Drawing systematic value from the public equity liquidity premium

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Some investments are more liquid than others, and that superior liquidity comes at a price.

Simply described, liquidity is the degree to which an asset can be quickly bought or sold in the market without affecting its price. Like other well-known stock-level characteristics, such as value, it exists across every area of the equity market. If we recognise that liquidity has a price, can it be reduced to a systematic investment factor?

There are three important criteria to consider when deciding whether to use one or more factors:

- **Is there an enduring, logical rationale for why the factor can be expected to persist in the future?**
- **Is there extensive empirical evidence that demonstrates the efficacy of the factor?**
- **Can the factor benefit the investor after all-in costs are considered (for example, taxes, expense ratio, bid-ask spread, and market impact)? The most widely accepted factors are value, size, and momentum. Increasingly, liquidity is recognised as another pillar.**

The liquidity spectrum

Liquidity exists on a spectrum, rather than as a binary characteristic that an asset either has or does not have. At one end of the spectrum are assets such as infrastructure and large-scale commercial property, in which a transfer of ownership can take years of complex negotiation. Coming down the spectrum will be assets such as works of art and antiquities, private equity investments and venture capital, until we get to the other end, where we would expect to find highly liquid assets, such as publicly listed equities, short to mid-maturity US Treasuries, and major interest rate and currency futures contracts. These latter types of assets can typically be sold in moments, at any time of the day or night, through multiple platforms and at widely accepted, published prices.

We intuitively understand that relative liquidity has value when we think in these fairly broad terms – the liquidity difference between a building and a share in an S&P 500 Index company. But liquidity differences can be narrowed to finer and finer gradations and also exist within the public equity markets. An example might be the common stock of two similar companies, say two major oil companies or two global banks. Bank products are notably fungible, but there are still many attributes that can affect the relative liquidity of shares in two banks: management, debt levels, political and ethical issues, to name a few.

Why liquidity should carry a premium

Academic research points to two primary reasons investors should be compensated with higher expected returns for holding stocks with relatively less liquidity. One school of thought contends that liquidity is a characteristic of a stock's trading and that the expected return premium is less related to risk than to the higher cost and difficulty of transactions. Investors who bear this additional trading difficulty should reasonably expect a return premium to compensate them for the expected additional cost and the risk that that cost is greater than anticipated.

A second school of thought argues that it is not only stock-level characteristics that influence the relative liquidity of particular instruments. Whole-market and temporal conditions also play a part, and individual stocks have different sensitivities to these changing conditions. In this view, a stock's sensitivity to whole-market liquidity conditions, or "liquidity beta", drives the return premium.

Liquidity versus size

One of the common critiques we hear about liquidity as a style factor is that it overlaps with other well-known factors, size in particular. Our research shows that it is the relative level of liquidity that determines the liquidity premium, regardless of capitalisation. This suggests that relative illiquidity can be systematically captured, in the same way that value can be captured, along the entire breadth of market capitalisation. We have tested this extensively using the Russell universe of US equities – the Russell 1000 Index, the thousand largest US stocks, and the Russell 2000 Index, the next 2,000 stocks down the capitalisation scale.

This is a large, actively traded universe, and we believe the results extrapolate to global equities and other large, liquid markets more generally. Our sample data consisted of the years 1991–2016, a period that saw several market cycles, including the technology bubble and the global financial crisis.

Our starting point was to synthesise into a composite three different, though related, measures of liquidity. The first was turnover, for which we took annual average daily turnover (shares traded as a percentage of shares outstanding). The second was volume, for which we took the annual average daily volume (dollar value). The third was what is known as the Amihud measure, which gauges price impact for a given trading volume.[1]

We averaged these three measures together to create a composite, which we used to sort the universe of stocks. We then separated the sorted list of stocks into three equal-sized groups that contain the least liquid one-third, the middle third, and the most liquid third. We did this sorting and separation by liquidity within three separate universes, or "layers", defined by market capitalisation: The Russell Top 200 Index, the next largest 800 stocks (the Russell Midcap Index), and then the Russell 2000 Index (R2K).

For each market-capitalisation layer, we subtracted the equal-weighted average annual return of the most liquid one-third of stocks (T1 in the chart below) from that of the least liquid (T3). We took this as a fair measure of the liquidity premium at each level on the capitalisation scale. The least liquid group of stocks outperformed at each capitalisation layer. The relatively least liquid one-third of the largest capitalisation stocks generated an annual average return premium of more than 2 percentage points (10.8% compared with 8.5%). The least liquid group in the middle layer, made up of the next largest 800 stocks, generated a premium of 2 percentage points, and the lowest layer, the R2K, generated a premium of 5 percentage points.

We have run further analyses to test these results. These have included comparing our composite results with returns ordered purely on the basis of size. This showed a quite different set of outcomes, further suggesting that the liquidity and size premiums are quite separate factors.

Composite liquidity matrix

The data suggest that a liquidity premium exists across the size spectrum

Liquidity	Most (T1)	Middle (T2)	Least (T3)	Liquidity premium (T3–T1)
Large-cap	8.5%	11.2%	10.8%	2.4
Mid-cap	11.5%	11.9%	13.5%	2.0
Small-cap	9.3%	12.4%	14.3%	5.0

Source: Vanguard calculations of average annual returns using Russell data 1991–2016. Figures are subject to rounding. Liquidity premium given in percentage points. Historical premiums do not include the costs to implement a liquidity-based strategy.

Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

1 Yakov Amihud, 2002. Illiquidity and stock returns: Cross-section and time-series effects. *Journal of Financial Markets* 5(1):31–56.

Liquidity versus value

A second common critique we hear about liquidity as a factor is that it is simply indirect exposure to value. A quite different angle in our research was to divide stocks by their book-to-price, a common measure of exposure to the value factor, and then to look at their composite illiquidity. While liquidity and value factors have some overlap, the liquidity element remained significant and, in pattern and magnitude, in line with our original composite. The least liquid large-cap value stocks showed a liquidity premium of 1.9 percentage points over the period, while the least liquid small-cap value stocks showed a premium of 3.5 percentage points.

Can less liquid stocks generate a premium after all-in costs?

A final critique is the investability of a liquidity factor strategy. End investors care only about the returns they can put in their wallets, not what can be earned on paper or on a spreadsheet. Many analyses that assess the historical performance of equity factor-based investing (including in this brief) do not incorporate various implementation costs into their results (e.g. management expenses, bid-ask spreads). These costs can materially affect performance in real-world portfolios. It is important to take these potential performance drags into account. The actual significance of these various effects will be influenced by numerous issues, such as the way securities are weighted, the relative liquidity of the stocks in the eligible universe, the size of the potential investment, the investment vehicle's rebalancing policy, and the investor circumstances under consideration. Based on our own internal analysis and a review of the relevant academic literature on this topic, we believe that the liquidity factor premium can survive implementation costs over the long term.[2]

Conclusion

For investors able to cope with the cyclicality associated with any active strategy, a fund that systematically captures the premium generated by the liquidity factor may offer the opportunity to tilt their portfolios in a manner that is at once controlled and meaningful. This approach can reduce costs, as investors pay only for the returns they want, while offering an addition to a well-balanced, focused investment portfolio.

Liquidity and value

A meaningful liquidity premium is evident among value stocks

Liquidity	Most (T1)	Middle (T2)	Least (T3)	Liquidity premium (T3–T1)
Large-cap value	8.5%	11.5%	10.5%	1.9
Mid-cap value	11.5%	12.4%	13.3%	1.8
Small-cap value	10.3%	12.1%	13.8%	3.5

Source: Vanguard calculations of average annual returns using Russell data 1991–2016. Figures are subject to rounding. Liquidity premium given in percentage points. Historical premiums do not include the costs to implement a liquidity-based strategy.

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2 Robert Novy-Marx and Mihail Velikov, 2016. A taxonomy of anomalies and their trading costs. *The Review of Financial Studies* 29(1):104–147.

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