

Stock Liquidity in Practice

How do Swedish practitioners define and measure liquidity in stock valuation?

A contemporary study including the financial crisis.

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Abstract

The research regarding the liquidity aspect of stock valuation has been increasing considerably during the last decades. Numerous studies have examined the relationship between the liquidity level and risk, and the return regarding stock. This paper presents a qualitative, descriptive investigation about different Swedish market participants' practical view on liquidity. By using semi-structured interviews, the authors seek to explore how the market participants take the liquidity aspect into consideration when valuing stock, i.e. how they define and measure stock liquidity. Also, it is investigated whether there has been any change in the handling of liquidity in valuation, since the global financial crisis. Finally, the study also includes a compilation of the general valuation techniques used and the view concerning the small company discount.

The descriptive findings suggest that the liquidity aspect is mainly defined as the average six or twelve month daily turnover volume. Also, the free float was mentioned by several practitioners. In valuation, it usually appeared either indirectly through multiples, or directly by a higher discount rate or as a discount on the final value. Further, it was found that there has not been any particular change in the valuation handling of liquidity since the global financial crisis, which may be connected to psychological reasons.

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1. Introduction

1.1 Background

When valuing a company, the most commonly used methods by practitioners include Discounted Cash Flow (DCF) and Relative Valuation (RV). Estimating the cost of equity when using a DCF method, a considerable majority employ the Capital Asset Pricing Model (CAPM). The CAPM is built on a single source of systematic risk – the market-wide risk. However, there are several other sources of risk that a company may be exposed to (Bancel & Mittoo, 2014).

One of the other risks concerns the liquidity of the stock. Numerous theoretical ways have been proposed as to capture the liquidity aspect. Since 1986, when Amihud and Mendelson established that liquidity has an effect on asset values, the research area of liquidity has been growing tremendously. A milestone was reached in 2005, when Acharya and Pedersen proposed an improved version of the CAPM, as to take the liquidity aspect into account. That model, along with many other within the field of valuation and liquidity, have been tested a vast number of times in different markets.

Unlike the quantitative valuation research, the qualitative research regarding how companies perform valuation in practice, is rather thin. This is especially true for the liquidity aspect, in a comparably small country as Sweden. Therefore, this paper should be regarded as a contribution to get an insight into the practical valuation performed by different Swedish market participants, emphasising the liquidity aspect.

1.2 The Study

In this study, we aim to qualitatively explore how different Swedish market participants take the *liquidity aspect* into account when valuing stock. By using questionnaires and semi-structured interviews, we collect information about how practitioners define, measure and incorporate liquidity when valuing listed and privately held stock. Furthermore, we investigate whether there has been any notable change in the handling of liquidity, comparing before the global financial crisis in 2007-2008, and today, 2015. Having been exposed to the liquidity consequences of the severe financial crisis, the logical succession that practitioners are more careful of liquidity today is investigated in this study.

1.3 Purpose and Contribution

As mentioned in the background part, several models have been proposed given the rather weak explanatory power of CAPM. One of these is the liquidity adjusted CAPM (LCAPM), that adds three additional betas as to capture the liquidity aspect of the security of interest (Acharya & Pedersen, 2005). Numerous studies have been performed to test it in different markets, with generally strong evidence.

Less research has been conducted to find out how market participants actually take the liquidity aspect into account when valuing listed and privately held stock. At the end of the day, the valuation by the market participants is an important part regarding the future development of the concerned companies. Therefore, the valuation performed by the practitioners is of great interest. Especially in times of financial crisis, which is a recurring phenomenon throughout the world, the liquidity aspect of securities is particularly central. That is a further reason why the topic of this paper is of contemporary interest.

Thus, this study contributes with insight into valuation performed by Swedish practitioners in 2015, underlining the liquidity aspect. By employing a qualitative method, the purpose of the study is to describe how Swedish market participants define, measure and incorporate the liquidity aspect into the valuation of stock. Likewise, it will investigate whether there has been any considerable change in the handling of the liquidity aspect since the last severe global financial crisis.

1.4 Research Questions

- i. When different Swedish market participants perform stock valuation, do they take the liquidity of the stock into account? If yes, how is the liquidity aspect considered?
- ii. Regarding the liquidity aspect of stock valuation, has there been any changes in the handling used in practice by different Swedish market participants, comparing before the financial crisis (2007) with after it (2015)?

1.5 Structure

To answer the given research questions, this study adopts the following structure. Firstly, the second section summarises valuation techniques proposed by the theory, underlining the liquidity aspect. Also, the topic of financial crisis is covered, as liquidity becomes vital under such circumstances. Section three describes the methodology and philosophical assumptions used in the study. The following section contains the empirical part and the analysis of the data. Section five encapsulates the conclusions from section four. The sixth section includes suggestions for further research. Reliability and validity are treated in section seven. All references used are listed in section eight. Finally, the appendix contains the interview and questionnaire questions used in the study.

2. Literature review

2.1 Recognition of the Standard Asset Pricing Theory

The Sharpe-Lintner Capital Asset Pricing-model (CAPM) is a widely used valuation technique for estimating the appropriate rate of return of an asset in comparison to the market return. The model, stemming from the Standard Asset Pricing Theory (Graham & Harvey, 2001), was introduced over 50 years ago and is, maybe because of its simplicity, to this day present and recognised in most finance textbooks.

One of the main building blocks of the Asset Pricing Theory is the belief that financial markets are in equilibrium, in other words that all prices react immediately to create perfect stability and accordingly that agents are price takers. It is further believed that in this equilibrium, the non-specific and undiversifiable risk of an asset (the “beta” of an asset), depends on its covariance with the market portfolio. This risk is therefore a measure of a stock’s sensitivity to changes in the market. Also, it is assumed that this is the only risk that affects the asset’s return. Thus, in the market equilibrium, the price of an asset is exclusively the result of the asset’s non-diversifiable risk (Bossaerts & Plott, 2000).

The market portfolio is defined as the weighted sum of all financial assets on the market, and is completely diversified. The non-systematic and specific company risk is believed to be eliminated when a portfolio is well diversified and is hence not considered in the CAPM model. According to the Asset Pricing Theory’s assumption of a no-arbitrage market, a

stochastic discount factor (m_t) exists, that can explain the current stock price (p_t) as affected only by stock price and dividend pay-outs:

$$p_t = E_t \left((p_{t+1} + d_{t+1}) \frac{m_{t+1}}{m_t} \right)$$

Figure 1. *The Standard Asset Pricing Theory's formula for the stock price.*

2.2 Free Cash Flow and the DCF-model

According to standard theory, the value of a company is the result of two factors: the sum of all its (net) cash flows, with respect to the risk of producing those (Amihud & Mendelson, 2012).

In order to determine the current value of these future cash flows, they have to be discounted, using a risk-adjusted discount rate. There are several methods to calculate the appropriate discount rate for the equity part, where the CAPM, and variations of it, are prevalent. With this model, a theoretically adequate discount rate for the discounted cash flow (DCF)-calculations can be calculated.

As mentioned, the CAPM-model only considers the systematic risk of an asset (in the DCF-calculations more specifically the volatility of cash flows). This implies that the NPV-calculations of two companies with identical volatility and future expected cash flows that have been discounted by a CAPM calculated discount rate, should have the same share price. This is seldom, if ever, the case in reality: the empirical results that CAPM holds are weak. What most studies testing the CAPM validity have in common, is that there is indeed a relation between the non-diversifiable risk of a stock and its realised return, but that this risk alone cannot explain the stock return. The failure to provide convincing proof that the CAPM is a reliable predictor of returns, indicates that there are other factors affecting the required return of an asset than its undiversifiable risk and fluctuations in the market portfolio. Even if most of the studies that have showed the low explanatory power of the CAPM have been performed on the US stock market (Basu 1977, Bandari 1988, Rosenberg, Reid & Lantstein 1985, Fama & French 1992), many similar studies have reached the same conclusion about the European stock markets, Sweden included (Alexandru & Berezovskis 2013, Modigliani, Pogue & Solnik 1973, Sangiorini 2013).

One important aspect of Standard Asset Pricing Theory is that it assumes frictionless (completely liquid) markets, i.e. that a security can be traded at no cost at any time (DeMarzo & Duffie, 1999). In reality, however, agents in financial markets face brokerage fees, order-processing costs and transaction taxes, so called exogenous transaction costs (Amihud, Mendelson & Pedersen, 2006). The ease with which a security can be traded is a factor not included in Asset Pricing Theory, yet it has the ability to affect investors' buying behaviour, since liquidity, as we shall see, is associated with particular risks and costs of its own.

2.3 Liquidity Costs

The ease of trading a security is defined as the **liquidity** of that security (Amihud & Mendelson, 2012).

Less liquid stocks are associated with certain risks and costs not faced by liquid stocks. When an investor buys a stock, he is faced with several costs related to liquidity. According to Amihud and Mendelson (2008), two leading scientists in the field of the liquidity impact on stock prices, these go under three categories, complimented by Treynor (1981) by a potential fourth, where:

Firstly, the **direct trading costs** concern the obvious costs associated with buying a security; brokerage commissions, exchange fees, taxes.

The second transaction-related cost has to do with information asymmetry between buyer and seller. In contrast to a Standard Asset Pricing equilibrium scenario, actors will in reality not be equally informed about current and future company performance, and this fact will affect prices. When a transaction occurs, i.e. when the ownership of a stock switches, the buyer needs to pay a premium, or the seller sells it to a discount. These are the **price-impact costs** and arise because potential buyers (sellers) interpret selling (buying) pressure, as if the counterpart possesses some special information about the stock. If owners of a stock are keen to dispose of it (selling pressure) other actors will interpret it as if the owner possesses negative information about the stock and due to this other actors will not be willing to pay as much for it, and vice versa. This will drive down the price of the stock. The higher the degree of asymmetric information between the seller and buyer, the bigger will the difference be between what the buyer is willing to pay and what the seller is willing to receive (Armstrong et al., 2010). This difference is thus the bid-ask spread. The less liquid an asset is, the wider

the spread and hence the price-impact costs. Therefore, the spread of a stock can also be used as a measure for liquidity (Damodaran 2015).

The third cost that the buyer faces is the **market-impact costs**, and arises due to the inventory risk of owning a stock, because a security might in reality not be tradable in all markets at all time. To dispose of a security on a hard-to-sell market, the trader might have to sell to a liquidity provider. A liquidity provider (market maker) is an individual or company who trades hard-to-sell securities. In return for the service and risk of buying and holding an illiquid stock for an uncertain time period (inventory risk), the market maker needs to be compensated by the seller. The inventory risk will further increase the bid-ask spread.

Amihud and Mendelson (1986) developed a model to capture the liquidity effects on stock prices. In short, it is based upon the idea that a (risk-neutral) investor will consider the future transaction costs he will face when he will sell the security, already when buying it. One of the more important building blocks of the model is that today's share price also depends upon the sum of all future transaction costs (where μ represents the trading intensity at time i and C the sum of all future selling costs at time i):

$$P^i = \frac{\bar{d}^i - \mu C^i}{rf}$$

Figure 2. *Stock price as dependent on all future transaction costs*

The intuitive reasoning behind this model is that the investor will assume that the future buyers also will take their future selling costs into account. Therefore, the original investor will take into consideration all future transaction costs associated with the security. If one defines the illiquidity discount of a stock as the increase in its expected return that would leave “the investor indifferent between the stock and an identical stock with no trading costs” (Amihud, 2006), the result of the illiquidity discount on the stock price, will be the present value of all future expected transaction costs (Amihud & Mendelson, 1986).

Two recent studies (Kjerstadius 2013 and Bergquist & Smedjegården 2013) from the Stockholm School of Economics indeed found significant data that there does exist a liquidity premium in the Swedish stock market, in other words that liquidity seems to have an impact on asset prices. The latter study approximated that Swedish stocks in the 10th percentile of the

stock turnover, “illiquid stocks” generated on average 1,94% higher returns than the 90th percentile stocks, between the years 2000-2012.

The empirical evidences of Amihud and Mendelson show that the higher the liquidity cost (where the liquidity is measured as the bid-ask spread as a percentage of the stock price), the higher the excess monthly stock return (Amihud & Mendelson, 2008):

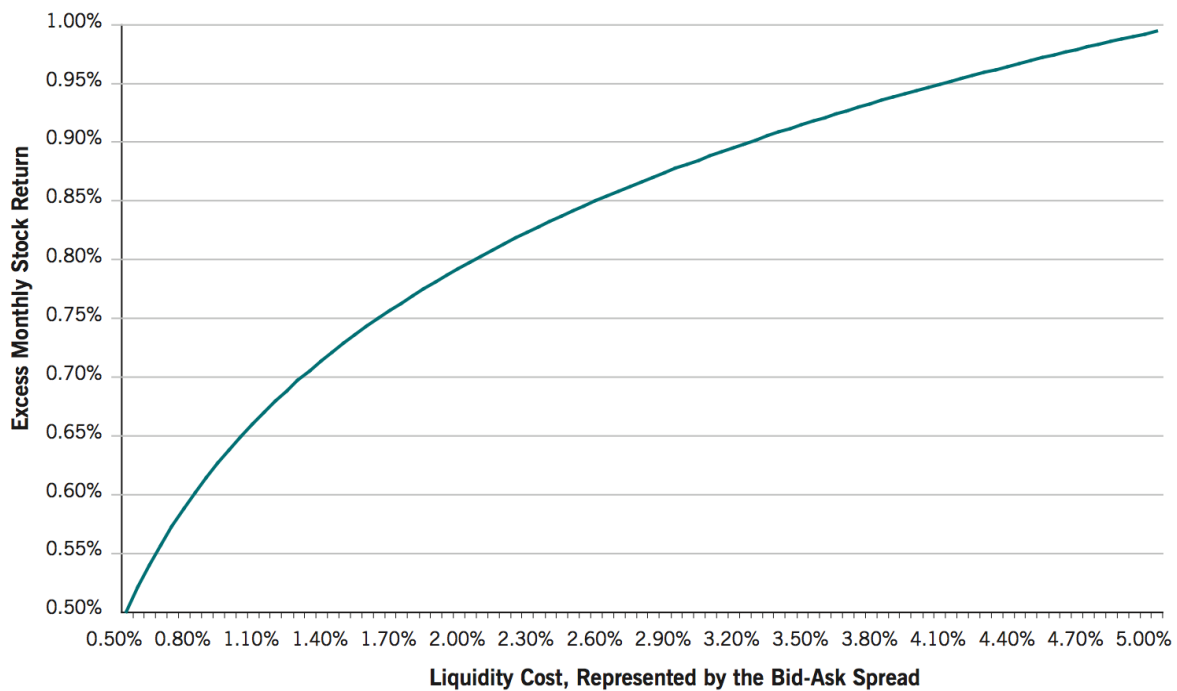


Figure 3. *The relation between required stock return and the costs of illiquidity.*

Amihud’s and Mendelson’s argumentation, that current stock prices are affected by all future expected transaction costs, is further strengthened by their findings that less liquid assets are, in equilibrium, allocated to investors with longer holding periods. The logic behind this is that the longer time an investor holds an asset, the less the total future transaction costs (C) will be, and therefore the less “transaction cost compensation” the investor will require. The conclusion of their findings is thus that each investor’s time horizon will also play a part in deciding how much he is willing to pay for the stock.

The concave form of the graph captures this time-horizon difference, i.e. explains why the marginal increase in required return for a marginal decrease in liquidity becomes progressively smaller; the concaveness represents the fact that less liquid assets are to a higher degree held by long-term investors. Similar findings have also been made by Chalmers and Kadlec (1986), who argue that the different investors’ willingness-to-pay, due to their diverse time horizons is the result of investors’ tendency to amortise trading costs over their full-time

holding period. Setting transaction costs in relation to amortised holding-period returns, short term investors, such as day traders, (short term defined as holding an asset for less than one year, according to the IRS) will discount for illiquidity more than a long term investor. Long-term investors tend to “spread out” their liquidity costs over a longer time period, which means that their “annual” liquidity cost (total liquidity cost divided by the total holding time) of an asset will be lower than for short-term investors.

Different investor time preferences indicate that actors invest in stock that will be most profitable for their time horizon; more illiquid securities will to a higher extent be held by long term investors and vice versa. Therefore, for each marginal raise in liquidity costs, their required additional rate of return will be smaller.

Nevertheless, it is important to point out that even if a long term investor faces lower transaction costs than more short term oriented investors, there is also the **opportunity cost** of not selling an asset at a lucrative opportunity to consider (Traynor 1981). This can be seen as an additional trading cost. If a seller plans to dispose of a, in his view, over-valued asset, he might lose profit if he waits too long and prices go down.

So, regardless of different preferences, (il-)liquidity costs is clearly something investors need to deal with, when trading stocks on the financial market.

2.4 Proxies and Dimensions of Liquidity

Liquidity is a complex phenomenon with many facets. In a perfectly liquid market, it should be possible to immediately convert any security into cash, and the other way around.

However, this is not the case in the real world. Generally, researchers distinguish between four liquidity related dimensions (von Wyss, 2004):

- Trading time: *The ability to execute a transaction immediately at the prevailing price.* The trading time can either be seen as the time between subsequent trades, or the number of trades per time unit. Trading time is sometimes referred to as *immediacy*.
- Tightness: *The ability to buy and sell an asset at about the same price at the same time.* Tightness concerns the costs associated with transacting, or the costs of immediacy. These costs are captured by different spread versions.

- *Depth: The ability to buy or sell a certain amount of an asset without influence on the quoted price.* The depth refers to the ability of the market to absorb large trade flows without influencing the price significantly.
- *Resiliency: The ability to buy or sell a certain amount of an asset with little influence on the quoted price.* Resiliency is distinguished from depth by the fact that the latter concerns the volume at the best bid and ask prices, while the resiliency aspect takes the elasticity of supply and demand into consideration.

As a consequence of the multidimensionality of liquidity, there are numerous ways used as proxies for it. According to Aitken and Winn (1997)¹ there are some 68 extant measures of liquidity used in the literature. Broadly, these can be divided into two categories (Aitken and Comerton-Forde, 2003):

- *Trade-based measures* include trading value, trading volume, the number of trades (frequency) and the turnover ratio, the last measure defined as the value of shares traded divided by the market capitalisation. These measures are advantageous in the sense that they are simple to calculate, using readily available data. Likewise, they are recognised among practitioners, e.g. the International Federation of Stock Exchanges uses the turnover ratio. The potential drawback is the time aspect, since these measures reflect what has been traded in the past, i.e. they are ex post measures. Necessarily, this may not be an adequate measure of what will be traded in the future.
- *Order-based measures* are better at underlining the ability and costs associated with trading immediately. The different spread measures capture the cost that the trader has to incur as to trade without time delay. To compare liquidity among stocks with different prices, the bid-ask spread can be relativised with the price, to receive the relative spread. A larger spread is then associated with a less liquid stock.

Finally, there are also multidimensional liquidity measures. These measure combine different properties of one dimensional liquidity measures. For instance, an order-based measure could be used in the numerator, and a trade-based measure in the denominator. The conclusion regarding liquidity measures in this part, is that a one dimensional liquidity measure will hardly capture all the aspects of liquidity, since liquidity by definition is a multidimensional phenomenon (Aitken and Comerton-Forde, 2003).

¹ Cited in *How should liquidity be measured?*, Aitken and Comerton-Forde (2002)

2.5. The Case of Financial Crisis

2.5.1 The Financial Crisis in Sweden

Q4 2008, the Swedish GDP suffered the heaviest decline since 1993. Obviously, the main cause of the extremely weak GDP in 2008 was the decrease in the international demand. The financial crisis soon became a crisis in real terms, causing significant slowdown in the Swedish manufacturing industry (SCB, 2009). Being a comparably small, open economy, Sweden is heavily dependent on the world economy. This is a trend that has been steadily growing the last decades. In 1990, the Swedish export percentage of GDP was a bit more than 20, as compared to almost 40 % in 2007. A global financial crisis in combination with a weakening of the world economic situation, would indeed influence the Swedish economy negatively (Öberg, 2009).

In 2009, the trend from the previous year continued. Even though 2010 saw a recovery, the growth lost pace in the following years. According to IMF, financial crises are usually followed by a long period of recuperation, due to restraining effects of the crises. The growth of GDP may catch up in the mid-long run, but the level of GDP usually stays below the trend for a longer period. Lower employment and investment rates than before the crisis are some of the reasons for its restraining. In fact, the general Swedish recovery from the Global Financial Crisis has been particularly sluggish. In 2013, approximately five years after the start of the crisis, the Swedish GDP per capita was 16 percent below the trend that prevailed before the crisis, which is significantly more than the usual 9 percent, as proposed by IMF (IMF, 2009; Almega, 2014).

2.5.2 The Impact of the Crisis on the NASDAQ OMXS

The calendar year 2008 at the Stockholm Stock Exchange (Nasdaq OMX Stockholm) was one of the worst ever. The closest comparably year in time was 2002, when the decline was 37 %, as compared to the drop in 2008 of 42 % (Bergsell, DN 30/12-2008). Not surprisingly, the Swedish banks suffered the most severe effects of the crisis. This was especially true for Swedbank and SEB, who had the greatest exposure to the Baltic market. As it is common with abnormal fluctuations on the stock exchange in times of crisis, this was also true for the year 2008. The strongest index decline of 7,1 % was seen on October the 6th, a few weeks

after the collapse of Lehman Brothers. Yet, an even stronger index gain took place on November the 24th of 9 %, which actually was the strongest daily increase ever (Andersson, SvD 30/12-2008).

Contrasting 2008 completely, the calendar year 2009 at the Stockholm Stock Exchange exceeded the gloomy expectations. An important milestone was reached in August, when the stock exchange crossed the level of September the 12th 2008, the last trading day before the Lehman Brothers' bankruptcy. The 2009 annual index increase of 46,7 % was obviously connected to the generally successful stimulus packages by governments and central banks all over the world. Not surprisingly, some of the greatest losers from 2008 constituted the 2009 winners. For example, the two mining companies Boliden and Lundin Mining were found among the statistically best performing companies in 2009. Regarding the industries, the energy industry contributed heavily to the index increase, growing by 69 % in 2009, while the IT-sector performed worst, gaining only 19 % (Neurath, SvD 31/12-2009; Skandia 21/12-2009).

In 2010, the common idea that the stock exchange index may be used as a predicting indicator of real growth, proved to be true. Thus, the quarterly GDP growth of 2010 stayed significantly positive throughout the year. The following years, 2011-2014, indicate that Sweden is macro economically close to be back on the long-term trend, meaning that the annual GDP growth has been stabilised. The All-share index of the Stockholm Stock Exchange has also returned to its growth state, as before the financial crisis. In 2013, the index had its best year since 2009, following a few years characterised by fluctuations (Challis and TT, DN 30/12-2013). Just before the start of 2015, experts expected the calendar year to be a sort of a gap year, characterised by minimal inflation, historically remarkable official interest rates and low economic growth. However, there are, as usual, several risks that may change the outcome considerably (Andersson, SvD 30/12-2014).

2.5.3 Risk of Future Financial Crisis

A financial crisis is synonymous with an acute shortage of liquidity, which is colloquially known as a "liquidity dry up". In these times, the liquidity of a security becomes tremendously important, since it refers to the ease with which the security can be disposed of, i.e. its marketability. In this context, a financial crisis can be thought of as an exceptionally

big and sudden disturbance within the financial system, usually followed by considerable drops in prices of securities, also effecting the economy in real terms (Jonung, 2009). As this study concerns the handling of the liquidity aspect in practice, we want to underline its importance by including a few paragraphs about future financial crisis below.

Recently, several Swedish market participants have alerted to a new, upcoming financial crisis². However, to our knowledge, the theoretical literature regarding the likelihood of a new financial crisis hitting Sweden, is rare in comparison to the opinions of practitioners. Probably, this is due to the complexity of economic prediction. Concerning the global financial crisis of 2008, it is reasonable to assume that relatively few out of all macro economist succeeded in predicting it. The characteristics of unpredictability and suddenness may simply lie in the nature of a financial crisis.

Still, admitting that every financial crisis has its particular characteristics, some kind of general pattern can be traced. Before every crisis, there is a boom phase, recognised by strong credit expansion, increased leverage, growing optimism regarding new investment possibilities and an enhancement of the appetite for risk. The prices of assets and securities increase faster than the general price level, i.e. there is inflation in the prices of assets. The loan to value ratio increases, and the country is above its long term macroeconomic trend. Psychologically, the expectations of future price increases enhances the overheating of the economy. Yet, sooner or later, the good times must come to an end – and the boom devolves into a bust. The optimism goes over into pessimism, leading to asset price deflation, deleverage and decreasing economic growth. Possibly, the government has to act as to save some banks and financial institutions (Jonung, 2009).

The human psychology is highly relevant within this context. During the good times before the crisis, few market participants want to listen to the caution proposed, as everyone wants to take part of the positive economic situation. The financial crisis will, however, definitely make some participants to losers. Yet, the memory will fade away, and again there is room for new financial optimism (Jonung, 2009).

² E.g. Pär Boman, *Bankchef varnar för finanskris*, Affärsvärlden (30/4-2014)

Regarding the likelihood of a new financial crisis, one thing can be granted for sure. There will be a new financial crisis, we just do not know when, where and how. Nevertheless, it is possible to follow a few indicators as to predict the probability. When the credit expansion is clearly superior to the economic growth in real terms during considerable periods of time, the likelihood of a financial crisis increases (Jonung, 2009).. Likewise, another indicator may be the Stock Exchange Index, which generally can be used as an approximation of the country's GDP.

Some indicators are pointing towards a new financial crisis in Sweden³. When it strikes, the liquidity of stock will be of significant value to the Swedish market participants. In the empirical part, we find out how they define and measure liquidity of stock, and if any noticeable changes in the handling of the liquidity aspect have taken place since the last global financial crisis – or if it is already forgotten by the human psychology.

2.6 Four Alternative Valuation Methods that Take Liquidity into Account

2.6.1 The Build-Up Method

Since owners of the stock will require compensation for the transaction costs, the risk of holding an illiquid stock will likewise raise the required rate of return of the company's equity. As we have seen, the CAPM-model does not consider the firm specific (diversifiable) risk. When calculating the appropriate discount rate for a company's future cash flows, an alternative to the CAPM that seeks to capture supplementary company risks is the widely accepted Build-Up Method. Just as in the CAPM model the required return of a stock is estimated by adding an extra equity risk premium to the risk-free rate. However, in the Build-Up Method, the investor in the next step includes additional risk premium to the calculations. The first is the specific company risk premium, to capture the assets' diversifiable risk and hence account for possible illiquidity. Below is a schematic example of how the discount rate is calculated with the Build-Up Method:

Risk-Free Rate	2%
Equity risk premium	5%

³ It is good times now, e.g. – as compared to 12 months ago, the *OMX Affärsvärldens Generalindex* has increased by 18,97 % (12.05.2015).

Size premium	2%
<u>Specific company risk premium</u>	<u>2%</u>
Discount rate	11%

Figure 4. *A schematic example on how to calculate a discount rate using the Build-Up Method.*

The size premium above reflects the higher risk and return investors generally claim for smaller company stocks. The reason behind this is, as it seems, to a high degree the result of the low liquidity of small-cap stocks:

2.6.1.1 The Small Stock Risk-Premium

Historically, smaller stocks have shown to generate higher annual returns than both larger cap-companies and the World Index. The idea of the comparably higher return of smaller company stocks was raised in the early 1980's by Banz (1981), who found that companies with a smaller market capitalization, out of the U.S. firms they examined, earned higher rates of return than the bigger companies in the study. Newer American studies have also, with varying success, been able to show that the relationship between return and company size, the size effect, to some extent seems to hold in modern time too (Grabowski & King, 2000 and The Ibbotson Classic Yearbook 2014).

Turning to the European stock market, small-capitalisation European stocks have likewise had greater returns than their larger counterparts. A Dutch study, commissioned by Duff & Phelps, investigated the differences in returns between large and small sized companies in Europe. Using six different measures of firm size, they found that in between the years 1990 and 2013, the realised share price returns of small European firms exceeded the larger firms'. The study also found the firm size effect to be particularly strong in the Nordic countries (Peek, 2015). One noticeable example is the UK, where, according to the multinational company Credit Suisse Group (2014), the yearly returns of the smallest third of the UK companies between the years 1926 to 2013, has been on average 12,4%, compared to the bigger companies' 9,9%.

However, smaller companies also face specific risks and costs, and as seen in the Build-up method, professional investors often require an additional risk premium when buying stock in such companies. The Credit Suisse Group (2014) explain the higher premium in small-caps to above all be the result of higher company risk and lower liquidity. In addition, the common

drawbacks of small-cap-companies include poor financial information, less certain bank financing and less competent key persons (Paschall & Hawkins, 1999).

Each year, the multinational professional business network PwC (2015) publishes a report with the compiled estimations and predictions of many of the bigger Swedish professional investors. The inquiry, including questions regarding the likely required rate of return, risk-free rate and market risk premium, is collected from about 35 actors in the form of asset managers, venture capitalists, stockbrokers and corporate finance advisors. The vast majority, 75%, of the respondents claimed to use a size-related risk premium when valuing smaller company stock.

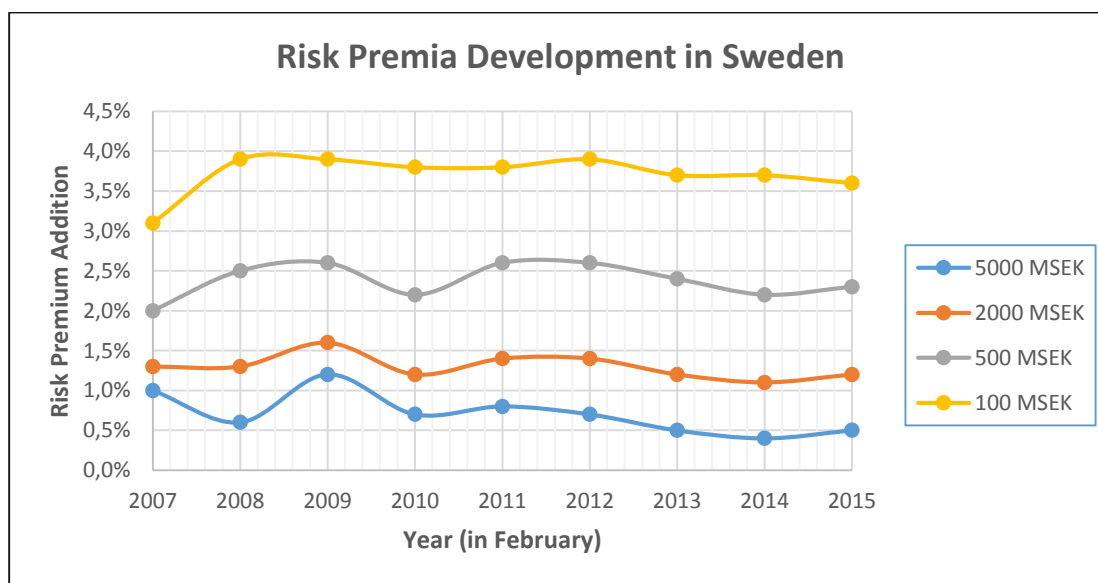


Figure 5. *The risk premium development in the Swedish stock market, according to annual surveys by PwC. The values represent the market capitalisation of the hypothetical firm.*

In the 2015 report, smaller companies (<100 MSEK in market cap) was in 2013 by Swedish investors given an additional risk premium of approximately 3,6%. As the diagram above illustrates, the small stock premium exhibits a sharp increase between 2007 and 2008.

Several recent studies argue that the low stock liquidity of smaller companies is what mainly drives the size-related risk premium. Abbot and Pratt (2012) even claim that the difference between mean returns on liquidity sorted portfolios is much bigger than difference between mean returns on size sorted portfolios, implicating that liquidity (measured as stock turnover) has a bigger influence than company size (measured as market capitalisation) on stock return. Ibbotson, Chen, Kim and Hu (2013) argue that even after adjusting the value of a less liquid stock (measured as stock turnover) for factors such as market, size, growth and other firm-

specific risks, there remains an additional risk (and return) that cannot be explained by the above factors. They conclude that not correcting for the illiquidity is many times the reason to this deviation. Ibbotson et al. claim that the reason behind the higher small-cap required return mainly is that “investors like liquidity and dislike illiquidity”.

2.6.2 Relative Valuation

Today, the use of multiples is one of the most popular techniques of company valuation (University of Rochester & Simon business School 2014). This approach presupposes that similar companies (in terms of size, business model, industry etc.), so called peer groups, are worth roughly the same. In practice, the valuation is done by creating key ratios of the peer group financial data. With market data from decently comparable peers, a certain value of the company one wants to investigate can be derived.

Most studies on the multiples ability to predict returns have been set on the U.S. market. Basu (1977) found that price-earnings P/E-ratios of *common stock* were more correct in explaining stock returns than the CAPM. Furthermore, he observed that low P/E-stocks tend to outperform large P/E-stocks in terms of returns, the so called P/E effect, something not captured by the CAPM. Bhandari (1988) showed that high D/E-ratios (calculated on book value of debt and market value of equity) created returns that exceeded the returns associated with their theoretical beta. Rosenberg, Reid and Lantstein (1985) reached similar conclusions on data based on B/M-ratios; stocks with high book-to-market ratios tend in reality to generate higher average returns than what can be explained by their betas. Even if the majority of the Relative Valuation-research is stemming from the U.S. stock market, European studies have also showed that looking at multiples seems to be an efficient method for explaining stock returns on European financial markets. The initial ones were performed in the early 70s (Modigliani, Pogue & Solnik, 1973) but more recent studies have been able to show the same tendencies (Pettersson 2011, Persson & Ståhlberg 2006).

Fama and French (2004) provide a reasonable explanation to why price multiples are helpful in predicting stock performance; “ratios involving stock prices have information about expected returns missed by market betas”. In other words, investors care about more factors than the direct cash flows associated with the asset. Such a factor could be discounting for the future transaction costs presented by Amihud and Mendelson (1986). Fama and French argue that when valuing the stock by using price multiples, the liquidity costs are indirectly

accounted for and hence that this explains the Relative Valuation approaches strong (in comparison to CAPM) explanatory power.

2.6.3 Fama and French Three Factor Model

The Fama and French Three Factor Model is an extension of the traditional CAPM. As the CAPM, it seeks to explain the relationship between risk and return of stocks. Fama and French (1992) found that only about 70% of the return of a portfolio could be explained by the single CAPM beta of that portfolio. As Basu showed above, in addition to market risk, the value and size of a company were the two most important influencers on the stock return. That is, if a stock went up, it was to 30% due to other factors than that of its market beta. In addition to the CAPM explanatory market factor, the Fama and French-model consists of two additional variables, to help explain the excess portfolio return. The two factors are the Value Factor (“High minus low”/HML) and the Size Factor (“Small minus big”/SMB):

$$R_p - R_f = \alpha + \beta_1(R_m - R_f) + \beta_2(\text{SMB}) + \beta_3(\text{HML}) + \varepsilon$$

Figure 6. *The Fama and French Three Factor Model formula.*

The Value Factor is in the model represented by the price-to-book ratio, taking into account that value stocks, companies with lower price and earnings growth rate due to their higher risk, tend to create higher returns than stocks with lower P/E's (growth stock).

The second factor deals with the small stock-effect discussed earlier, i.e. that smaller company stock tend to generate higher returns than large cap-stock. By considering the small-cap effect, or the “Small minus Big Factor”, the liquidity cost of smaller companies is thus captured.

By adding the two new explanatory factors to the original CAPM and hence accounting for the low cap/low liquidity-effect, they managed to explain the stock results in 95% of the cases, on average.

The Fama and French-model has also been found to give higher explanatory power of stock returns than the CAPM in two recent Swedish studies (Kilsgård & Wittorf 2010 and Pansar, Hjalmarsson & Encontro 2012).

The empirical findings that the Fama and French Three Factor Model is a better estimator of stock returns than the traditional CAPM, indicates that the liquidity parameter indeed plays a role.

2.6.4 The Liquidity Adjusted-CAPM

Acharya and Pedersen (2005) have also developed a valuation model, as an alternative to the CAPM. This, more recent model, is an extension of the traditional CAPM consisting of three additional liquidity betas:

The first additional beta accounts for the fact that required returns are affected by investors' claimed compensation for holding an asset that becomes illiquid when market becomes illiquid. It is therefore calculated as the covariance between the market and asset liquidity.

The second beta captures the fact that investors accept lowered returns of assets in times when the market is illiquid. This (negative) relation is defined as the covariance between the security's return and market liquidity.

The third additional beta considers that when market returns decline, investors will value a liquid stock more, since they will want to be able to sell it off quickly. It is hence calculated as the covariance between the security's illiquidity and the return of the market.

$$E_t(r_{t+1}^i) = r^f + E_t(c_{t+1}^i) + \lambda_t \frac{\text{cov}_t(r_{t+1}^i, r_{t+1}^M)}{\text{var}_t(r_{t+1}^M - c_{t+1}^M)} + \lambda_t \frac{\text{cov}_t(c_{t+1}^i, c_{t+1}^M)}{\text{var}_t(r_{t+1}^M - c_{t+1}^M)} - \lambda_t \frac{\text{cov}_t(r_{t+1}^i, c_{t+1}^M)}{\text{var}_t(r_{t+1}^M - c_{t+1}^M)} - \lambda_t \frac{\text{cov}_t(c_{t+1}^i, r_{t+1}^M)}{\text{var}_t(r_{t+1}^M - c_{t+1}^M)}.$$

Figure 7. *The excess return of a stock explained by the LCAPM formula.*

By the addition of the above betas, the LCAPM seeks to explain how asset prices are affected by liquidity risk, and that the expected return of the security increases when the security's illiquidity increases.

By evaluating the model on the US stock market, Acharya and Pedersen found that the LCAPM is superior to the regular CAPM, both in terms of cross-sectional returns and specification tests, that it more efficiently captured risk-premium adjustments on the stock market.

The LCAPM has also been tested on the European stock market, resulting in data in support of the LCAPM's dominance over the traditional CAPM (Spiljard 2013, Minovic & Zinkovic 2014, Papavassiliou 2012). One of these studies tested the LCAPM on the Dutch stock market, a market similar in size to the Swedish equivalent (Spiljard 2013). The two models were evaluated between the years 1993 and 2013 with Fama-Macbeth regressions. The researchers found that the CAPM-model can to some extent explain expected returns, albeit worse during the years of the financial crisis. The LCAPM was found to be a better predictor than the CAPM during all the years tested. The study also found that the beta 1, the original CAPM-beta, was the worst predictor of returns, while the second beta (the first new beta) was the best predictor. The poor results of the CAPM during the (illiquid) financial crisis, further strengthens the idea that liquidity does play a role in asset pricing, especially when investors highly value the ability to quickly trade a stock, which was the case during the recent financial crisis.

2.7 Conclusion of Theory

The text books' cherished CAPM model and its Standard Asset Pricing assumptions of firm specific risks, transaction costs, investor information and –time horizons, have in reality not been able to explain stock returns in a satisfactory way. The superiority of liquidity-adjusted valuation models over the CAPM, forms the basis of our initial assumption; we believe actors to a high extent consider liquidity when they value a security, and even more so today, after the recent financial crisis. Liquidity and the costs associated with it might be an even bigger consideration in small-stock companies, since illiquidity is more pre-eminent in that case.

3. Methodology and Data Collection

The philosophical assumptions made by a researcher will clearly influence the research strategy and the chosen methods of the study. Therefore, the aim of the paragraphs below is to present the assumptions and strategies used when writing this paper. The sources consulted include Saunders et al (2009) and Ryan et al. (2002).

3.1 Philosophical Assumptions – Ontology and Epistemology

Ontology is concerned with what one recognises as real. The complex concept of reality, in turn, is about construction of existence in objects. As researchers, the ontology describes our view of the nature of reality. Broadly speaking, one can depict the ontological assumptions as

a continuum. At the one end, one finds the natural science like *positivism*, which assumes a reality as concrete structure. In this case, the researcher's view of the nature of reality is external, objective and independent of social actors. At the other end of the continuum, one hits the pragmatic view of reality as a projection of human imagination. In this extreme case of subjectivism, reality only exist in the individual consciousness.

Epistemology is about deciding what knowledge is and how to acquire it. Also, it concerns the definition of what knowledge is acceptable within the particular field of study. Again, the view of the researcher may vary between the two extreme positions of *positivism* and *pragmatism*. The positive researcher would argue that only observable phenomena that can be reduced to the simplest elements, constitute acceptable knowledge. In this case, the center of interest encircles credible data and facts, which are proven by causality and can be generalised. On the other end of the continuum, the pragmatic researcher is rather interested in practical applied research, recognising both observable phenomena and subjective meanings.

The ontological and epistemological assumptions underlying this study are in between the two extremes, yet distinctly closer to the former view of positivism. In fact, the research philosophy of realism is best used as a benchmark. Precisely, the subtype of *critical realism* is an even better benchmark. Our ontological view of the nature of reality is objective, even though it is interpreted through social conditioning. That is, valuation methods including liquidity aspects exist independently, while they have to be interpreted by humans as to have a meaningful purpose. Our epistemological view follows the same notion. We see knowledge as observable phenomena, i.e. how valuation actually is performed in real business contexts. However, there is a clear distinction to the positive view regarding the idea of reduction to the simplest elements – valuation is abstract and depends heavily on who performs it, for what reason etc. Thus, we believe knowledge is credible facts regarding how valuation is performed in practice, withstanding the temptation of creating causality and law like generalisations.

Axiology, another central point regarding the philosophy of research, is also worth mentioning. Basically, axiology concerns the researcher's view of the role of values in research. As explained above, the realist view is the one assumed in this study. Unlike positivism, realism acknowledges the fact that research is value laden – the researcher is not

completely independent of the data. Realism is distinguished from interpretivism by the fact that the researcher actually is able to separate himself from what is being researched.

While we, as researchers, are not totally unified with the data of the study, i.e. the respondent's answers, we must also admit that our research is value laden. This means that we are biased due to prior experience and knowledge within the field of valuation, which obviously will influence our research. During the semi-open interviews and questionnaires accomplished, the outcome was to some extent dependent on our questions, which in turn were built on our prior knowledge within the field. These are the reasons why critical realism is the axiological philosophy underlying this study.

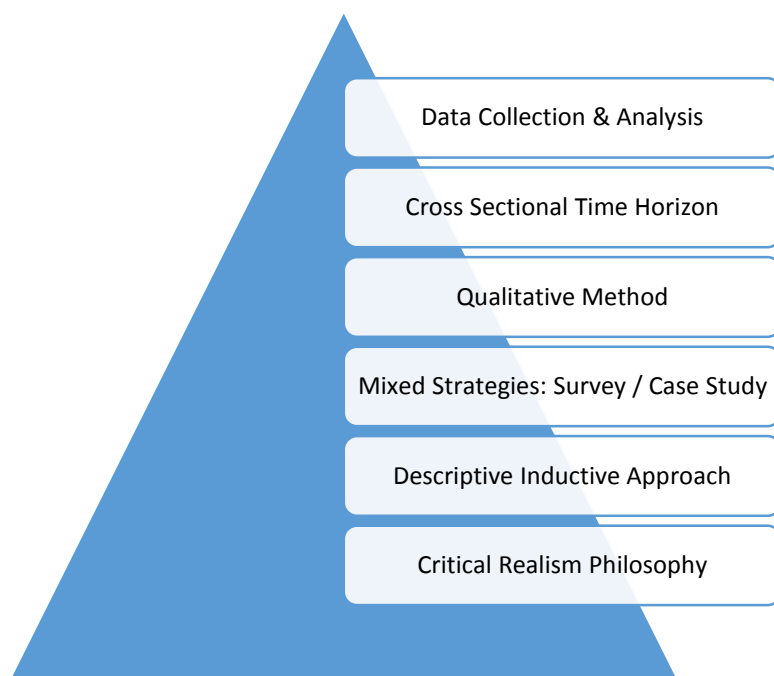


Figure 8. *The research pyramid of this study, inspired by the research “onion” (Research Methods for Business Students, Saunders et. al, 2009, p. 108).*

3.2 Research Approach

Regarding the liquidity aspect of valuation, numerous studies have adopted a classical deductive approach, when quantitatively testing a hypothesis concerning liquidity. Generally, deduction is about moving from theory to data, explaining relationships between variables of interest. Other characteristics include collection of quantitative data, application of control to

ensure validity and precise structure. The opposite of deduction would be induction, which, in simplified terms, captures the idea of building a theory.

In the literature review of our study, the deductive approach is definitely dominant.

In our empirical part, though, we have chosen a different point of departure, being more interested in the *in real life* valuation performed by different Swedish market participants. Several characteristics of the empirical part are in line with the typical inductive approach: understanding of the research context, collection of qualitative data, realisation that we, as researchers, are part of the research process. Yet, the foundation of our interview questions are highly theoretical and deductive.

Reading the main research question of this study, it follows that the primary aim of the study is to *describe* whether, and if yes, how, different Swedish market participants take the liquidity aspect into account when valuing stocks. The second research question is more of deductive nature, since it concerns the hypothesis of possible change in the handling of liquidity in valuation, by practitioners since the last global financial crisis.

Therefore, in total, the following can be concluded regarding the approaches of this study. The theoretical literature review is of classical deductive approach. In contrast, the empirical part is of mixed nature. As the overall aim of the research question is to describe, the approach of the study is best regarded as inductive with emphasis on description. Simultaneously, the second research question regarding hypothesis testing, bears some characteristics that can be connected to deduction.

3.3 Research Strategy

The research strategy employed in this study is a mix of survey and case study, since this study presents several characteristics that are typical for both strategies, respectively. The size of the sample, eleven respondents, whereof six were interviews and five were questionnaires, is a feature of a survey. The sample includes a wide range of different market participants: asset managers, stockbrokers, venture capitalists and corporate finance advisors, as to get a broad view over the liquidity aspect of valuation in practice in Sweden.

However, the analysis of the answers from the respondents mainly relied on a qualitative method, which may not be the standard for a survey. The qualitative analysis brings the case study to mind, which can be defined as: “a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context...”⁴. That clearly resembles this study, as we have empirically investigated the valuation regarding liquidity, for which the attention has been growing the last decades, in practice. Yet, we have not gone in-depth with a small sample, which may be the usual way of performing a case study. Instead, the aim of this study is to *describe* how practitioners take liquidity into account when valuing stock. Therefore, the strategy of this study is best regarded as a mix of a descriptive case study and a survey.

3.4 Method, Time Horizon and Demarcation

The literature review of this study is mainly based on prior quantitative research, as the qualitative literature, known to us, regarding Swedish valuation in practice is rather thin.

Concerning the empirical part, primarily the qualitative method is used. The data collected from interviews and questionnaires is clearly qualitative, as its content concerns the non-numerical answers by Swedish valuation practitioners.

The data was collected at a single point in time, from a wide range of different valuation practitioners, implying cross sectional data. Yet, the second research question concerns the possibly change in valuation of liquidity since the last global financial crisis, which means a comparison in time. Still, all data was collected in 2015. Thus, the data is exclusively cross sectional.

While being primarily interested in the liquidity aspect of valuation, the data also contains general information about the valuation methods used by practitioners. The scope of this study is limited to Swedish market participants and stock valuation.

⁴ *Real World Research* (2nd edn.), Robson, C. (2002), Oxford: Blackwell, cited in *Research Methods for Business Students*, Saunders et. al, 2009, p.145

4. Empirical Results and Analysis

4.1 Summary Table of Respondents

Position	Type of investor and signature	Date & time duration	Place & environment	Experience within valuation
Investment director	Venture capitalist (V1)	27/4-15, 3.00 pm, 40 minutes	Telephone interview from a study room at SSE.	Over 30 years experience in professional valuation, specialising in venture capital and private equity
Corporate finance advisors	Corporate Finance advisors (C)	28/4-15, 3.00 pm, 80 minutes	Conference room at the Company office in Stockholm City.	(Two respondents). Both with 10 years experience in professional valuation, specialised in M&A counselling.
Investment manager	Venture capitalist (V2)	29/4-15, 2.00 pm, 50 minutes	Conference room at the Company office in Stockholm City.	10 years experience in private equity investments.
Equity strategist	Asset manager (A1)	29/4-15, 3.30 pm, 70 minutes	Representation room at the Company headquarters in Stockholm City.	Investment strategist, managing a fund of high value, senior experience.

CEO and investment manager	Stock broker (S1)	6/5-15, 3.00 pm, 65 minutes	Meeting room at the Company office in Stockholm City.	Over 21 years experience as a stock broker and (currently) an asset manager
Senior Portfolio Manager	Stock broker (S2)	7/5-15, 10.00 am, 40 minutes	Representation room at the Company headquarters in Stockholm City.	In addition to a specialisation in portfolio management, S2 has worked with private equity and corporate finance in specific, for over 20 years.

Figure 9 *The interview respondents.*

In addition to the above interviews, we also received written material (answers to surveys) from two stockbrokers (**S3** and **S4**), and 3 investment managers (**A2**, **A3**, **A4**).

4.2 General Valuation

The type of valuation model used bears vast impact on the estimated value of the company. For example, a slight change in a terminal value approximation can significantly affect the present value of the stock, since the terminal value often drives a significant part of the total value (Damodaran 2015). As **A1** put it “whether you rate a company with a ‘the glass is half-empty or half-full mind-set’ is the main influencer of how you end up valuing it. You can have different approaches, for example in terms of how high leverage you prefer, but the mind-set is number one when it comes to choosing a valuation method.”

This “tailored” and inconsistent valuation approach was also taken by (**C**) who, in answer to the question if they modify the discount rate for different cash flows, answered that “valuation is not a science, it’s an art”, and thereby too stressed the importance of being regardful and perceptive in order to make a decent valuation. The same view was shared by **S1** who expressed the changeable use of methods with the words “one must look at the company’s soul, one can’t state universal methods” and by **S2**; “The methods chosen depend on the company characteristics. We use different valuation approaches depending on the company’s character and growth phase”.

Considering that the different investors we interviewed in many ways differ in terms of investment preferences (public vs private stock investors, majority shareholders vs owning <5% shares in a company, investing in small- and mid-cap vs investing in large cap) one could assume the models preferred would vary largely between the respondents. We found, however, that the valuation methods did not differ much between the interviewed companies and their specific niches:

Even if **A1** argued that the cash flow valuation might have “lost some of strength recently due to today’s low interest rates”, most of the interviewed actors looked at cash flows when they evaluated a company. Two interviewees (**S1**, **A1**) only looked a single year ahead, therefore discounting the cash flow and hence having to consider a “correct” discount rate was not an issue for them. As **S1** said “the CAPM is a theoretic model that implies that you know something about the future and you do *not*.”

For the interviewed companies looking at several future cash flows, using either DCF- or LBO valuation models, the idea of customising and fine-tuning the discount rate for different types of risks, such as divergent cash flow risks, was not something they acted upon. **C** said that to adjust the discount rate over time would add even more assumptions and approximations into an already sensitive process.

One other common methodology within the interviewed companies was to look at multiples and comparing them to similar companies within the same industry. We found that the most used multiples were P/E-, P/B-, EV/D and EV/EBITDA-ratios. (**V1**, **S1**, **A3**, **A1**, **A2**, **C**).

Even if a minority of the contacted companies also looked at pure book values, such as income statement- and balance sheet ratios (**V1**, **A2**), the “public opinion” of the companies was that the cash flow valuations are always superior to book values, because while the accounting praxis can vary over time, “cash flows are always money in, money out and that is consistent over time” (**S1**).

The discount rate for the equity part in the commonly used DCF-valuations were, to different extents, always calculated with the CAPM. Nevertheless, DCF-calculations were never the only measures used in any of the interviewed companies. The DCF-calculations were always complemented with at least one additional valuation method (often multiples).

Only a few of the interviewed investors used additional valuation methods; **C** was the only one using the dividend-discount model, and **S3** used self-developed models.

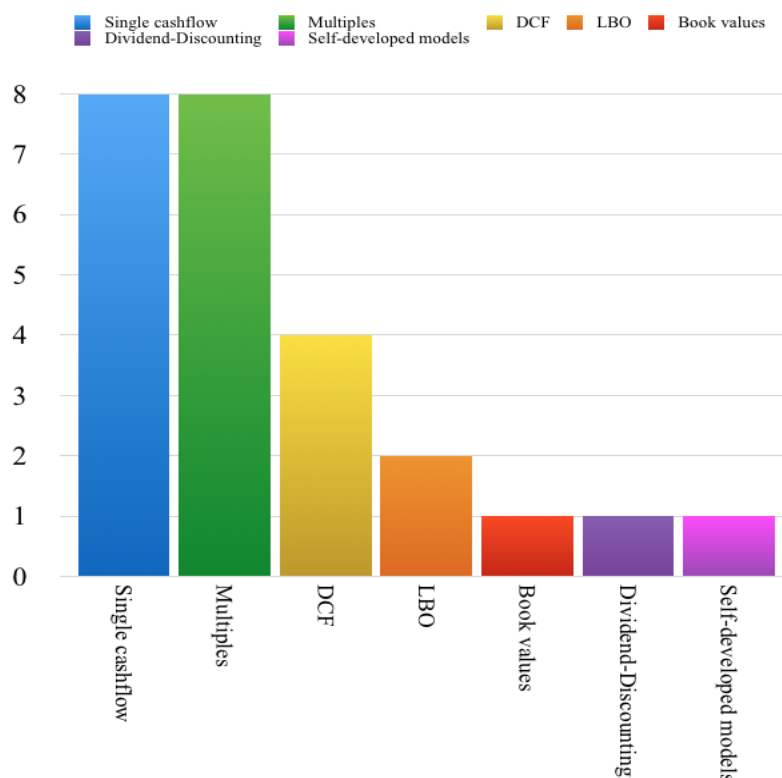


Figure 10. *The respondents' choice of valuation models. Each respondent could state several models.*

One reason as to why the valuation methods were essentially the same within the interviewed companies, might be that they primarily focused on holding the acquired the stock for a longer (>1 year) time period. One other explanation to the alike use of models might have been given by the C; they believed that why different investors to a high degree use the same valuation models had to do with the fact that an important part of valuation is to look at what others do. To use the same models and data, such as the risk-free rate given by the PwC-report, is a promise that you will get approximately the same estimates as other actors. “It might sound cowardly, but the market *is* ‘everyone else’ and one wants to know how the market estimates the value of a stock.”(C).

As we have seen above, another similarity within the respondents is that they never relied on a single measure to assess the stock attractiveness (usually two or three methods were applied). But, even if the choice of valuation methods did not change much between the groups, what *combination* of models and methods used differed, both between respondents and regarding target company attributes

4.3 Liquidity

According to the theory (Amihud & Mendelson 2008, Fama & French 1992, Acharya & Pedersen 2005, to mention a few), liquidity should be accounted for when regarding whether to invest in a company or not. In the studies presented under the literature section, it has been scientifically shown that liquidity adjusted valuation models outperform the traditional Capital Asset Pricing Model. Therefore, *to what extent the liquidity was being considered in regards to an investment*, was a relevant interview topic for our study.

The average daily volume turnover over six or twelve months was the most used measure of liquidity (**S4**, **S3**, **A2**, **S2**, **V1**, **S1**, **A1**).

Some respondents used the free-float of the stock as a measure of liquidity (**C**, **V1**, **S1**, **S2**), i.e. they looked at what part of the total stock is owned by major owners and hence is not for sale. The higher level of free float, the higher amount of individual investors owning a lower number of the total stock, implying higher liquidity. **S2** was the only respondent that explicitly stated that he only looked at current free-float data. The reason, he said, was that historic data on free-float can be misleading. He brought up the example of when a major shareholder performs a secondary public offering, it dramatically increases the free-float at a certain point in time.

No respondent used the bid-ask spread, by Amihud and Mendelson (1986) and Damodaran (2015), acknowledged as an adequate liquidity measure. A plausible reason might be the interconnection between the spread and the turnover.

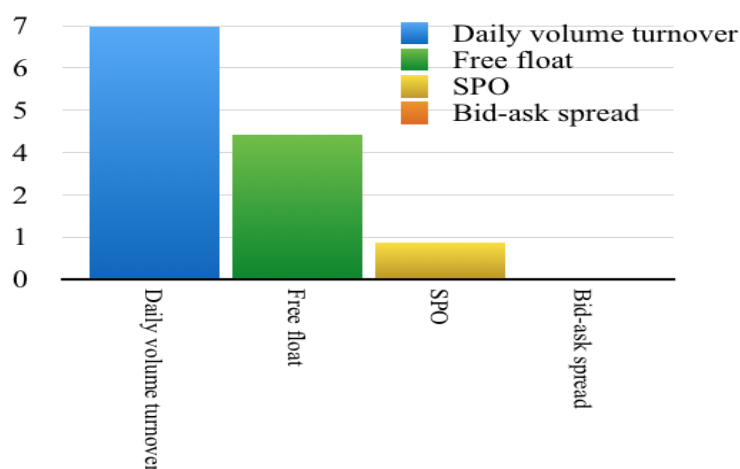


Figure 11. *The respondents' liquidity definitions. Each respondent could state several definitions.*

Good liquidity was considered important by the asset managers and stockbrokers that we interviewed, and seen as a crucial part in deciding on whether to invest in a stock or not. “To invest in something we consider illiquid, i.e. that we cannot come out of our position when we want to, we will require a much higher gain for the risk, because if something goes wrong the whole thing will be much more expensive. Liquidity is a way of dealing with your mistakes in a reasonable way” (S1). A1 also brought up that low liquidity means that it will take too much time to fill an order of an illiquid stock. This, he said, is an extremely important consideration to make as an asset manager, since you want to be able to get out of your investment and that this will affect what stock you end up buying.

However, some of the respondents had a contrasting view on liquidity; the venture capitalists (V1 and V2) and the corporate finance firm (C) focused mainly on transactions where they would get majority shares in companies. In their perspective, limited liquidity in terms of low level of free-float, might be a good thing, since it means that there are few stock owners to negotiate a buying price with. Limited liquidity can therefore facilitate transactions if you are an investor wanting to get control over a company.

4.3.1 Illiquidity Discount Compensation

S1 and S2 accounted for stock illiquidity by using higher required returns. “I correct for illiquidity, when I make the initial assessment and invest in illiquid stock, by requiring at least a 100 percent upside.”(S2).

S2 did however not add the illiquidity discount already in the cash flow calculations. He emphasised the importance of, instead of discounting cash flows with a higher risk factor, using common sense to what a reasonable value would be, preferably by adding the discount after the initial valuation.

C were of the opinion that when valuing a company by using the beta of similar companies, the liquidity aspect gets captured.

V1 and V2, venture capitalists holding the private stock for several years, did not require extra compensation for an illiquid stock.

4.4 The Small-Company Discount

The first thing we wanted to explore on this subject matter, was how the respondents approached the size discount. Did they consistently and by definition discount smaller cap stock because of their size and hence additional risks (Paschall & Hawkins 1999)? Is this discount still adequate in today's financial market, with its remarkably low prime rates? Might the fact that smaller stock historically have performed better than large cap stock (Peek 2015) even make it relevant to discuss a small-cap premium?

4.4.1 Respondents Applying a Small-Cap Discount and the Reasons behind it.

Looking at the two venture capitalists interviewed, **V1** believed the small-cap discount is well accepted and used by most of today's investors. But, he also thought that the reasons for the discount varied widely between companies, i.e. that it is completely a result of firm specific factors. The other venture capitalist, **V2**, was on the contrary a firm believer that the reason for the discount is above all poor scrutiny; small-cap companies are not as thoroughly analysed as bigger companies. For **V2**, focusing on majority ownership investments, the (according to the theory) lower liquidity of smaller companies, was not a reason for the discount. **V2** did not require extra compensation for the illiquid stock. However, he often used a higher discount rate when valuing small-cap DCF's. This was not due to the illiquidity of the small stock however, but instead a result of the lower scrutiny and higher sensitivity and therefore risk of the smaller-cap stock.

C also agreed on that the lack of information and analysis of the smaller stock increases the discount. As a second reason they gave lower liquidity, even if they emphasised that they believed that today's extremely low interest rates undermine the illiquidity factor. "It is a pretty unique situation."(**C**).

For **S1** on the other hand, the illiquidity of the small-cap-stock was the sole reason for the size discount. "That small-cap stocks are harder to sell off due to their illiquidity, needs to be compensated for by a higher return." In order to bypass the small-cap disadvantages, **S1** did not usually invest in smaller-cap stock.

A1 did not either invest in smaller companies, regardless of how well they performed, and "this is due to liquidity." For him, liquidity was by far the most important cause of the small stock discount. He, too, regarded the higher sensitivity to be an important factor in the

discount, even if “liquidity dominates. Investment wise, it is the liquidity and market cap that rule.”

The illiquidity of smaller sized-company stock was also the main reason to why **S2** used the discount. **S2** also mentioned low degree of information, higher sensitivity to macro factors, such as competition and high reliance on a single market, and the possibility of lower quality CEO, board of directors and owners, as possible roots of the discount. **S1** believed that good corporate governance was even more important in small companies, since it is harder to correct mistakes quickly in these companies. **V2** on the other hand, did not think that the potential lower quality management of smaller companies was an issue, since “the management is replaceable. It is harder to change business model” (**V2**).

Another reason for the small-cap discount mentioned in the interviews was associated with having fewer customers and therefore being more dependent on those customers (**A1**). **V1** also added that investing in very illiquid stock can cause the trading price to oscillate which makes it harder to perform a fair analysis of the company. This was a consideration **S1** also made. The few times he invested in small-cap public stock he had to make an additional liquidity “consideration”; how much of the stock he could invest in without affecting the stock price.

An additional disadvantage of smaller companies in contrast to their bigger counterparts was, according to **S1**, poorer possibilities of tax maximisation and borrowing of money.

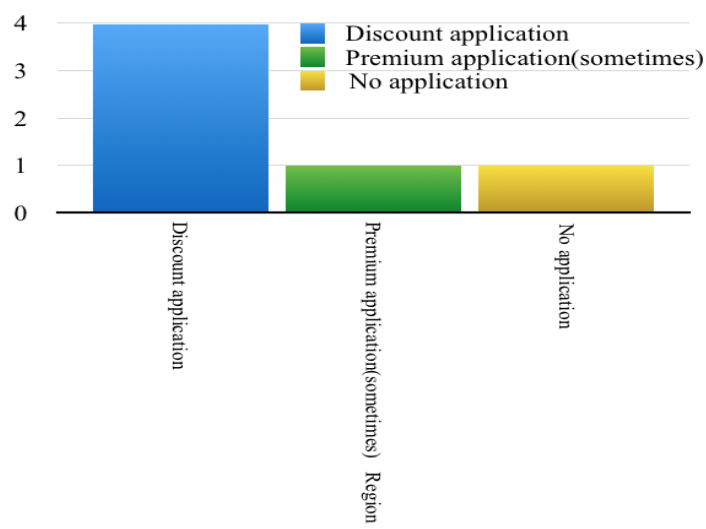


Figure 12. *The respondents stated reasons for the small-cap discount. Each respondent could state several definitions.*

4.4.2 Respondents Applying a Small-Cap Premium

For **V1**, acquiring whole companies, low liquidity might at times justify a premium, instead of a discount. It is often easier to find an accepted buying price when there are fewer major shareholders, since there will be fewer people you need to negotiate with.

S1 too mentioned that theoretically, a size premium could be motivated, considering the historically higher return of smaller sized stock (Banz 1981), even if he clearly did not apply such a premium.

A1 said that even if adding a small-cap discount was legitimate, above all due to poor liquidity, he had noticed a change in market preferences; he thought small stock shares were currently sometimes sold at a premium, due to today's low interest rates. "This is something I have never experienced before." (**A1**).

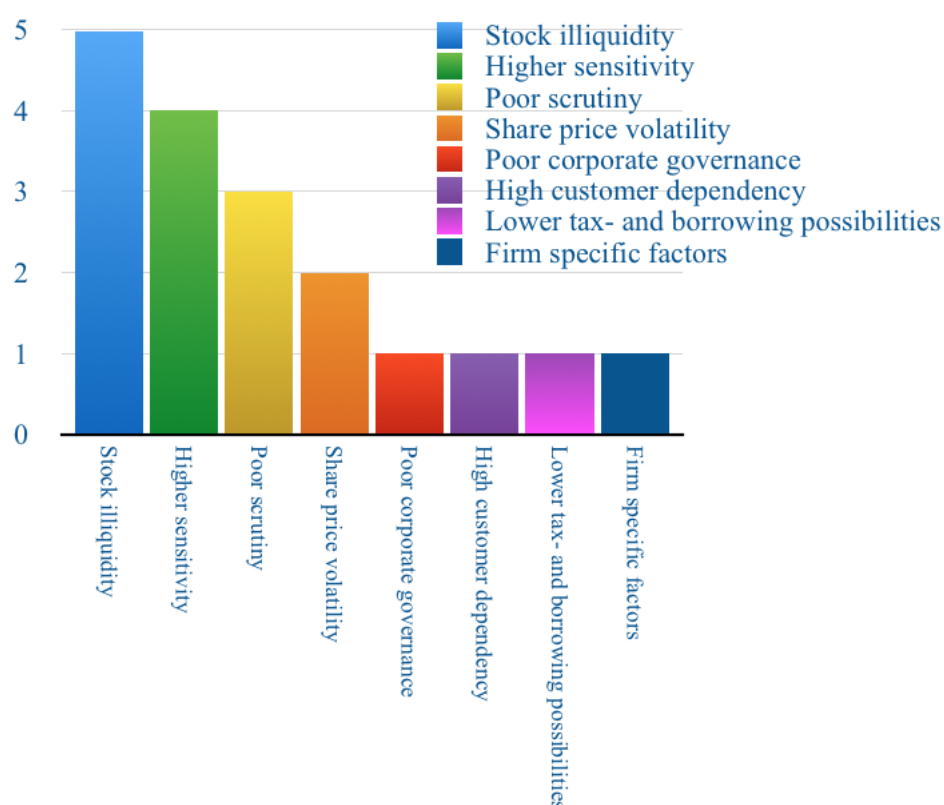


Figure 13. *The application of small-cap discounts and premium amongst the respondents. Yet, the respondents' choice between using a discount or a premium, depended heavily on the particular context.*

In order to establish if and why a small-cap discount is being used by investors, there is also an important separation that has to be made; the difference between a small company and a small-but-growing company, as **C** put it. Besides from investor preferences, the growth rate of a small stock might be what turns a discount into a premium. As **V2** said: “There do exist a small company discount, but in theory these companies are also supposed to grow faster. The small-caps might grow by 40% per year, and then there is reason to pay a premium instead.”

We have seen that looking at small companies, most of our investors believe that it is more legitimate to apply a discount rather than a premium for investing in small-cap, and that the main reasons for this is low liquidity, higher sensitivity and poor scrutiny.

4.5 The Financial Crisis

4.5.1 Practitioners Thoughts on the Likelihood of a New Financial Crisis

As concluded from the theory, a new financial will hit Sweden, sooner or later. This conclusion was compared to the beliefs of practitioners, as to underline the importance of liquidity – which becomes considerably more valuable in times of crisis. The question to the respondents regarded the likelihood of a new global financial crisis, affecting Sweden, within ten years from now.

As suggested by the theory, a crisis can be in the shape of a banking, stock market, debt or sub-prime crisis (Jonung 2009). This was a point that almost all respondent underlined, before answering that the probability is “almost 100 %”, “like 100 %”, “over 90 %”, “some kind of crisis – definitely” (**S1**, **C**, **A2**, **A3** respectively). **S3** did not want to answer, and **S2** mentioned that “it [a crisis] may happen, but we do not know that today”. Thus, nearly all respondents were unanimous on the fact that some kind of new crisis will strike Sweden within ten years, with considerable drops in prices of securities.

4.5.2 The Liquidity Aspect Compared Before the Financial Crisis 2008 vs. 2015

Given the severe financial crisis of 2008 and the distinct views concerning a new crisis affecting Sweden within ten years, our following question regarded whether the respondents take liquidity into consideration to a larger extent today, as compared to before the financial crisis of 2008. The logical hypothesis, regarding this research question (ii.), is that

practitioners have adjusted their valuation methods regarding the liquidity aspect, as to take it into account to a larger extent.

However, the respondents claimed that there have not been any change regarding the liquidity aspect in their valuation since 2008. Likewise, the general opinion was that the preferences for liquid stock have not changed either, comparing today vs. before the financial crisis.

Several respondents mentioned the human psychology aspect, e.g. “people forget it [the crisis] when times are getting better” (V1) and “the collective memory lasts for about two years” (S2). This is in line with the theory that market participants will forget negative memories, and again there is room for new optimism (Jonung 2009). Since there has been about seven years since the huge decline of the Stockholm Stock Exchange in 2008, the respondents’ answers are comprehensible. This is interpreted as a proof that even a huge financial crisis does not alter the practitioners’ valuation methods regarding liquidity or the preferences for liquidity. The reason may be that the practitioners have been through considerable declines before, knowing that crises are parts of the game. Today, when there is general optimism in Sweden (and in many other parts of the world), the importance of the liquidity aspect may have fallen into oblivion – just to be brought up again when the next crisis is overhanging.

5. Conclusions

According to a multitude of research, financial models that take liquidity into account are more reliable and are better at explaining stock returns than the non-liquidity adjusted CAPM model, much because of the model’s unrealistic assumptions of investor preferences, (non-existing) company specific risk and the omission of the liquidity costs of stock. To account for liquidity seems even more important in small companies and in times of financial distress, since the two are characterised by illiquidity.

Even if vast amounts of empiric research embrace the liquidity-adjusted models we have presented in our thesis, we have found that CAPM is to a high extent still a pre-eminent building block in most of the Swedish investors’ valuation models. One reason for this paradox is that it is too risky, sensitive and complex to add even more assumptions into an already delicate valuation process. An additional explanation might be the assurance provided by using the same models as other investors, i.e. that you will get about the same results and values as the other investors (“the market”). Put differently, for an investor it is more

legitimate to use the conventional models, since they are built up of fewer assumptions and generate the other investors' predictions. A third reason may be that the practitioners have attained approximately the same education, i.e. they have been taught the same general valuation frameworks.

However, most of the surveyed firms accounted for illiquidity to some extent, either indirectly, by including price multiples in their valuation, or later into the process, either by discounting the cash flows with a higher level of risk, or by reducing the total value of the company's estimated worth.

The majority of the interviewed firms justified applying a discount for small-cap stocks, although it is worth noting that some of the respondents believed that a premium was sometimes more suitable. The main three reasons for the discount were stock illiquidity, company risk and lack of information.

Still, the illiquidity is not something considered today to a higher extent than before the global financial crisis, which explains why the same methods are still used regarding the handling of liquidity. This is probably connected to the psychological fact that practitioners forget – in good times, everyone wants to take part of the tempting investment opportunities. Even though all respondents believe in a new crisis hitting Sweden sooner or later, it does not alter their way of handling liquidity today.

6. Suggestions for Further Research

Unlike the aim of this study, it would be exciting to deepen the knowledge *why* practitioners have not changed their methods of valuation, including the liquidity aspect, after the global financial crisis. Connecting to psychology and the fact that a crisis is forgotten rather quickly, the topic of valuation in practice in Sweden, could undoubtedly be further investigated. What determines which valuation methods practitioners use? How does these methods change, comparing to the theoretical development of valuation? Another particular topic is the parameter estimation, given that many market participants share the overall valuation models.

Thus, there is definitely room for more qualitative research regarding valuation in practice. At the end of the day, the practitioners are crucial, since they perform valuation, which in turn

influences the future development of companies, alongside many other factors. The knowledge of Swedish valuation in practice can certainly be deepened.

7. Quality Criteria

7.1 Reliability

Reliability concerns the consistency of the research findings. In our research case, it should be noted that we use a qualitative, non-standardised approach which has given the best possible chances to explore the complex and dynamic topic of liquidity valuation in practice.

Consequently, this study may not be replicable with the exact same results at another point in time. However, given that other researchers would conduct this exact same study, using our interview questions in the appendix, we claim that the findings would be very similar to ours. Thus, the *observer error* is minimised by the relatively high degree of structure in our interviews, still recognising the complexity of the topic by using semi-structured interviews (Saunders et al. 2009).

7.2 Validity

In our case of qualitative research, validity refers to the credibility of the evidence and the conclusions drawn therefrom. We have employed both *data and method triangulation*, meaning that we have collected data from multiple sources on the same issue, using both interviews and questionnaires. This fact clearly enhances the validity, as patterns are more easily found. In this context, it should however be admitted that it would have been favourable to include a short term investor according to the IRS definition (intended holding period < 1 year). Regarding the interpretations, it has been advantageous to work in pairs. Even though we share the same academic background, the fact that we research together has reduced the individual researcher bias (Ryan et al. 2002).

7.3 Generalisability

Generalisability, sometimes known as external validity, concerns whether the research results are generalisable, i.e. whether they would be equally applicable in other research settings (Saunders et al. 2009). We do not claim that our results are generalisable, given the sample size of eleven respondents. The intention of this study is not to produce such results. Rather, this study is a descriptive one on the issue of valuation in practice regarding the liquidity aspect in Sweden in 2015.

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Appendix 1 – Survey and Interview Questions

A. Survey

Questions Regarding Valuation

1. What company do you work for? What is your role?
2. What models and methods do you use to value a listed share? Feel free to name the specific variables you take into account.

Questions Regarding Liquidity

1. How do you define stock liquidity?
2. How do you measure a stock liquidity?
3. More precisely, what variables do you consider? Company specific versus stock exchange/market specific?

Questions Regarding the Financial Crisis

1. Do you take greater account for share liquidity today than before the financial crisis of 2008?

-If No: why not?

-If Yes: why and to what extent?

2. How do you assess the probability of a new global financial crisis within the next 10 years?
3. Do you believe that the preferences for liquidity have changed since the last global financial crisis?

-If Yes: to what extent?

4. Do you have any further comments about the stocks' liquidity historically as a concept and about its future role?

B. Interview

Preliminary Questions:

1. What is your role and how do you get in touch with valuing equity?

Valuation Questions:

1. Which valuation method and approach do you use most frequently in the equity valuation? Please name the specific variables you take into account. If you use several, please mention all.
2. Are the general models generic or developed in-house?

3. Do you test your models? If yes, why?
4. How do you define a stock's liquidity?
5. How do you measure a stock's liquidity?
6. More precisely, what variables do you take into account? Company-specific versus stock exchange/market-specific?

The Concepts of Discounts and Premium in the Context of Valuation

1. Assuming that there is a general discount for small, listed companies that includes several factors, can you thereupon rank the variables that form the basis for such a discount?
2. Do you think that illiquidity is a relatively considerable factor? Compared to the other factors discussed in the former question.
3. How frequent do you believe illiquidity discounts are under different market conditions?
4. How common is it that you come across the term illiquidity discount in the valuation of small companies?

Methods to estimate and apply a discount for illiquidity in the valuation of small businesses:

- *At what occasions such a discount becomes relevant to apply*
 - *If and where in the valuation the illiquidity and discount are being considered.*
 - *Justification for an illiquidity discount*
1. Can you give a recent example of when the illiquidity was taken into account or not taken into account?
 2. What methods do you use to analyse, estimate and possibly to apply an illiquidity discount?
 3. Do you
 - a. have a given framework around this?
 - b. use any rule of thumb?
 4. If you could choose between compensating for illiquidity by reducing the value by a percentage or adding an additional risk premium in the discount rate, which would you choose and why?
 5. Is the need to compensate for the illiquidity in a stock related to the risk? If yes, what type of risk?
 6. How much do you consider macroeconomic factors when you estimate the size of the illiquidity discount?

7. Do you believe that the company's size and growth capability influence the liquidity?
8. How much does the applied discount depend on the buyer's preferences? I.e. how important is the time horizon for how long you plan to hold shares?

Gaps in Knowledge and Indicative Information about Illiquidity Discounts

1. Do you collect guidance from research regarding when an illiquidity discount should be applied, in order to develop your knowledge?
2. If yes: do you have a general idea of the research on illiquidity? Is it useful in practice?

If no: why not?
3. Have you noticed any changes concerning illiquidity in recent years? Do you have any thoughts about future changes?
4. In the current circumstances, where do you believe the biggest knowledge gap lays, in estimating and applying an illiquidity discount?
 - a. What do you believe is the biggest problem?
5. Is there a profitability perspective in focusing on illiquidity discounts?
6. Is there a risk of double-counting the discount for illiquidity when using a DCF model? So that illiquidity would be adjusted both in the company-specific factors as well as a percentage deduction on the final value resulting in double counting?

Financial Crisis:

1. How much do you consider macroeconomic factors when you estimate an illiquidity discount?
2. Do you take greater account for stock liquidity today than before the financial crisis of 2008?
 - a. If yes, why and to what extent?
 - b. If not, why not?
3. How do you assess the probability of a new global financial crisis within the next 10 years?
4. Do you think that the preferences for liquidity have changed since the financial crisis of 2008? If yes, to what extent?

Concluding Questions

1. Do you have any other comments about share liquidity, the historically concept of liquidity and its future importance? Is there anything else that you instinctively think of when you hear the term stock illiquidity that we have not covered in this interview?

Appendix 2

Data Collection Procedure

For the survey, we e-mailed 83 Swedish and 31 Norwegian companies, falling under one of the four investor categories discussed in the thesis. An additional criterion was that the company had been present at least two years before the financial crisis of 2008. The e-mails were either sent to a senior member of the staff or, in the cases where the companies did not offer e-mail addresses to specific persons, we sent them to the companies' information e-mail. The respondents had the choice of either filling out the survey online or write down their answers in a Word document. The document and the link to the online survey (using Google) were attached to the e-mail.

Regarding the interviews, 40 Swedish investors meeting the same criteria as the companies above, were contacted by telephone. Almost all of these were included in the above sample of 83 Swedish companies. A handful of these companies were interested in giving an interview and with these we set up meeting.

Except for one respondent that gave a phone interview, the interviews were held at the companies' headquarters. Each interview took on average 61 minutes, and the whole interview was recorded, with one exception where the respondent did not want to be taped. In this special case, the conversation was written down (to the letter). The recordings were then transcribed word for word.

The next step of the data collection procedure was to compile the answers from the interviews with the questionnaire responses. This was done by sorting the respondents and their corresponding interviews/survey answers into the four investor categories. Then, the most relevant and interesting parts (citations, claims, assumptions) of each respondent were picked out. This compilation served as the basis for the empirical results and analysis.