published.	No constituent or historical performance changes were made
6/30/2021	Starting the performance month of July 2021 the index adjustment term will change to 6 bps per month.	No historical performance has been affected.
2/7/2022	A new section for other Risk Parity Indices has been added for the new HFR Risk Parity Balanced Volatility Institutional Index.	New index has been published. No historical performance has been affected.
12/7/2023	Effective Nov 1 2023, the index adjustment term has been amended: Starting with the performance month of Nov 2023, HFR may adjust the performance of the indices to reflect investable index estimated financing costs and historic fund performance adjustments.	No historical performance has been affected.
2/26/2024	Clarifying language regarding ESG indices was added to the Introduction.	No historical Performance has been affected
2/27/2024	An update on the index adjustment term has been added.	No historical Performance has been affected