

Construction Rules for the Morningstar PitchBook Unicorn 30 Index



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Overview

The Morningstar Pitchbook Unicorn 30 Index is designed to track the performance of the world's largest and most liquid late-stage venture-backed companies, with valuations of \$1 billion or more. This index provides access to some of the most innovative and fastest-growing companies. To support replicability, market-driven pricing and liquidity filters are applied.

The Index utilizes data from PitchBook, Morningstar and third-party vendors Caplight, and Zanbato. For more information on these third-party vendors, refer to Appendices 2, and 3.

PitchBook, a Morningstar company, is the largest provider of data on private markets. PitchBook provides data, research and analysis on private and public companies. For more information on PitchBook, please refer to Appendix 1.

Index Inception and Performance Start Date

The Index inception date is January 21, 2025, and the performance start date, when the first back-tested Index value was calculated, is December 22, 2014.

Index Construction

Methodology Summary



Starting Universe

At each reconstitution, constituents of the Morningstar PitchBook Unicorn 30 Index (the “Index”) are derived from the Morningstar PitchBook Global Unicorn Index, which serves as the benchmark index and starting universe for the Index. For more details on benchmark construction, refer to the [Construction Rules for the Morningstar PitchBook Global Unicorn Indexes](#).

PitchBook utilizes press releases, public information and direct outreach to source valuation information. In addition, a dedicated team of researchers also use information from corporate and regulatory filings. Valuations are then calculated using rules-based, formulaic methodologies.

Eligibility

To be eligible for inclusion in the Index, all constituents derived from the starting universe must meet the following criteria at inception and, for the purposes of quarterly reconstitution, as at the last trading day of February, May, August and November (see below for further detail on the reconstitution process):

1. Companies must be assigned to a country¹ classified as a Developed Markets country. Classifications are based on Morningstar Indexes Market Classification structure. For more details, refer to the [Morningstar Indexes Market Classification](#).

¹ Country data is sourced from PitchBook.

2. Companies must be trading on secondary markets. New Index constituents with liquidity score² greater than 0.25 are eligible for inclusion, while existing constituents will be eligible for inclusion if their liquidity score is greater than 0.

The companies that meet the above eligibility criteria comprise the eligible universe. If a company fails any of the above criteria between reconstitutions, it will be removed at the next reconstitution, provided it still does not meet all eligibility requirements as at the relevant day (as further described below under Index Maintenance and Calculation).

Liquidity Score

The Liquidity Score measures the ease of tradability of a stock in the secondary markets. A stock that is very liquid has adequate demand from buyers and sellers. It is calculated using the following four input factors:

- trade volume;
- open interest;
- share of days with active bid and ask orders;
- and number of unique contributors.

A score of a perfect 4.0 means that the market has a very low slippage; a score of 0 implies that the stock is very illiquid. For more information on the liquidity score methodology, refer to the [Construction Rules for the Morningstar Liquidity Score for Venture Capital-Backed Companies](#).

Number of Stocks

At each Index reconstitution, the Index aims to include the 30 largest companies based on their latest available post-money valuation data from PitchBook; while ensuring they also meet the other eligibility criteria (including liquidity score) outlined above.

Turnover Buffers

To limit excessive turnover in the portfolio, a buffer of 50% is applied at each Index rebalancing during the security selection stage. The aim of the buffer is to prevent temporary shifts in composition of the Index by relaxing the criteria for existing Index constituents that are on the edge of inclusion. The Index targets 30 companies for inclusion. The buffer is applied to those ranked between 16 and 45 based on the latest post-money valuation.

First, all eligible companies from the starting universe with a rank between 1 and 15 are selected on a priority basis. Next, current Index constituents ranked between 16 and 45 based on the latest post-money valuations are successively added (subject to meeting the other eligibility criteria) until the number of securities reaches 30. Finally, if fewer than 30 companies are selected after these steps, the remaining eligible companies with the highest post-money valuation are added until the number of securities in the Index reaches 30.

All companies considered during the security selection process must meet the eligibility criteria outlined in this Rulebook, including liquidity requirements. Companies that do not trade on secondary markets are excluded from the initial universe and are not eligible for inclusion at any stage. In the rare event that there are not enough eligible companies to reach 30 constituents, the Index may contain fewer than 30 securities.

² Liquidity score data is sourced from Caplight.

Index Weighting

At inception, the Index is equally weighted. Therefore, each Index constituent is assigned a 3.33% weight³ at initial Index construction. At each subsequent rebalancing, all securities—including newly public companies retained during the 180-day post-listing period—are subject to the following equal weighting scheme:

1. Existing Index constituents are reassigned a 3.33% weight only if its current Index weight is less than 1.67% or more than 5%.
2. New constituents are added at equal weights totalling the same total weight of the securities that exited the Index, subject to the new individual constituent weights not dropping below 1.67% or rising above 5%. If that is the case, they are added at a 3.33% weight.
3. Lastly, the weights are normalized to 100% on a pro-rata basis, where each company's weight in the Index is proportional to its weight as calculated in the previous steps before normalization.

Between Index rebalancing, constituent weights change daily based on relative price performance. The weights drift from their original assigned weights as the price of underlying stocks changes until the next Index rebalance, when it is reset based on the above-mentioned Index weighting scheme. For more details, refer to the [Morningstar Indexes Calculation Methodology rulebook](#).

Index Pricing

The Index performance is calculated daily using the Morningstar Consolidated Market Price Methodology. The methodology is described below, and a backtested performance summary can be found in Appendix 4.

Morningstar Consolidated Market Prices Overview

The secondary market for venture capital-backed companies involves buying and selling shares of private companies post-primary funding rounds. Unlike public markets, these transactions occur in less regulated environments and typically involve private investors or institutional investors. This market provides liquidity and opportunities for investors to adjust portfolios before a company goes public or is acquired, often through private equity exchanges or direct negotiations. Morningstar sources secondary trading data from two providers, Caplight and Zambato⁴, to calculate daily prices.

Morningstar Consolidated Market Price Methodology

The Morningstar Consolidated Market Price seeks to capture market sentiment for late-stage venture capital-backed companies. The methodology combines secondary market transaction data from multiple sources to achieve a market value. Data used in the Morningstar Consolidated Market Price Methodology is sourced from two contributors:

1. Caplight: Caplight collects pre-IPO stock pricing from broker-dealers and institutional investors, ensuring that the data is sanitized and anonymized to maintain privacy. Caplight calculates a company-level price which is a model estimated stock price per share that incorporates the following market factors: venture capital funding rounds; closed secondary market trades; and indication of interest pricing based on bid and ask orders. If neither trades nor orders are available for a company, Caplight's pricing model uses public equity market comparables as a fallback

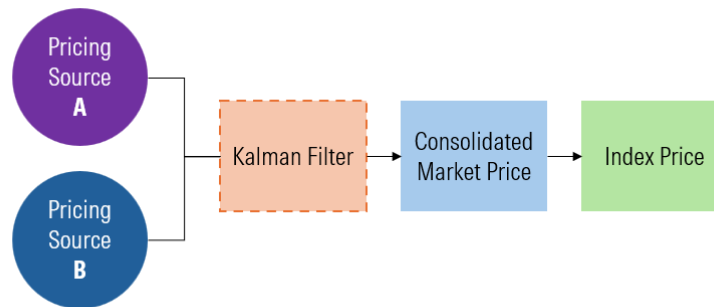
³ Constituent weights sum to 100%. The weights mentioned above are rounded to two decimal places.

⁴ For more information, refer to Appendices 2 and 3.

solution. This approach may be considered a proxy for estimating market sentiment as to a company's value as it has been observed that private markets, and Unicorns in particular, demonstrate an extremely high correlation with public markets.

2. **Zanbato:** Zanbato is an SEC-registered Alternative Trading System that aggregates transaction data from its platform and institutional partners to provide up-to-date valuations. Zanbato's pricing incorporates proprietary factors derived from these transactions, including executed transaction prices, current bid and ask prices, inside market prices, and transaction sizes.

To refine this data further, Morningstar applies the Kalman filter, a statistical technique that seeks to reduce "noise" and enhance the consistency of results. This process results in a consolidated, refined price that reflects collective market sentiment. The process is reflected in the image below (where Pricing Sources A and B represent Caplight and Zanbato).



Challenges and Limitations of the Morningstar Consolidated Market Pricing Methodology

1. Despite significant growth in secondary markets, there is no guarantee that an asset manager or investor can precisely replicate the Index portfolio exposure on the basis of the Consolidated Market Prices calculated for the purposes of calculating the Index Price. Factors such as issuer-imposed restrictions on secondary transactions, inconsistent trading activity, wide bid/ask spreads, and lengthy settlement periods may cause discrepancies between the Consolidated Market Prices and the actual prices available to investors.
2. The Consolidated Market Pricing Methodology considers only secondary transactions in company securities and does not incorporate company-sponsored financing rounds.
3. Pricing data received from Caplight and Zanbato is generally structure-agnostic and therefore may not align with the preferred stock prices used in recent financing rounds. Furthermore, the pricing data received by Morningstar (and consequently the Consolidated Market Prices used in calculation of the Index) may not account for liquidation preferences or other security rights and privileges which may have been offered in financing rounds, thus differing from the experience of institutional investors participating in primary funding rounds.
4. The regulation of secondary marketplaces for private companies is evolving. Regulatory changes may have an impact on market operation.
5. The Morningstar Pitchbook Unicorn 30 Index aims to select the largest and most liquid unicorns from the eligible universe, but there is a possibility that the eligible universe might not contain the target number of constituents. This scenario could arise if, for example, liquidity in private secondary market becomes broadly limited or centred on a small number of companies. In that case, the number of constituents in the Index may be less than the stated target.
6. While a quality assurance process is in place which is designed to promote the completeness of the data, a vendor may not provide a price for a given day if there is no price update. The Consolidated Market Price uses a waterfall logic to address pricing gaps when daily prices from any vendor are missing for unicorn companies. If a price is missing for

five or fewer days, the model forward fills the gap using the most recent available price from the same vendor. If the price is missing for more than five days, it copies daily prices from the other vendor. If both vendors are missing prices, it forward fills both with the latest available data from each vendor.

Index Maintenance and Calculation

Reconstitution and Rebalancing

The Index is reconstituted, where the membership is reset and rebalanced, quarterly in March, June, September, and December on the Monday following the third Friday. If Monday is a holiday, the reconstituted Index is effective on the immediately following business day.

The starting universe selection is based on PitchBook valuation data as of the last trading day of January, April, July, and October. The universe is then further refined using PitchBook market data (including deal structures and investor type – see next paragraph) as of the last trading day of February, May, August and November. The companies that remain are then tested against the eligibility criteria to determine the eligible universe.

Companies may be deemed unsuitable for inclusion in the Index based on deal structures or investor types. All historical venture capital deals data and sources of information for new constituents entering the Index, including deal structures, investor types, and valuation amounts, are researched in-depth by PitchBook analysts to determine whether the companies are fit for inclusion. The following are considered ineligible:

- 1.) Companies are excluded from the Index if they receive the majority of their funding from government or state-backed entities, as these deal structures often involve complexities that do not align with the growth patterns of traditional venture capital-backed companies.
- 2.) Holding companies and companies operating in stealth mode are excluded due to their convoluted nature and lack of transparency, which makes them unsuitable for an investable index.

A preliminary rebalancing report, or pro forma, indicating expected changes to the composition of the Index will be available for review seven business days prior to the reconstitution effective date, excluding the Friday preceding the effective date. The reference date used to capture pricing for weight calculations is two business days prior to the proforma start date.

Corporate Actions

Corporate actions, including initial public offerings (“IPO”), bankruptcies/out of business statuses, reverse mergers, mergers and acquisitions (“M&A”), and buyouts are reflected daily. While PitchBook data is used to identify when a constituent undergoes an IPO, bankruptcy/out of business status, reverse merger, M&A, or buyout, Morningstar data is used to calculate the market capitalization of the company at IPO.

When a constituent undergoes an IPO, it is held in the portfolio for 180 days⁵ and priced using Morningstar data. Market capitalization at IPO is calculated using the company's total outstanding shares and its publicly available price. Companies that go bankrupt or are out of business are removed from the Index at zero price within two days of the last updated⁶ date. Companies that undergo a reverse merger, M&A, or buyout are removed from the Index at their consolidated market price within two days of the last updated date.

⁵ Securities are held for 180 days post-listing to reflect the typical period when early investors begin to unwind positions, though timing can vary by investor.

⁶ Last updated date is the date when the information on the deal is captured by PitchBook.

For more information on corporate action handling, refer to the [Morningstar Corporate Actions Methodology for Private Companies](#).

Index Calculation and Valuation Data

Details about equity index level calculations can be found in the [Morningstar Indexes Calculation Methodology](#) rulebook. For details on constituent valuations used for in the Index calculation, please refer the relevant sections above and the [Construction Rules for the Morningstar Consolidated Market Price Methodology for Venture Capital-Backed Companies](#).

Methodology Review and Index Cessation Policy

The Index methodology is reviewed at least annually to review whether it continues to achieve all stated objectives. These reviews consider corporate action treatment, eligibility requirements, and maintenance procedures. Subscribers to the Index will be notified before any methodology changes are made. For more details, refer to the [Morningstar Index Methodology Change Policy](#).

Morningstar Indexes notifies all subscribers and stakeholders of the Index that circumstances might arise that require a material change to, or a possible cessation of, the Index. These circumstances are generally not within Morningstar's control and may include significant changes to the underlying market structure, inadequate access to necessary data, geo-political events, and regulatory changes. In addition, factors such as low usage or methodology convergence may result in the cessation of an index.

Because the cessation of the Index or its benchmark index could disrupt subscriber products that reference this Index, all subscribers are encouraged to have robust fallback procedures if an index is terminated. For more details, refer to the [Morningstar Index Cessation Process](#).

Data Correction and Precision

Intraday Index Data Corrections

Commercially reasonable efforts are made to facilitate the use of accurate data used in index calculations. If incorrect price or corporate action data affects index daily highs or lows, it is corrected retroactively as soon as is feasible.

Index-Related Data and Divisor Corrections

Incorrect pricing and corporate action data for individual issues in the database will generally be corrected upon detection. In addition, an incorrect divisor of an index, if discovered within two days of its occurrence, will be fixed retroactively on the day it is discovered to prevent an error from being carried forward. Commercially reasonable efforts are made to correct an older error subject to its significance and feasibility.

For more details, refer to the [Recalculation Guidelines](#).

Computational and Reporting Precision

For reporting purposes, index values are rounded to two decimal places and divisors are rounded to appropriate decimal places.

Exceptions

The Index methodology, including all documents incorporated therein, are written with the intent of removing, in so far as is feasible, the need for judgment or discretion to be exercised. While Morningstar will seek to apply the Index methodology, market conditions, supervisory, legal, financial, or tax reasons may require an alternative approach to be adopted. A decision to take an alternative approach will be made by the relevant Morningstar Indexes Methodology Committee, and in all instances, the application of a nonstandard process will be reported to the Morningstar Indexes Oversight Committee.

Appendixes

Appendix 1: PitchBook Data

Headquartered in Seattle, PitchBook, a Morningstar company, is the largest provider of data on private markets. PitchBook employs over 1600 employees and covers 3.4 million private companies. PitchBook provides data, research and analysis on private and public companies. The company specializes in researching global M&A, private equity and venture capital investments along with all participating parties, including limited partners, investors, service providers and the professionals involved. PitchBook provides the investment community with a proprietary data platform, research tools and custom analysis to enable better investment decisions.

Appendix 2: Caplight

Caplight provides pricing for pre-IPO company stocks by collecting secondary market transaction data from US-based broker-dealers. Caplight's company-level price is a model estimated stock price per share that incorporates the following market factors: venture capital funding rounds, closed secondary market trades, and indication of interest pricing based on bid and ask orders. If neither trades nor orders are available for a company, Caplight's pricing model uses public equity market comparables as a fallback solution.

Appendix 3: Zanbato

Zanbato is an SEC-registered Alternative Trading System that aggregates transaction data from its platform and institutional partners to provide up-to-date valuations. Zanbato's pricing incorporates proprietary factors derived from these transactions, including executed transaction prices, current bid and ask prices, inside market prices, and transaction sizes.

Appendix 4: Morningstar PitchBook Unicorn 30 Index (UI30) Performance Summary

	UI30
Start Date	2014-12-22
End Date	2024-12-31
Return (%)	17.9
Risk (%)	15.9
Return/Risk	1.1
Sharpe-Ratio	1.0
Max Drawdown (%)	-58.3

Performance data prior to December 21, 2020 is based on primary funding round data, sourced by PitchBook.

About Morningstar Indexes

Morningstar Indexes was built to keep up with the evolving needs of investors—and to be a leading-edge advocate for them. Our rich heritage as a transparent, investor-focused leader in data and research uniquely equips us to support individuals, institutions, wealth managers, and advisors in navigating investment opportunities across major asset classes, styles, and strategies. From traditional benchmarks and unique IP-driven indexes to index design, calculation, and distribution services, our solutions span an investment landscape as diverse as investors themselves.

Morningstar Indexes Methodology Committee

The Morningstar Indexes Methodology Committee oversees all new index development, index methodology changes, and cessation of indexes for any indexes where Morningstar owns the intellectual property. This committee is also charged with ensuring that indexes align with Morningstar Research principles and values. The group comprises members of the index team with index research, product development, product management, client service, index implementation, and operation expertise who provide the first layer of governance over index design and methodology.

Morningstar Indexes Operations Committee

The Morningstar Indexes Operations Committee governs the processes, systems, and exception handling of the day-to-day management of all live indexes, including index rebalancing and reconstitution, restatements, market classification, and contingency management. The committee oversees the annual review of index methodology (as required by U.K. and EU benchmark regulations, or BMR), ensuring that methodologies remain fit for purpose and continue to achieve their stated investment objectives. The group comprises members of the index team with data, operations, corporate actions, product development, index launch, client service, and index management experience who provide the first layer of governance over index operations.

Morningstar Indexes Oversight Committee

The Morningstar Indexes Oversight Committee is responsible for the index oversight function as per the requirements of the U.K. and European BMR, providing independent oversight of all aspects of the governance of benchmark administration as required by the relevant BMR. Its remit extends to all calculation and administration-related business activities of Morningstar Indexes, including administration of Morningstar-owned benchmarks as well as client-owned benchmarks and index calculation. The oversight function is part of the organizational structure of Morningstar but is separate and independent from the index business, index management, and the other index committees. The Benchmark Statement for the Unicorn 30 Index can be found [here](#).

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