

Morningstar PitchBook Listed Private Equity Indexes

Index

Morningstar® PitchBook Developed Markets Listed Private Equity Index®

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Bloomberg Tickers:

GR USD (MSDMPEGU) GR EUR (MSDMPEGE) PR EUR (MSDMPEPE) PR GBP (MSDMPEPG) PR USD (MSDMPEPU) GR GBP (MSDMPEGG) PR CAD (MPDPESPC) Investment markets have changed profoundly over the past 20 years. Twice as many U.S. companies are now backed by private equity than are publicly listed. Hundreds of businesses worth more than \$1 billion have chosen not to list their shares, while the ownership of many public companies has transferred into private hands. Unsurprisingly, institutional investors have raised their allocations to private markets, and traditional asset managers direct capital toward unlisted companies. This convergence between public and private markets only shows signs of accelerating, according to PitchBook, a leading provider of private market data and research owned by Morningstar.

Yet private markets can be hard for many investors to access. Direct investments in private companies and in private equity funds require large outlays, long lock-up periods, and concentrated exposure to illiquid, often leveraged investments. Private equity fund fees are high.

Publicly traded vehicles that invest in privately held businesses are an attractive gateway to private markets. They are liquid, regulated, diversified, and easily investable. They help investors avoid post-commitment declines typical of private equity investments.

The Morningstar PitchBook Listed Private Equity Indexes highlights companies with significant exposure to private equity. The indexes leverage unique data sets from PitchBook for both constituent selection and weighting.

Index Eligibility

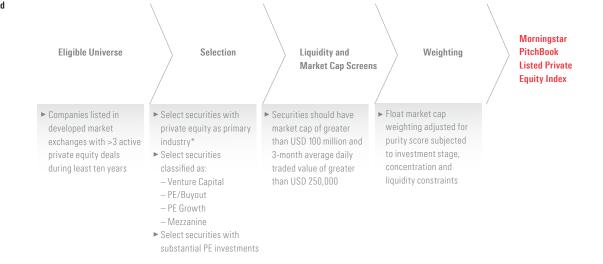
The indexes' starting universe includes companies listed on developed-markets exchanges with more than three active private equity deals during the past 10 years. To be eligible, securities must have market capitalizations of more than \$100 million and three-month average daily trading volume greater than \$250,000. The indexes exclude business development corporations, which are onerous from a tax perspective. The eligible universe is roughly 2,500 companies.

Index Selection

The indexes select companies whose primary industry is classified by PitchBook as private equity, securities deemed by PitchBook as being involved in:

- ► Venture capital
- ► Private equity buyout
- ► Private equity growth
- Mezzanine financing
 as well as companies with substantial PE investments.
 Constituents include direct private equity investors,
 alternative asset managers, fund-of-funds,
 holding companies and closed-end investment vehicles.

Morningstar PitchBook Listed Private Equity Index Family Construction Process



^{*} Primary industry classification as per PitchBook

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Index Weighting

A number of inputs are factored into constituent weighting.

Float-adjusted market capitalization — Market-cap weighting reflects the landscape and allows weights to adjust automatically as share prices fluctuate, eliminating the need for frequent rebalancing.

Purity score — The purity adjustment relies on PitchBook expertise and emphasizes companies with the heaviest involvement in private equity (see below). The goal is to provide investors with the strongest exposure to private markets through listed private equity.

Investment stage — Constituent weight is constrained by exposure to different investment stages, informed by PitchBook data. This is both a risk-control measure and mirrors the market. Aggregate weight devoted to late stage, midstage, and early stage is capped at 80%, 20%, and 10%, respectively. So early-stage investments, which are considered riskiest, may not exceed 10% of index weight. Midstage investments may not exceed 20%. Late-stage investments are capped at 80% to ensure some exposure to emerging companies.

Liquidity — The goal of a "liquidity-informed weighting scheme" is easy investability. Thus, constituent weights are adjusted based on how easily a position can be built or unwound using a position's average daily trading volume.

Diversification constraints — Individual security weight is capped at 10%. The aggregate weight of securities with weights greater than 5% is restricted to 40% of overall index weight. This assures that performance is not overwhelmed by a few constituents.

Index Reconstitution/Rebalancing

The indexes reconstitute, or resets membership, once per year, in December. Index weight is rebalanced (brought back to target weight) on a quarterly basis.

Purity Score

 $Purity\ score_i = \frac{PE\ or\ VC\ investments\ done\ by\ the\ firm}{Overall\ investments\ done\ by\ the\ firm}$

 $Weight_i = \frac{Purity\ score_i * Float\ Market\ Cap_i}{\sum_{i=1}^{n} (Purity\ score_i * Float\ Market\ Cap_i)}$

The goal of the "purity score" is to ensure that pure-play PE firms get higher weight in the index. The score is determined by a firm's percentage of PE or VC investments as a share of the overall investment portfolio. Investments in buildings or real estate are not considered as PE or VC. PitchBook data estimates on the private equity fund universe are utilized.

