

Construction Rules for the Morningstar Liquidity Score for Venture Capital-Backed Companies

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Overview

Unicorns, or privately held, late-stage venture capital-backed global companies with post-money valuations of at least \$1 billion, have come to symbolize the convergence of public and private markets. As private companies opt to remain private for longer durations, qualified investors seek to access late-stage venture capital, or VC, companies. However, the absence of conventional liquidity measures centered around market orientation make it challenging for investors to locate securities that are viable for investment.

The Morningstar Liquidity Score for venture capital-backed companies enables the assessment of tradability for VC-backed companies. This score is instrumental in creating indexes that serve as the foundation for investment products.

Input data used in the calculations is sourced from Caplight. See Appendix 1 for more information on Caplight.

Liquidity Score Input Data

The liquidity score measures trading ease in secondary markets and supports the creation of investment products. It is calculated using a proprietary liquidity scoring model that incorporates the following four input factors:

1. Trade volume (\$): Trade volume represents the total dollar amount (\$) of shares traded for a specific private company on secondary markets.
2. Open interest (\$): Open interest represents the total dollar amount (\$) of buy-and-sell orders received from different buyers and sellers for a specific private company on secondary markets.
3. Share of days with active orders (bid & ask): Share of days with active orders represent percentage of days over previous 91 days for which both active bid-and-ask orders exists for a specific private company on secondary markets.
4. Number of unique contributors: Number of unique contributors represents the number of firms who have provided pricing or order information for a particular private company.

Calculating Liquidity Scores

Liquidity scores are calculated by converting daily secondary market trade information (trade volume, open interest, share of days with active orders, and number of unique contributors) into a rolling average that is calculated using a six-month rolling window. This is to reduce noise and minimize the impact of one-off transactions.

Calculating the Z-Score

The first step in calculating the liquidity score is to calculate the Z-score for each of the four input factors, using raw data provided for every company.

$$Z - score = \frac{(x)i - mean(x)}{stdev(x)}$$

Z-scores are then windsorized at a capping of +/-3. Then, the final factor score is computed for each factor Z-score, using the Z-score determined in the previous step.

$$Final\ Factor\ Score = \begin{cases} 1 + Z, & Z \geq 0 \\ (1 - Z)^{-1}, & Z < 0 \end{cases}$$

Calculating the Composite Liquidity Score

Lastly, the liquidity score is computed by combining four final factor scores.

$$L_Score = (0.75 \times F_trade_volume) + (0.0833 \times F_order_volume) + (0.0833 \times F_share_of_days_active_bid_ask) + (0.0833 \times F_num_of_contributor)$$

Exhibit 1 Liquidity Score Example

Input Data

Company	Date	Latest Post-Money Valuation (\$B)	Trade Volume (\$)	Order Volume (\$B)	Share of Days With Active Orders	Unique Data Contributors
SpaceX	31-Mar-23	127.00	124,549,649	2.14	1	11
Stripe	31-Mar-23	50.00	23,812,041	1.03	1	10
Waymo	31-Mar-23	30.75	Null	Null	Null	Null

Liquidity Score

Company	Date	Latest Post-Money Valuation (\$B)	Composite Liquidity Score
SpaceX	31-Mar-23	127.00	3.94
Stripe	31-Mar-23	50.00	2.75
Waymo	31-Mar-23	30.75	Null

Source: Morningstar.

The liquidity score represents the relative liquidity of each company with respect to the overall liquidity in the private secondary market. In the above example, Waymo's null liquidity score is a result of the lack of trading activity on secondary market platforms over the previous six-month period, indicating that it was illiquid on the date listed.

Appendix

Appendix 1: Caplight

Caplight is a private-market data aggregator of pricing and transaction data for late-stage VC-backed companies. The firm enables investors to take long and short private company positions via synthetic, cash-settled derivatives.

Caplight allows investors to hedge positions, generate income on assets, and access true liquidity with public settlement-like mechanics. It serves a broad range of investors including hedge funds, VC funds, family offices, pensions, endowments, mutual funds, and insurance firms.

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 Services Methodology & Administration Committee

The purpose of the Morningstar Index Services Methodology & Administration Committee is to oversee all new index development, index methodology changes, and cessation of indexes for any indexes where Morningstar provides calculation and administration services but does not own the Intellectual Property of the indexes. The group is comprised of 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 the index calculation services and administration business, with regard to 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 European Benchmarks Regulation (the “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 European Benchmarks Regulation (the “BMR”), providing independent oversight of all aspects of the governance of benchmark administration. 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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