LIQUIDITY IN EQUITIES

Content summary

Section 1

This section introduces the concept of liquidity and its benefits to investors. It illustrates the degree of liquidity across listed UK equity markets, showing that it varies significantly across the market.

It follows with a discussion on the liquidity characteristics of markets: what constitutes a liquid market, and the UK equity landscape: from shares in FTSE 100 companies to shares in private companies.

Section 2

Here, we discuss the factors that impact liquidity by reference to a seminal US court ruling on the matter, and introduce the concept of a discount for illiquid shares.

This section also includes a summary of the implicit and explicit costs of liquidity borne by the shareholder, and illustrates the potential financial impact of investing in less liquid, discounted shares.

Section 3

This section introduces Asset Match and illustrates how its services can help companies and shareholders obtain a cost-effective liquidity solution.

Authored by

Owen McCormack, CFA
Head of Research
Owen.mccormack@assetmatch.com

Paula Burke
Research Associate
Paula.burke@assetmatch.com

For further information, please contact:

Stuart Lucas
Co-founder and co-CEO
Stuart.lucas@assetmatch.com

Iain Baillie
Co-founder and co-CEO
Iain.baillie@assetmatch.com

Call: 0207 248 2788
Visit: www.assetmatch.com

Introduction

A share in a company is a claim over the future cash flows of the company itself, whether it is publicly listed or private. However, a number of factors separate the two such that investments in listed equity and in private equity can behave like different asset classes altogether. Foremost of these factors is liquidity.

This document presents an introduction to this key determinant of equity valuation. It is written for the benefit of finance professionals and sophisticated investors who have an interest in the impact of liquidity on their investment decisions.

This document discusses liquidity in UK equities by comparing shares traded on a major exchange and shares in private companies. From the liquid FTSE 100 constituents through to shares in UK private companies, it is important for an investor to understand the advantages of liquidity, its cost, and how different categories of investors have different liquidity preferences.

In Section 3, this document makes a case for widening investor access to direct investments in UK private company small-to-mid cap equity, and introduces Asset Match, a trading platform for shares in unlisted companies. A network of institutional investors, private companies and shareholders already make use of the Asset Match platform to access liquidity in this asset class that they historically would have found difficult to obtain.

Section 1

Definition of liquidity

A number of definitions for liquidity can be found throughout financial literature[1]. Perhaps the most common is Keynesô definition that one asset is more liquid than another ñif it is more certainly realisable at short notice without lossò. This highlights the three relevant factors in measuring liquidity ï the difficulty of finding a market, the time it takes to trade, and the price impact of trading. Often, these factors can each be improved, but at the expense of another ï an asset can be sold more quickly, for example, if the owner is willing to accept a lower price.

Another defines it as the cost to an investor of instantaneously reversing a completed trade ï that is to buy, then immediately sell, the shares. It is a function of the ease, cost and speed at which the asset can trade.

The benefits of liquidity

Liquidity in an asset class confers a number of benefits to an investor, including:

1) Lower transaction costs;
2) More frequent trading windows; and
3) A clearing price that is more likely to be close to the intrinsic value of the asset.

These are beneficial to all investors to some degree: all else held constant, we prefer to have an asset that is cheaper to trade, for example. However, these benefits are particularly attractive, or even essential, to certain kinds of investors; for example those that trade frequently with an emphasis on technical and algorithmic strategies[2].

1) **Lower transaction costs** are much more important to trading strategies that rely on a high frequency of transactions. In the context of a multi-year holding period, the cost of the transaction is less significant than in a short-term trade on the markets.
2) Similarly, **more frequent trading windows** are more important if the trade is based on exploiting the short-term ebb and flow of the markets. Over a longer time horizon, the return on an investment will reflect the change in company fundamentals. This is a function of its cash generation, its business strategy and the quality of management. These are long-term factors which do not fluctuate with the market mechanics exploited by short-term traders.

[1] It is worth noting that some finance practitioners draw a distinction between the concepts of marketability and liquidity. The former can be specifically defined as the availability of a market or acquirer for the asset (its marketability) and liquidity can be separately defined as the cost of executing the transaction once the buyer is identified. For the purposes of this paper, the two concepts are considered the same, and are interchangeable. This is a standard assumption amongst valuation practitioners, and reflects the fact that quantifying the two separately can be impractical and arbitrary. A discount from a comparable listed asset price reflects both the efforts to find a buyer (a cost of marketability) and the cost of organising the physical sale (a cost of liquidity). As such, most practitioners adopt a single value adjustment.

[2] Algorithmic trading is designed to optimise returns by avoiding or exploiting inefficiencies in the market. This can take place, for example by spreading large trades into a number of smaller, randomised trades, or by using algorithms to take short-term positions based on statistical models.

3) In a liquid market, information is quickly disseminated and acted upon, and more market participants endeavour to find the right price. As a result, it is more likely that shares trade at **a price close to its intrinsic value**[3].

All of the above suggests that liquidity is more important to short-term investors as compared to long-term investors. It stands to reason that long-term investors are able to invest in a broader range of less liquid assets, and can therefore take advantage of investments in private companies. However, what is an investor giving up when he decides to invest in private, rather than public, equities?

The liquidity of public and private companies

"The question of how illiquidity affects value has consequences for both investors and financial managers. For investors, it pinpoints the importance of finding an investment strategy that matches time horizon: less liquid investments are much better suited for long term investors"

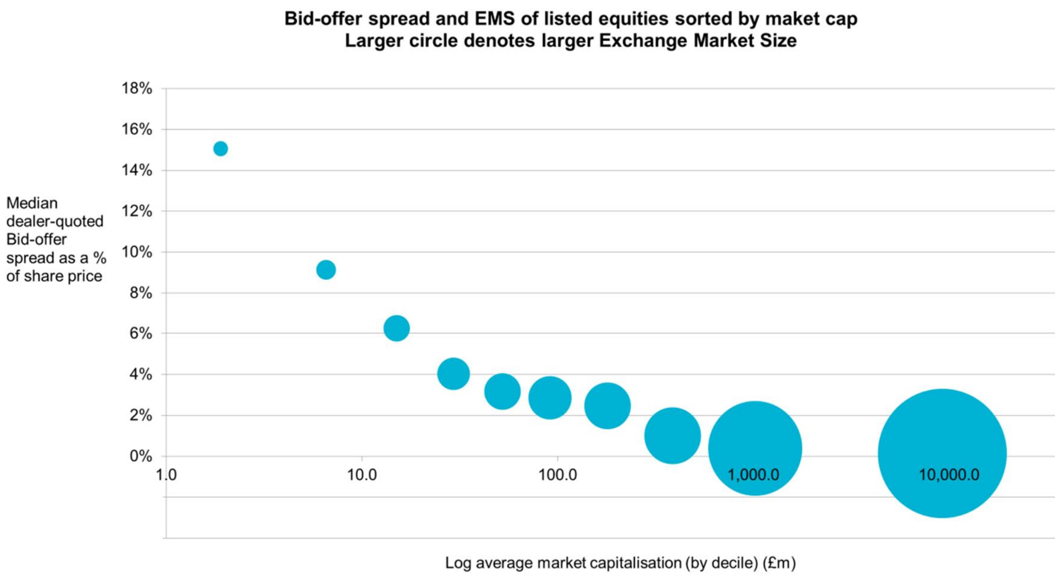
Prof Aswath Damodaran

ñDamodaran on Valuation: Security Analysis for Investment and Corporate Finance, Second Editionò

We typically analyse the liquidity of a private company by comparison to a listed company; however, even listed companies are not perfectly liquid, and not all private companies are illiquid. No asset can be perfectly liquid or illiquid; there is a continuum of liquidity.

Even within a perceived liquid asset class such as equities on the London Stock Exchange (Main Market and AIM), there is a significant variation in the liquidity of the constituent shares. We can observe this by considering two indicators of the liquidity of a stock: the dealer bid-offer spread and the EMS (Exchange Market Size). The former is the difference in the price at which the market maker is obliged to buy and sell the shares (he will require a larger spread on less liquid stocks) and a market maker is obliged to continually quote bid-offer prices that are firm for deals up to the EMS. A higher bid-offer spread denotes a less liquid stock, as does a lower EMS. By ordering the companies from the smallest to the largest average market cap (by decile) we see a clear trend for smaller companies to have significantly higher bid-offer spreads, and significantly lower EMS by value.

[3] This is why Asset Match prefers to hold frequent auctions for shares rather than continuous trading (depending on the market liquidity). A monthly auction will focus all of the participants to trade at one time, providing better price discovery and less variance than if the participants all traded separately at various times during the month.

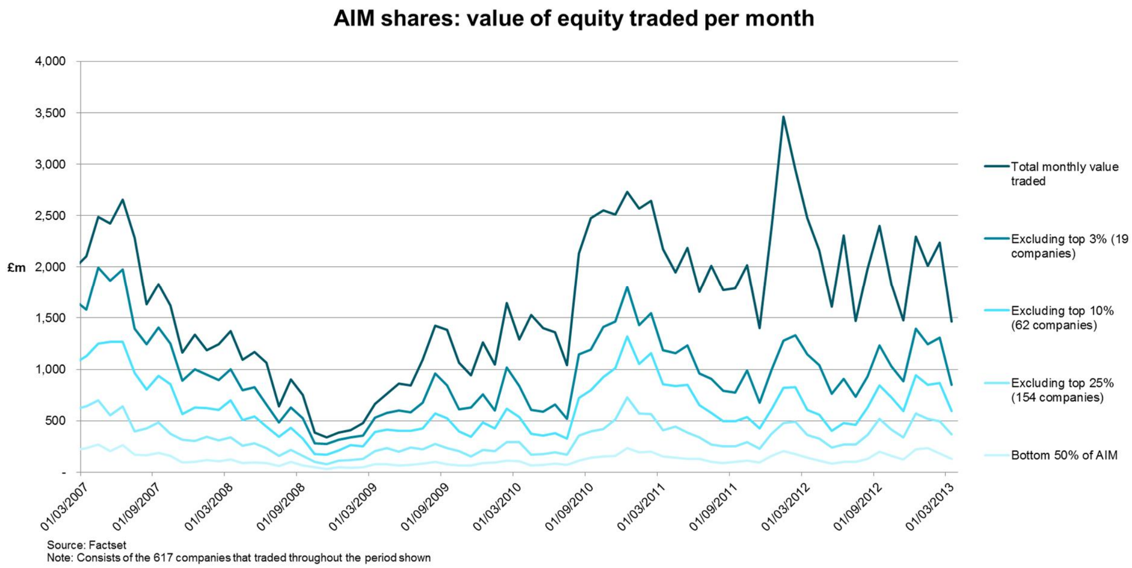


Source: Factset, April 2013

Spreads quoted as a percentage of price and EMS as £ value. Note, trading also happens within the bid-offer spread; as such this analysis is indicative of the guaranteed liquidity provided by the market makers

The largest quartile of listed UK companies has a median bid-offer spread quote of 0.26%, with the smallest quartile having a median spread nearly 37 times bigger at 9.52%. Over a 3 year investment horizon, a share with a bid-offer spread of 9.5% would have to increase in value by 3% each year to enable the investor to sell it at the same price at which it was bought. Despite this wide variation in one market, as a whole it possesses certain characteristics that are typical of a liquid market and asset class.

It is also revealing to consider the volumes traded of listed companies over time (see overleaf). Observing the value of shares traded on AIM before and after the crisis, the impact of the collapse of both prices and volumes in 2009 is striking. Furthermore, we observe that a significant proportion of trading on AIM is concentrated in only a minority of companies; in many periods, 50% of the value traded is concentrated in the top 3% of traded companies.



Liquidity characteristics of markets

To better understand the degree of liquidity available in a given investment, it is helpful to consider the different characteristics that are present in liquid and illiquid markets.

A liquid market is typically characterised by a homogeneous asset with a widely known value, a broad pool of buyers and sellers, a large quantity of asset available for sale at the same price (i.e. 'depthô, as indicated by the EMS in the chart above) and information symmetry (i.e. market participants all have the same information). The table below sets out these, and other notable differences between a liquid and illiquid market.

Liquid market	Illiquid market
Large quantities of a homogeneous asset	Unique asset
Low selling costs	High selling costs
Low bid-offer spread	High bid-offer spread
Wide pool of potential buyers	Difficult to identify buyers
Sale can take place very quickly	Takes a long time to transact
Price can be accurately estimated	Difficult to estimate eventual price
Buyers and sellers have the same information	Information asymmetry
Recent transaction benchmarks	No reliable transaction benchmarks

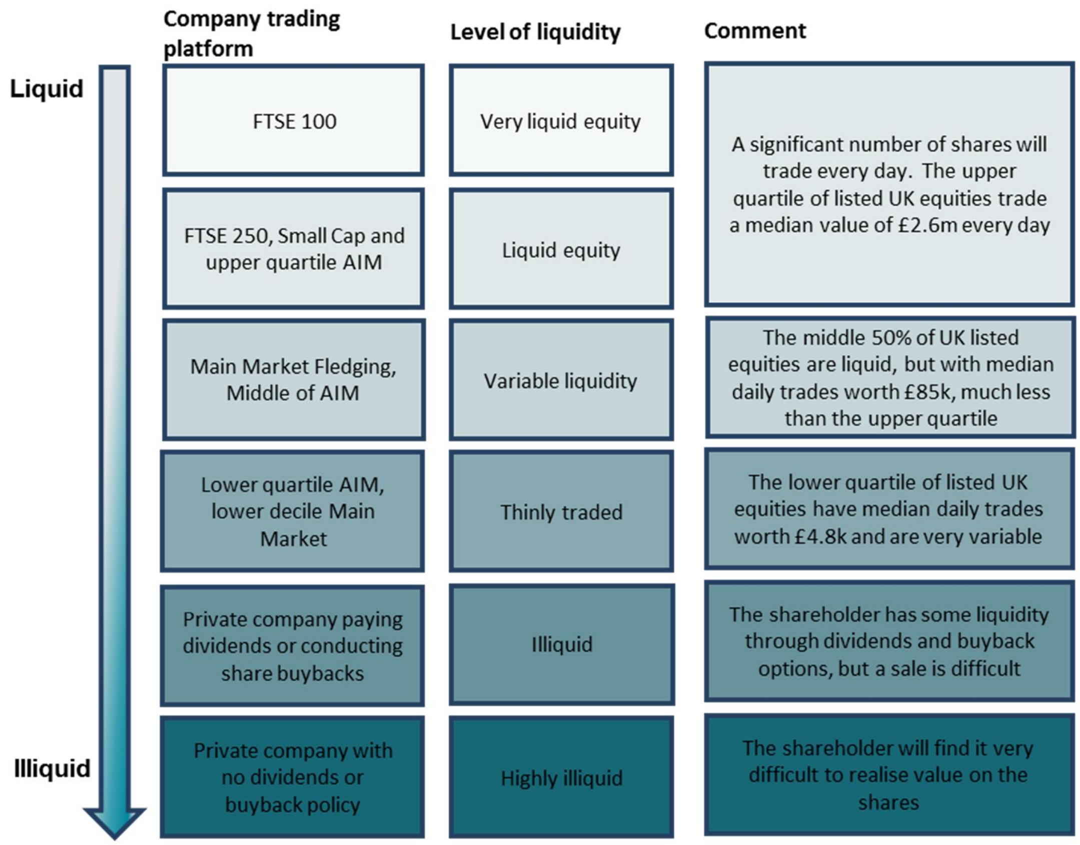
An asset with low liquidity, for example an unusual real estate asset or a rare work of art, may take months to sell, and it is very difficult to predict the selling price. Buyers may form opinions on value based on their own specific knowledge, and the small number of potential buyers leads to a wide range of bids, as personal bias distorts the market. In this instance the estate agents or auction houses will charge a significant fee for selling the asset; in some instances as much as 20% of the selling price. An auction house would typically charge both the buyer and the seller a fee for the services provided. This reflects the fact that both sides benefit from the trade, and for a given unique item, would not otherwise have been able to trade it at a fair price.

In contrast to the above, a currency trade to sell sterling for yen can be executed almost instantaneously, with full confidence of the price beforehand, and at very low cost.

The liquidity continuum across equities

The secondary markets for UK equities range from the highly liquid FTSE 100 stocks through to illiquid private placements of equity in unlisted companies. If an investor wants to sell shares in a private company, he must abide by the requirements of the articles of association, which typically impose a number of restrictions. Furthermore, he would have to find a market for his shares, where it may be difficult to access the right investors, to publicise his intention to sell, to gather suitable information to perform due diligence. Conversely, within trading hours, a shareholder in a FTSE 100 company can simply sell at a given market price.

The following diagram lists the categories of equity available, from the most liquid at the top to the least liquid at the bottom. It notes the level of liquidity in each market and provides some commentary and statistics on each.



Section 2

Factors that impact liquidity

This section focuses on the impact of liquidity on the value of a shareholding. We have established that liquid assets are more attractive to some investors due to the ease with which they can be traded. It is therefore unsurprising that investors are willing to pay a higher price to obtain a liquid asset than a similar illiquid one. All else constant, an investor would pay less for an identical but less liquid asset. This reduction in the price is referred to as the Discount For Lack of Marketability (DLOM).

The quantum of the DLOM is often a source of contention in valuing private holdings of companies. Because each company is a unique asset, and the potential buyers and sellers can be so varied, assessing the discount can ultimately be a matter of professional insight and judgement[4]. The range of applicable DLOMs can be very wide ï from negligible to 90% of the value, depending on the asset and the investors involved, but it is commonly quoted at around a 30% to 40% discount to a highly liquid asset. This section discusses the difficulties in estimating a DLOM and how we may apply it to gain insight into value creation in unlisted equities.

A commonly-quoted judgement in the óMandelbaumô case held in the US Tax Court by Judge Laro in 1995 lists the factors that a valuer should consider when assessing an appropriate DLOM for a private company[5]. This has since become a reference for equity valuations specialists to consider when assessing the discount. The ten factors quoted are:

1. Private versus public sales of shares in the value (or evidence of the price difference in comparable companies)
2. Analysis of the companyôs financial statements
3. Capacity and history of paying dividends
4. Nature of the company: its history, industry position, economic outlook
5. Company management
6. Degree of control in the transferred shares
7. Restrictions on transferability
8. Holding period for the stock
9. Companyôs redemption policy
10. Costs associated with a public offering

The óMandelbaum factorsô cement the notion that the marketability of an individual asset depends on a number of factors and that each assetôs marketability will be influenced by both its own characteristics as well as the market in which it is traded. As such, companies can benefit their investors by changing one or several of the factors above, or by moving to a more liquid market. It follows that by increasing the liquidity of the shares, a company will reduce the DLOM and create value for their shareholders.

[4] There are a number of empirical and economic models that can estimate a DLOM ï notably from studies in the values of restricted stock and pre-IPO prices and option-based models. As a body of research, however, there is no definitive conclusion on measuring DLOM, with most models requiring estimation of uncertain assumptions or adjustments. As such, the range of possible DLOMs that can be estimated using empirical and economic models is very wide.

[5] Source: ñDiscount for Lack of Marketability: Job Aid for IRS Professionalsò, 25 September 2009, IRS

Explicit cost of liquidity

Set out above are the factors that determine the liquidity of an asset; but there is a corresponding cost that the shareholders pay for access to the most liquid markets. Here we set out the cost to the investor of obtaining it. This can be an explicit cost: with a buyer or seller paying the market-maker for providing the liquidity or it can be a less obvious cost that is ultimately paid for by the shareholder. We may first examine the explicit trading costs incurred:

Bid offer spread The spread represents the cost of completing the transaction, being the remuneration for the risk taken by the market maker quoting those prices. In a more liquid stock, we are more likely to be able to trade within the spread with a seller of the shares. Despite this, there will always be a gap between the price at which we sell and buy.

Price drag If the market does not have sufficient depth to absorb a trade, it will temporarily adjust the price to accommodate it. This means that larger trades will be at worse average prices than smaller trades ï another explicit cost of trading listed shares.

Fees An investor may pay stamp duty and a one-off fee (or equivalently a monthly subscription) for brokerage services on the trades completed.

The shareholders are also ultimately impacted by other costs that provide them with the liquidity.

Implicit costs of liquidity

Listing fees The company must pay an annual fee for a stock exchange listing[6]. Depending on the market and the companyös market cap, this can vary widely.

Advisor costs The ancillary costs of being public must also be borne by the company, including additional legal advice, accounting advice, corporate finance and public relations advice.

Management time Another implicit economic cost for shareholders of listed companies is the management time taken. If the company executives are distracted by fluctuations in the share price, they may not be optimally managing the operations of the company itself.

[6] Note this cost can also represent the cost of access to the capital markets ï however, assuming the company does not regularly require primary equity fundraising; it represents a cost of liquidity.

The case for long-term investments in less liquid stocks

We have discussed that the price paid for a liquid share is higher to reflect this benefit. Less liquid assets, such as trade-restricted stock in the same company, or thinly-traded stocks, trade at a discount due to illiquidity.

Given the above, shares in a private company will typically trade at a discount to a publicly listed company due to the discount for lack of liquidity, even if the companyôs assets and earnings are very similar. This price discount can be harnessed by the long-term investor: if each company pays dividends at a consistent proportion of earnings, over time the company that trades at a discount will provide a higher return. The table below illustrates how, holding all else constant, a discount of 30% on the price per share results in a holding return 43% higher.

£	**Liquid shares**		**Illiquid shares**
Company profits per share	2		2
Dividends per share	1	Discount for lack of liquidity (e.g. 30%)	1
Price per share	10		7
Number of shares acquired with £100k	10,000	43% higher returns	14,300
Dividends per annum	10,000		14,300

Of course, the investor is getting an additional return because he has given up some of the convenience afforded to him by liquidity. For a long-term investor with a fully considered portfolio of assets and a long time horizon, this may be appropriate.

"Considering a broad array of investments, from government bonds to private equity, the consensus conclusion that we draw is that illiquid investments trade at lower prices than liquid investments and generate higher returns"

Prof Aswath Damodaran

ñDamodaran on Valuation: Security Analysis for Investment and Corporate Finance, Second Editionò

Section 3

Investment opportunities and Asset Match

Trading shares in private companies has historically been a difficult, costly and time-consuming process. Potential investors have to source buying opportunities themselves, and sellers find it difficult to find buyers. Exposure to private company shares has largely been the preserve of the few with direct access to the companies, or through private equity portfolios.

Asset Match is a solution that provides liquidity in a companyôs shares, helping existing shareholders access a wide range of potential investors that would otherwise be unavailable to them. This additional liquidity decreases the DLOM; therefore increasing the equity value of the company for all of the shareholders. For investors, the platform is a route to take long-term positions in previously unavailable investments.

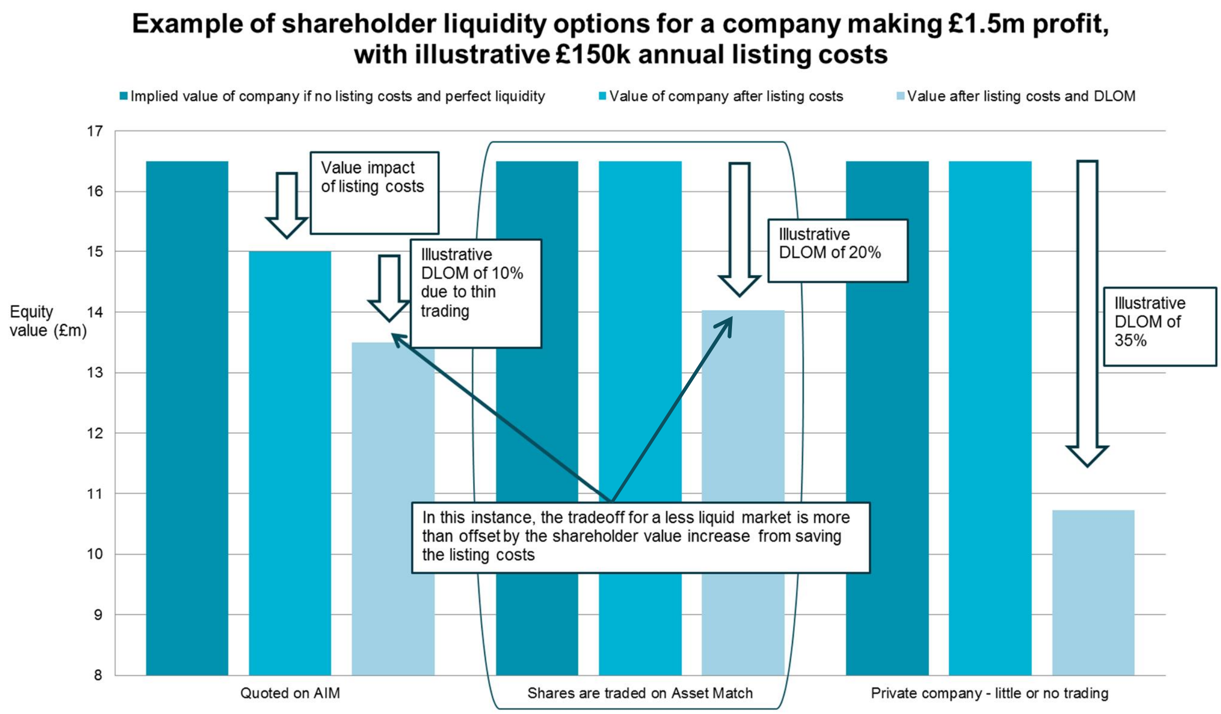
The following table compares the liquidity of the stock exchange and private companies. It also compares both of these to Asset Match. Asset Match provides an additional level of liquidity to shareholders, but with significantly lower costs compared to an exchange listing.

	Level of liquidity	**Listing cost**
Listed company	Varying from highly liquid with vast market depth in the larger FTSE companies, to thinly traded with very little depth for the smaller Main Market and AIM companies.	The direct costs of listing depend on the market capitalisation of the company and can range widely across AIM and the Main Market. The additional costs to consider include legal advice, PR, corporate finance and accounting advice. The total cost may be at least £125,000[7] annually for even the smallest listed firms, not including the additional staff required to compensate for lost management time.
Asset Match	The level of liquidity on Asset Match will be somewhere between that available in a private company and that in a listed company.	Nominal annual listing costs of no more than £8,000, which is refunded based on trading volumes. A commission is paid on each transaction.
Private company	Private companies have little or no liquidity in their shares. Regular dividends and share buybacks may provide some liquidity to the shareholder.	Not applicable.

We envisage that most private companies will benefit from the liquidity that entry onto the Asset Match platform will confer. Under some circumstances, we believe that many companies on AIM or the Main Market would maximise shareholder value by cancelling their admission and joining the Asset Match platform. In this instance, the cost saving would more than offset whatever liquidity advantage the listing provides (if any at all in the case of a thinly traded stock).

[7] A recent example of leaving AIM due to high costs is Cleardebt plc, whose annual direct costs relating to the listing of £94,000 were quoted as being ñdisproportionately highò compared to the benefits of listing (Source: digitallook.com, 7 March 2013).

An example is illustrated in the diagram below.



Holding all else constant, the value of a company is higher if the company makes higher profits, and removing the listing cost increases profits. Depending on the listing costs, company requirements, and investor liquidity requirements, we believe providing periodic liquidity for a lower cost can provide the service investors and management require.

Overview of Asset Match

Asset Match is the first comprehensive electronic peer-to-peer platform in the UK for trading shares in private companies. Asset Match offers an effective, reliable and simple solution for companies, shareholders and investors seeking liquidity in private company shares.

The need for liquidity

A secondary market in shares provides a number of benefits to private companies. It provides cash to shareholders, an exit for VCs and angel investors and a boost to the visibility of the company. Furthermore, it establishes a market price for shares and crystallises the benefit of employee stock options. However, it is estimated that there is approximately £300bn of equity value trapped in UK private companies with little access to a liquid secondary market. The traditional IPO liquidity event is disappearing and as a consequence, companies and investors are searching for alternatives.

The Asset Match platform

At Asset Match, we understand the need for liquidity and an increased profile for the UKôs fast growing and profitable private companies. By centralising liquidity and creating a competitive and transparent price discovery process, the Asset Match platform allows shareholders to realise some of the value of their investments and new investors to access new opportunities. Our peer-to-peer platform concentrates liquidity in periodic auctions and eliminates the need for costly market makers. Auctions are transparent and shareholders and investors can monitor the bids, offers and clearing price of company shares. The platform is operated in a secure environment with a robust Code of Practice that provides comfort to all parties.

Company benefits	Creation of shareholder liquidity ï companies can satisfy early investorsô demand for an exit and attract/retain key employees through shares that can be traded. Manage shareholder base ï companies can actively manage the matching process and retain control over its shareholder base.
Shareholder benefits	Unlock the value of equity holdings ï the platform matches buyers and sellers to create a competitive and transparent price discovery and trading process. Find buyers ï Asset Match provides shareholders with access to a broad, active investor community.
Investor benefits	Discover new investment opportunities ï investors can find and research growing and profitable private companies and invest in new opportunities that are otherwise unavailable. Monitor the value of equity holdings ï investors can manage portfolios and maximise value by investing in private companies with an identifiable aftermarket.

Asset Match was founded in 2011 to create liquidity in private company shares. We have assembled a team of experienced professionals with backgrounds in advisory services, capital markets, trading platforms and regulation including non-executive director roles in both private and public companies. Asset Match is regulated by the Financial Conduct Authority.