

Does a liquidity factor premium exist in the stock market?

- Some theoretical models predict the existence of a liquidity premium in the stock market
- But empirical evidence for a stock liquidity premium is weak
- Nevertheless, liquidity considerations are crucial for efficient portfolio management

Academic studies present ample evidence in support of the existence of four factor premiums in stock markets: Low Risk, Value, Momentum, and Quality. Factor investing puts these concepts into practice by enabling investors to allocate their capital explicitly to these premiums in order to achieve higher returns and better risk management. Liquidity is another factor that some academics consider important to explain why some stocks earn higher returns than others, yet Liquidity has received much less attention than these other established factors. In this note, we discuss the evidence for the Liquidity factor and the role of liquidity in investment management.

Liquidity can be defined as the ease of executing a transaction without creating excessive costs. When executing a transaction, investors pay explicitly for the prevailing bid-ask spread, and implicitly for any adverse price swings due to the removal of liquidity from the market. All else being equal, the more illiquid a stock, the more difficult and expensive it is to trade it, and this property makes illiquid stocks less attractive than liquid stocks. For this



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reason, illiquid stocks should command a premium to be held, or conversely, liquid stocks should trade at a discount. This reasoning warrants the existence of a liquidity factor premium in stock returns, and some academic studies indeed claim to observe such a premium in the data.¹

However, unlike other established factors, liquidity has never received much attention from institutional investors, at least not in equity markets. One possible reason for this is that investment strategies based on the liquidity factor are difficult to implement in practice. While other established factors can be exploited in broad, diversified portfolios that are considered investable from an institutional investor's standpoint, these investors often face liquidity constraints in their allocation decisions, that make an equity strategy that explicitly invests in illiquid stocks less appealing. Another possible explanation is that the evidence for the existence of a liquidity premium is not very solid. While liquidity undoubtedly matters when it comes to portfolio construction and implementation, it is not clear whether stocks earn higher returns simply because they are illiquid. In other words: are equity investors compensated for taking on extra illiquidity risk?

In this article, we review the arguments for and against the existence of a liquidity premium and conclude that the evidence for such a premium is, at best, weak. Our conclusion is largely based on the results of the academic studies that comprehensively address these issues. Moreover, we note that these conclusions are consistent with what we ourselves have found when examining the liquidity factor. However, regardless of the existence of a liquidity factor as an independent driver of expected stocks returns, liquidity itself is a very important aspect in any sophisticated investment process. The last section of this article discusses why liquidity matters, and how it can be used for efficient portfolio construction and implementation.

Research on the Liquidity premium

Following the seminal paper of Amihud and Mendelson (1986) on liquidity and stock returns, a number of papers have documented patterns in the cross section of stock returns that they attribute to liquidity. Amihud and Mendelson (1986) show that in a world with frictions, which are assumed not to exist in the most influential asset pricing models, a liquidity factor emerges naturally. The capital asset pricing model (CAPM) postulates that expected stock returns increase linearly with their market betas, but it is now widely acknowledged that the CAPM does not hold in practice. Specifically, stocks with low market betas earn higher returns than predicted by the CAPM, and the converse is true for high beta stocks. Amihud and Mendelson show that by including a liquidity factor, such differences in

¹ Liquidity has also been studied in bond markets. For instance, there is a yield difference between on-the-run and off-the-run Treasury bonds, and the credit risk premium of corporate bonds seems much larger than justified by losses due to defaults, which has been interpreted as evidence that it may largely be a liquidity-related premium. In this article, however, we focus on the question as to whether a liquidity premium exists in public stock markets.

expected returns can be explained (at least partially). They conclude that these differences are caused by differences in stock liquidity.

This paper was followed by a number of other articles confirming the relationship between liquidity and stock returns. Datar, Naik, and Radcliffe (1998) find that a measure of share turnover, defined as the number of shares traded over a certain period divided by the number of shares outstanding, is strongly related to future stock performance. In particular, they show that stocks with low share turnover, arguably illiquid and neglected, generate high risk-adjusted returns. Chordia, Subrahmanyam, and Anshuman (2001) document similar patterns using the dollar trading volume and its coefficient of variation. Liu (2006) looks at the number of days with zero trading volumes and identifies as illiquid those stocks with a large number of days on which they were not traded. Further, he shows that these stocks outperformed their most liquid counterparts. Acharya and Pedersen (2005) develop their own measure of stock level liquidity, which is based on sensitivities to an underlying illiquidity factor, and also show that it matters for stock returns. Perhaps the most influential empirical paper in this area is by Pastor and Stambaugh (2003), who show that a market-wide illiquidity factor is important for explaining the cross section of stock returns, as well as a big part of the momentum premium.

Given all this evidence, one may wonder why the liquidity factor is not more broadly accepted. The reason is simply because the robustness of these findings has been called into question. In particular, concerns have been raised in multiple studies about the claims made in the abovementioned papers. Those concerns can be divided into two categories:

- The effect is not robust across different time periods, and can only be found during the in-sample period, if at all.
- The liquidity effect is largely driven by microcaps – stocks that according to Fama and French (2008) represent around 3% of total market cap of the US stock market, but account for around 60% of the total number of stocks.

Once these elements are taken into account, the liquidity factor simply cannot be found.

For example, Drienko, Smith, and Von Reibnitz (2017) take a comprehensive look at results of Amihud (2002) who finds a strong relationship between liquidity and stocks returns. They conclude that results found in Amihud's paper only hold in-sample. Using data from the last two decades, the authors find that the liquidity risk is not rewarded, possibly due to the technological innovations that have increased average stock-level liquidity. All these findings cast major doubts on whether liquidity is an independent driver of stock returns.

In a more recent paper, Hou, Xue, and Zhang (2017) find that 95 out of 102 documented liquidity-related measures² are completely insignificant if one gives less weight to microcaps in portfolio construction. In fact, all of the prominent anomalies mentioned above, except that discussed by Pastor and Stambaugh (2003) which was not considered in this paper, are insignificant. Thus, Hou, Xue, and Zhang (2017) essentially dismiss decades of academic research on liquidity premiums with their fresh look at the data and their use of a conservative methodology.

In another recent study, Li, Novy-Marx, and Velikov (2017) find that the performance of the Pastor and Stambaugh (2003) liquidity factor is very sensitive to how it is constructed, and that a factor constructed following the standard Fama and French (1993) methodology, that gives less weight to microcaps due to the use of capitalization-weights, as opposed to equal-weights, generates a statistically insignificant return. Also, they find no relationship between liquidity risk and momentum, as opposed to what was documented in the original paper. An additional challenge with this liquidity measure is that it can only be tested in respect of the U.S. market, as the employed liquidity factor is derived from data from U.S. exchanges. It is therefore unclear if and how the results carry over to international markets.

Liquidity and other factor premiums

The relationship between size and liquidity is an intrinsic one, as small stocks also tend to be less liquid. For this reason, for some liquidity definitions that produce significant dispersions in raw returns between illiquid and liquid stock portfolios, the Fama-French three-factor model that includes a size factor is usually able to completely explain this differential. This is, to a large extent, due to a significant loading on the size factor. Nevertheless, the evidence for size as an independent factor that goes beyond liquidity effects is much stronger, causing the size factor to be more widely accepted. Size also has the advantage of being much easier to measure than liquidity.

While the existence of a stand-alone liquidity factor is questionable, it is also interesting to consider if there are interactions between liquidity and other established factors. Assuming that illiquid segments of the market are less efficient at determining the fair value of assets, one may argue that some factors are stronger amongst illiquid stocks. Small, illiquid stocks can thus be seen as a catalyst for other factor premiums, as opposed to an independent source of return. Provided there are interaction effects between established factors and stock-level liquidity, it is the job of an active manager to identify and model these effects in the stock selection and portfolio construction phases. Given that these stocks, by definition, tend to be more difficult and expensive to trade, smart portfolio implementation can therefore add substantial value for investors.

² Hou, Xue, and Zhang (2017) define 'liquidity-related measures' in very broad terms, but they cover many indicators that are commonly seen as stock level liquidity measures.

Portfolio construction and implementation

Liquidity is a critical element to take into account when translating theoretical investment strategies to live portfolios. In the words of Perold (1988), “There are crucial differences between transacting on paper and transacting in real markets”. This gap is better known as the implementation shortfall. When constructing investment portfolios, trading costs, which are a direct function of the liquidity level of a stock, erode the expected alpha. Although expected alphas are driven by exposures to proven factor premiums and liquidity does not qualify as an independent alpha factor, it is nonetheless a key driver of transaction costs, and therefore net returns. As a result, a sophisticated portfolio construction process and smart portfolio implementation can add a lot of value to the investment process.

Estimates of liquidity are needed to optimize portfolio turnover and ensure that the portfolio’s investments remain within liquidity risk boundaries. There is widespread evidence in the literature that the performance of mutual funds is highly dependent on their turnover and transaction costs. For example, Carhart (1997) demonstrates that expenses and turnover are negatively related to fund performance and that changes in execution costs per transaction partly explain why certain funds perform consistently better than others. Keim and Madhavan (1998) find that stock trading costs vary with the sophistication of order-placement strategies and the skill of the trader. Wermers (2000) determines that approximately 70% of the average difference between the gross (before costs) and net (after costs) outperformance of stocks held by mutual funds is due to implementation inefficiencies. Naturally, any sophisticated portfolio construction process should include liquidity estimates to minimize the ‘slippage’ between investment decisions and actual transactions.

If the usage of liquidity estimates within portfolio construction is successful, portfolio managers can take a prudent approach to investing in assets that take a long time to trade or that are expensive to buy or sell. Additionally, liquidity can be used to adjust position sizes of investments, to reduce the impact on after-cost investment performance.

In the portfolio implementation phase of the investment cycle, liquidity is also of utmost importance. After portfolio construction, the order is sent to traders. The moment an order hits the trading desk, minimizing the implementation shortfall of that investment becomes the trader’s top priority. At this point, estimates of liquidity and knowledge about expected transaction costs help the trader to get the best price for the asset.

Concluding remarks

The idea of a 'liquidity premium', an expected return on a stock that is higher simply because it is illiquid, has been challenged and debunked in various studies. Given the state of the evidence, we conclude that there is currently no reason to implement a strategy that is specifically aimed at investing in illiquid stocks. However, small and illiquid stocks may serve as a catalyst for other factor premiums, and interactions with these premiums should be considered. Liquidity is also a key aspect to ensure the efficient and optimal implementation of investment strategies. As such, it should explicitly be taken into account when managing equity portfolios.

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