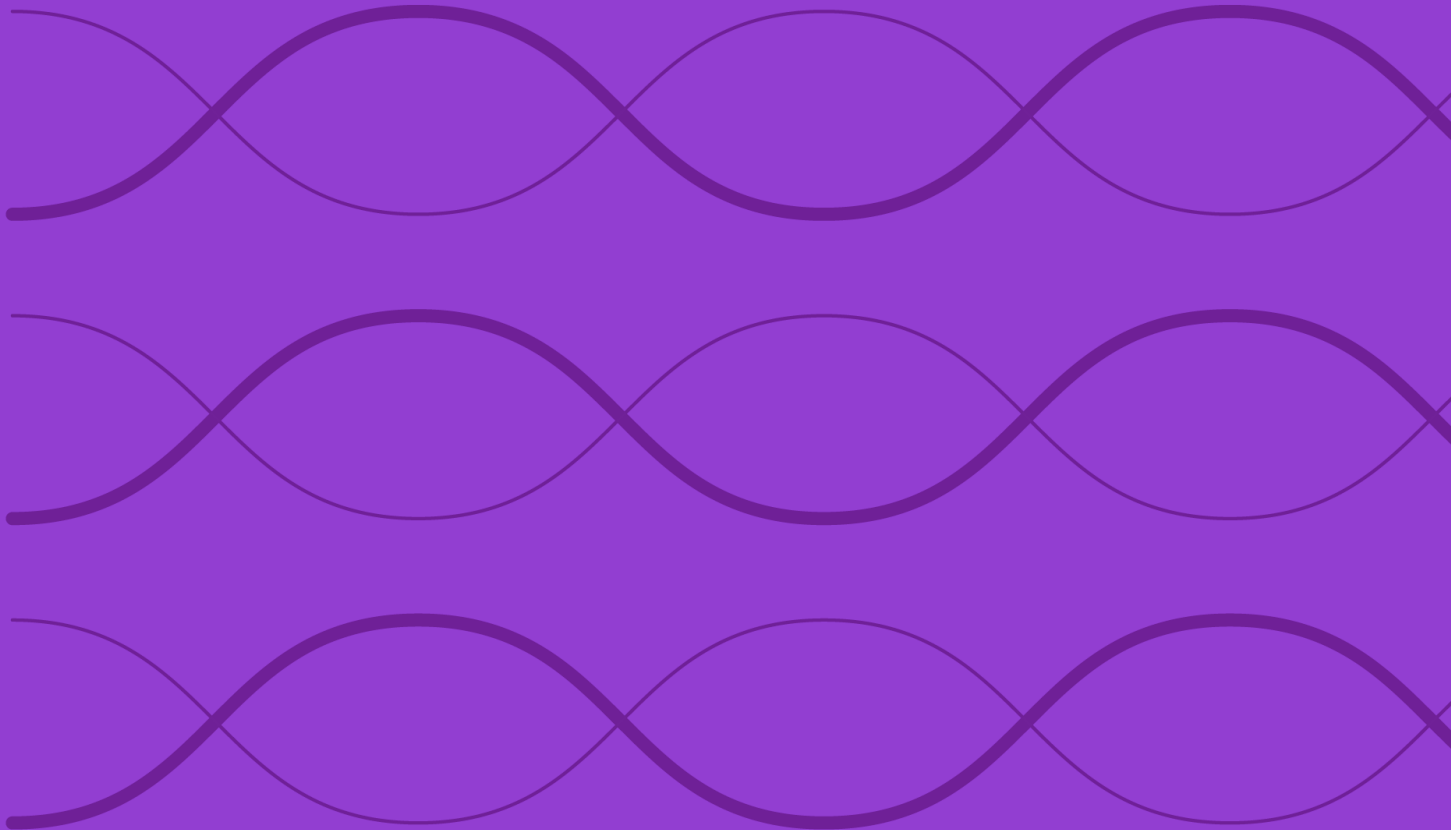


Construction Rules for the Morningstar PitchBook Europe Modern Market 50 Index



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Overview

The Morningstar PitchBook Europe Modern Market 50 Index tracks 50 of the largest and most influential Europe domiciled companies—45 public and 5 private venture-backed. It uses a transparent, rules-based methodology, with companies weighted by market value. The index seamlessly integrates public and private markets to represent today's expanding investment opportunity set.

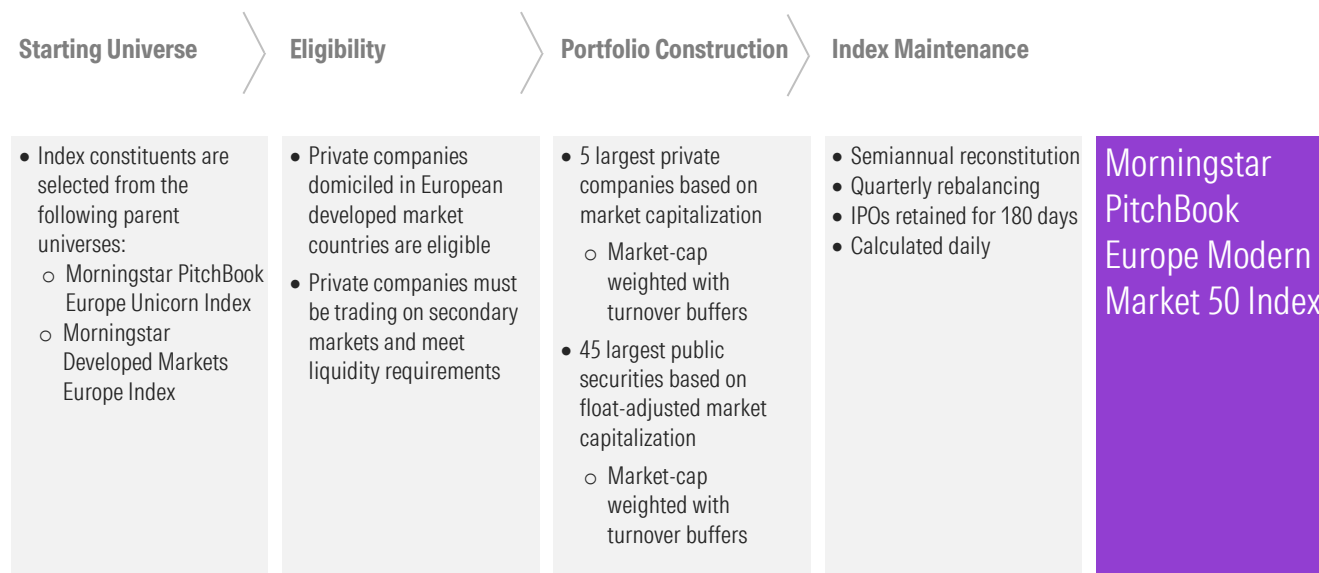
This index does not incorporate environmental, social, or governance criteria.

Index Inception and Performance Start Date

The index inception date is April 14, 2026, and the performance start date, when the first back-tested index value was calculated, is June 16, 2023.

Index Construction

Methodology Summary



Starting Universe

At each reconstitution, private constituents of the Morningstar PitchBook Europe Modern Market 50 Index are derived from the Morningstar PitchBook Europe Unicorn Index and public constituents are derived from the Morningstar Developed Markets Europe Index. For more details on benchmark construction, refer to the construction rules for the [Morningstar PitchBook Europe Unicorn Index](#) and the [Morningstar Developed Markets Europe Index](#).

Eligibility

To be eligible for index inclusion, all private constituents must meet the following criteria:

- Companies must be domiciled in a European developed market country.
- Companies must be trading on secondary markets. New and existing Index constituents with liquidity score¹ greater than 0 are eligible for inclusion.

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).

¹ Input data to calculate the Liquidity Score is sourced from Caplight.

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. For more information on the liquidity score methodology, refer to the [Construction Rules for the Morningstar Liquidity Score for Venture Capital-Backed Companies](#).

Portfolio Construction

The index is composed of two sleeves: private and public. The private sleeve includes the largest 5 companies based on the latest secondary market capitalization, and the public sleeve includes the largest 45 securities based on the latest float-adjusted market capitalization. A 50% security selection buffer² is applied to each sleeve at reconstitution to help manage turnover. The index is generally limited to 50 securities; however, the total count may exceed this limit if a company that was previously selected as a private constituent has IPO'd and is being held for 180 days in the portfolio. If fewer than the targeted number of securities from the starting universe meet eligibility criteria, or if securities are added or deleted as a result of corporate actions after reconstitution, the constituent count may deviate from the targeted number. During reconstitution, if the number of eligible securities is less than the targeted constituent count, all eligible securities are selected. The reconstitution schedule is provided in the "Index Maintenance and Calculation" section.

Number of Stocks

The indexes target a fixed number of stocks based on a transparent ranking system subject to the application of eligibility criteria at reconstitution. To limit excessive turnover in the portfolio, a buffer of 50% is applied to each sleeve during the security selection stage at each reconstitution. 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 private sleeve targets 5 companies for inclusion. The buffer is applied to those ranked between 3 and 8 based on the secondary market capitalization. First, all eligible companies from the starting universe with a rank between 1 and 2 are selected on a priority basis. Next, current Index constituents ranked between 3 and 8 based on the secondary market capitalization are successively added (subject to meeting the other eligibility criteria) until the number of securities reaches 5. Finally, if fewer than 5 companies are selected after these steps, the remaining eligible companies with the highest secondary market capitalization are added until the number of securities in the Index reaches 5.

The public sleeve targets 45 securities for inclusion. The buffer is applied to those ranked between 23 and 68 based on float-adjusted market capitalization. First, all eligible securities from the starting universe with a rank between 1 and 22 are selected on a priority basis. Next, current Index constituents ranked between 23 and 68 based on float-adjusted market capitalization are successively added (subject to meeting other eligibility criteria) until the number of securities reaches 45. Finally, if fewer than 45 securities are selected after these steps, the remaining eligible securities with the highest float-adjusted market capitalization are added until the number of securities in the Index reaches 45.

Index Weighting

At each rebalancing, the public sleeve is allocated a 90% weight and the private sleeve is allocated a 10% weight. The maximum security weight is capped at 11% within the public sleeve and 30% within the private sleeve. Each sleeve of the index is market-cap weighted³ based on the most recently available data: float-adjusted market capitalization for public

² The security selection buffer was not applied at the June 23, 2025, reconstitution. Companies that have gone public were excluded from the index at the June 23, 2025, reconstitution to simulate an initial construction for the index composition.

³ Subject to security level capping.

securities and secondary market capitalization for private companies. A 10% cap is applied to individual public security weights within the overall index, while individual private company-level weights are capped at 3% of the overall index. The excess weight from these capped securities is redistributed within their respective sleeve in a manner designed to preserve the relative exposure of the pre-capped weights for as many constituents as possible. This may result in some securities that initially breached the cap receiving a weight lower than the cap. For more details, refer to the [Morningstar Indexes Calculation Methodology rulebook](#).

Index Calculation and Price Data

Details about index calculation can be found in the rulebook, [Morningstar Indexes Calculation Methodology](#). The private sleeve of the Index is calculated daily using the [Morningstar Consolidated Market Price Methodology](#) and the public sleeve of the Index is calculated using the [Morningstar Equity Indexes Price Methodology](#).

Private Company Pricing

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 Zanbato⁴, to calculate daily prices.

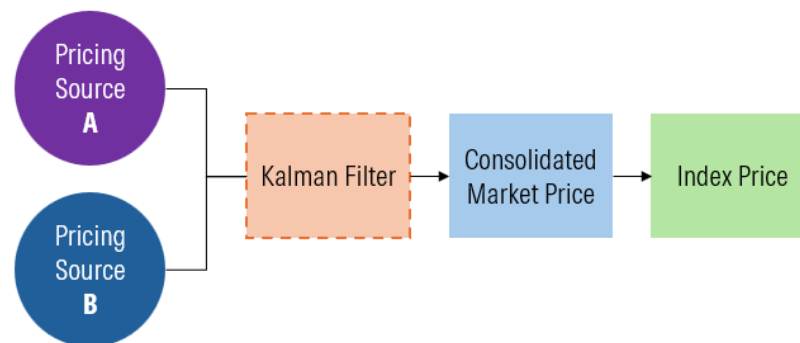
Morningstar Consolidated Market Price Methodology

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 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.

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

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 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, semi-annually on the third Friday of June and December. Adjustments are implemented after Friday's market close and reflected the following Monday. The market data used for reconstitution is as of the last trading day of April and October.

The index is rebalanced quarterly on the third Friday of March, June, September, and December. Adjustments are implemented after Friday's market close and reflected the following Monday. If Monday is an index holiday, the rebalance is reflected the next business day. The market data used for rebalancing is as of the last trading day of February, May, August, and November. During quarterly reviews, the index weighting scheme described above is applied to the remaining securities using the latest free float and total shares outstanding data for each constituent.

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 private company weight calculations is two business days prior to the proforma start date.

Index files are published according to the global calendar schedule. For more information, please refer to the [Morningstar Indexes Holiday Calendar](#).

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.

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 IPO and remain in the portfolio are not counted toward the 5 private-company target, which may result in the index temporarily holding more than 50 securities. 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.

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

For public companies, the treatment of corporate actions will be as per float market-cap weighted indexes corporate action methodology. For more details, please refer to the [Morningstar Indexes Corporate Actions Methodology](#).

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.

Methodology Review and Index Cessation Policy

The index methodology is continually reviewed to ensure it achieves 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 Indexes 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 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 Decommissioning Process](#).

Data Correction and Precision

Intraday Index Data Corrections

Commercially reasonable efforts are made to ensure the accuracy of data used in real-time index calculations. If incorrect price or corporate action data affects index calculations, corrections are applied prospectively.

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](#).

Exceptions

While Morningstar will seek to apply the method described above, the market environment, 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 Index Methodology Committee, and in all instances, the application of a nonstandard process will be reported to the Morningstar Index 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.

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 Index Methodology Committee

The Morningstar Index 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 Index Operations Committee

The Morningstar Index 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 Index Oversight Committee

The Morningstar Index 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.

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