Linnæus University
Sweden

Bachelor Thesis

The Private Company Discount

An acquisition study of public and private companies on the Swedish market

Authors: Alfred Karlsson & Emil Jönsson
Supervisor: Christopher von Koch
Examiner: Maziar Sahamkhadam
University: Linnaeus University
Term: Spring 2022
Subject: Management Accounting, Bachelor Thesis
Level: Bachelor
Course Code: 2FE32E

Abstract

The difference in valuation between private and public firms have been studied several times on the U.S. and European markets. However, we believe that the lack of studies made on the Swedish market opened a possibility for an exciting opportunity. The general conclusion drawn from the earlier studies is that there in fact does exist a discount on private companies compared to similar publicly traded ones and this study is going to examine whether this also applies on the Swedish market. After collecting data from acquisitions of private and public firms, each private firm is paired up with its closest public counterpart and the multiples are being compared. This resulted in a mean discount for private companies of 48%, 32% and 32% when comparing the EV/EBITDA, EV/Sales, and EV/Earnings multiples respectively confirming the existence of a Private Company Discount on the Swedish market.

Key words

Private company discount, private company valuation, Swedish private company valuation, differences between public and private companies.

Acknowledgments

We want to thank our supervisor Christopher von Koch for his guidance and feedback during the writing of this bachelor thesis. We also want to thank all the teachers at the School of Business and Economics at the Linnaeus University that we have been in contact with during our time studying in Växjö.

Table of Contents

1 Introduction

This chapter introduces the concept of Mergers and Acquisitions (M&A), what problems there could be in the difference in valuation between private and public companies and why this is an interesting topic to study.

1.1 Background

In the Swedish business newspaper Dagens Industri you could read that the business transactions move out from the stock market to the more hidden private company market. The Merger and Acquisition market broke all time high records in 2021 and the total sum of the Nordic M&A ended up at 277 billion dollars (Lindsten, 2022). In Sweden 99,8% of the companies are not listed at the national stock market (Statistiska Centralbyrån, 2022).

The valuation method of a private company is much the same as the valuation process of a publicly traded one. There are however major differences between the characteristics of a private and a public firm. When valuing a public company, finding information is quite easy. All public firms are by law forced to publish financial information that's often very detailed. Private companies, on the other hand, are not required to publish detailed financial information and the accounting is not standardized. The question whether the private company should trade at a discount or a premium is often the motive of the valuation. One key aspect when valuing private firms is if the owner and/or a small group of people are linked to the firm's success. Also, the fact that a position in a private firm is far more illiquid than an equity stake in a publicly traded company should be considered when valuing private firms (Damodaran, 2012).

The latest Private Company Price Index (PCPI) report from the British accounting and business advisor firm, BDO, states that the UK private company market reached the highest transaction levels since 2008. BDO publishes the PCPI-report every year with the Enterprise Value (EV) to Earnings Before Interest Taxes Depreciation and Amortization (EBITDA) ratio as the valuation method. This year's report published in 2022 with data from Q1 2018 until Q4 2021 shows an EV/EBITDA valuation of 11,4x in the fourth quarter of 2021. As seen in figure 1, the PCPI was increasing in 2021 as a result of the acquirers being more willing to participate in the M&A market (BDO, 2022). This report indicates that in the UK, a discount on private companies do exist. The stocks on the Financial Times Stock Exchange (FTSE) All Share Index trades at an average EV/EBITDA of 17,5x in Q4 2021, this is significantly higher than the PCPI who trades at an average of 11,4x. As seen in the graph below, the FTSE Index valuation dropped after Q4 2019. A part of the reason for the decline could be the Covid-19 pandemic which in early phases led to decreasing valuations on the stock market which though, as seen in the graph, was short-lived.

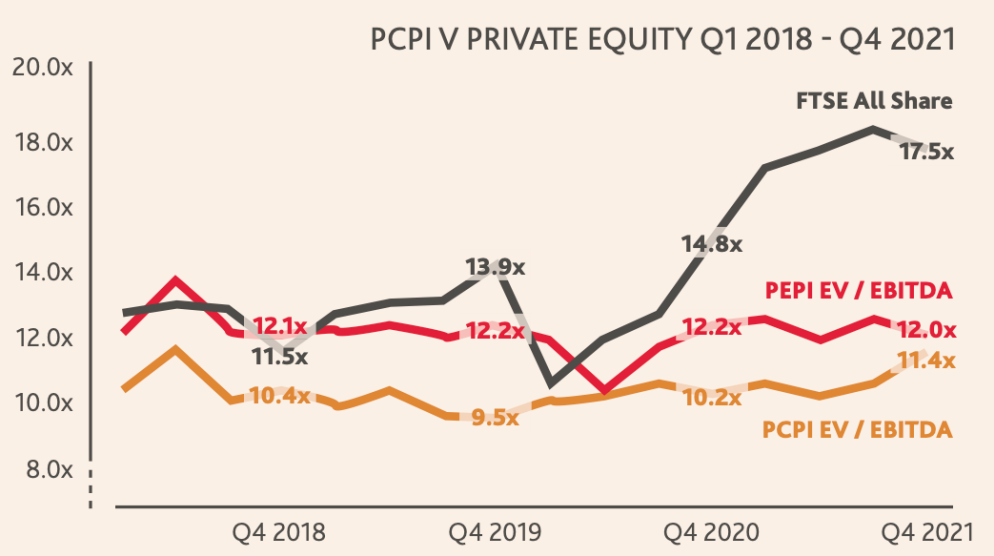

Figure 1 represent the EV/EBITDA valuation of the Financial Times Stock Exchange (FTSE), the Private Equity Price Index (PEPI) and the Private Company Price Index (PCPI). The index is made by the British accounting and business advisor BDO.

Information about Swedish Private Company Discount has not been presented in an index like the one from BDO, that's why this report will conduct an analysis if there in fact exist a Private Company Discount on the Swedish market. Studying the Private Company Discount is important for many reasons. We believe that most education regarding valuations are made on the publicly traded stock market, but many forget the large number of transactions made on the private market. The possibilities for investing in private companies are endless and there is money to be made. What differs when valuing private companies compared to public companies, and do investors value private shares the same way as publicly traded shares?

1.2 Problem discussion

A number of studies have touched on the subject of valuation and the differences in multiples between private companies and publicly traded ones. The general conclusion of these studies is that publicly traded companies have a higher valuation than its private counterparts (Block, 2007; Goetz, 2021; Harjoto & Paglia, 2010; Klein & Scheibel, 2012; Koeplin et al., 2000; Officer, 2007). For example, Goetz (2021) made a study where she had quite a large sample of both public and private firms from the years of 1997-2014. She then used ROE, growth, and risk to match one private and one public firm into pairs with similar characteristics to make the comparison as fair as possible. In this study she found out that the mean multiple of public firms was 37.5% higher than the mean EV/EBITDA-multiple of the private firms. Her study also showed that in 64% of the cases, the private company had a lower multiple which shows that there is in fact a number of cases where the private company is valued at a premium compared to its public counterpart (Goetz, 2021).

One thing that makes this topic a very interesting one to study is the fact that the valuation of an asset or a company is such a complex thing that requires more than just accounting numbers. Damodaran (2012) says that the biggest challenge in valuing private firms, as opposed to public ones, is that there is no observable market value. This makes for example relative valuation much

harder to use than with companies that are traded on a public market. However, he mentions that there are two different ways of approaching the challenge of valuing private companies. The first way is to use private transaction multiples by looking at what other similar businesses have been sold for recently. By measuring for example what EV/EBITDA-multiple a similar business has been sold for you can get a sense for what potential buyers may be willing to pay for your firm. This way of valuing a company is best suited for a private small company that has the intention on staying small and private rather than having the intention of expanding and going public. It also helps if the business is operating in an industry with a large number of similar companies.

The other way of valuing a private firm is by looking at public multiples. There is a lot more data regarding pricing and multiples for publicly traded firms which makes relative valuation quite a bit easier. Some analysts may not even have access to the data they need from private transactions and if that's the case, this is the only alternative when it comes to relative valuation. What makes this way of valuing a private business difficult is that there are a lot of fundamental differences between being a public or a private company. However, he points at three different things an analyst could adjust for to provide a better valuation, and these are to: *Adjust for survival, adjust for nondiversification and adjust for illiquidity.* The businesses best suited to be valued using the public multiples approach are the ones who intend on either going public or being acquired by a public company. Rather than valuing the company for what it is today, you are valuing it for what it wants to be (Damodaran, 2012).

The intention of this study is to make it in a similar way to that of Goetz (2021) but instead of studying the US market, the Swedish market is going to be studied.

This study is conducted because, as stated in the introduction, the absolute majority of companies in Sweden are privately held. We therefore find it interesting to provide a study that could give the owners of these companies'

valuable information and an indication on which factors that may have an impact on the price tag of a possible future sale of the firm.

1.3 Purpose of the Study

The main purpose of this study is to see if there is a difference in how the investors value companies that are privately owned compared to companies that are listed at a marketplace. We want to study if there in fact exists a private company discount (PCD) on the Swedish market and study which factors that may have an impact on the acquisition price of private companies.

2 Theoretical framework & earlier studies

In this section of the paper the differences between public and private companies are being discussed. The Private Company Discount is explained and which factors that the discount is based on. Earlier studies are also presented in this chapter.

2.1 Deciding factors of the Private Company Discount

2.1.1 Private Company Discount (PCD)

Privately held companies usually trade with a slight discount compared to its listed counterparts. For example, Damodaran (2005) mean that the illiquidity discount for a private firm is between 20-30% and does not vary across firms. The Private company discount is mostly referred to as the PCD.

2.1.2 Accounting Information

The accounting information of private companies tends to be limited due to the accounting standards for private companies being less standardized than that of publicly traded companies. The standardized accounting makes it possible for investors to compare firms but the fact that the accounting methods for private companies varies quite a lot complicates the comparison. This leads to the financial information presented by private companies being far less useful because of the regulations that does not force private companies to publish earnings and revenues from each business segment (Damodaran, 2012).

Ball & Shivakumar (2005) says that the demand for better quality financial statements is substantially higher for public companies than for private ones. They point out that since public companies can face an almost unlimited number of shareholders due to their stock trading on a public market, the only way to get information out to their shareholders is via their financial statements. As private companies have a lower shareholder turnover, generally a lower amount of total shareholders, and the fact that shareholders often take a more active role in management, financial statements do not play as big of a

role for monitoring managers. They also conclude that the difference in earnings quality between private and public companies reflects the differences in the demand for financial reporting between private and public companies rather than a failure in supply.

The accounting standards do differ between public and private companies and more importantly is the fact that public firms are governed by authorities. This makes it riskier to invest in private firms because there might be irregularities and because of this, the acquiring firms generally wants a discounted price to account for the additional risk.

2.1.3 Liquidity

A listed firm at a stock market makes it possible for investors to constantly get an updated price of the equity. A publicly traded company also makes it easier for investors to liquidate their position in a company. The liquidating process in a private company is complicated. The time for finding a buyer of the unlisted shares tends to be long and costly. Because of the liquidity risk that exists, the market price of an asset often is quite different from the paid or received price from a larger transaction. This is because there is a quantity effect on price. The quantity effect on price applies for publicly traded companies as well, however, due to the relative lack of liquidity, this effect is generally greater on private company transactions (Damodaran, 2012). As a consequence of this, investors often prefer assets that are liquid over assets that are illiquid, and with that in mind, investors generally want a discount to invest in illiquid assets. This supports the thesis of the existence of a private company discount.

2.1.4 Management

The management in private companies is often influenced by the owner and this could lead to the mixing of owners expenses with the business expenses. Costs such as offices in owners' residence, vehicles used both in personal and business purposes are common in small private firms. Family members could also be hired in positions that doesn't exist to pay out salaries or to reduce the

company's taxes. The fact that the owner of a private company often has their whole wealth exposed to the company contributes to the risk measured. Companies in a start-up phase are often closely linked to the owner or a small group of people. The value of the company is thereby dependent on a small group of people that needs to be considered when valuing a firm (Damodaran, 2012). Thereby, acquiring companies should always have this risk in mind when valuing private companies and this could result in a higher private company discount.

2.1.5 Concentration of control

Private companies are often controlled by a one or few investors. This may lead to operations made by the firm being decided to favour some shareholders and this could come as a cost to the other shareholders. Therefore, stake purchases linked to the controlling group are often acquired at prices higher than the market value. The minority groups value is then transferred away to the majority shareholders (Pinto et al., 2015).

2.1.6 Discount for lack of marketability (DLOM)

Marketability refers to how quickly and easily an asset, in this case a company, can be converted to cash without substantial transaction costs. This is generally an important part for an investor and therefore, an investor will be willing to pay more for an identical company that is more marketable, all other things equal. This is often a problem for private companies as they generally have few shareholders and do not trade on a public marketplace. Valuing companies in a traditional way using cash flows or market values does not take marketability into account and the most common way of solving this problem is by valuing the company as if it were marketable and then apply a discount for lack of marketability to the estimated value. The bigger challenge in valuing non-marketable companies lies in determining what this discount should be (Bajaj et al., 2001). Comment (2012) writes in his article that Discounts for Lack of Marketability as high as 20% to 40% are commonly used when valuing small private businesses while his own research shows consistent evidence of a DLOM no larger than 5-6%.

2.1.7 Illiquidity discount

Potential investors or investment bankers like to use a public company as a reference to value a similar private one, quite often they apply a discount on the value of the private company. This discount is said to represent the relative illiquidity of the private company in relation to its public counterpart. The severity of this discount is based on estimates from two different types of empirical studies. One way to estimate the discount is to compare the price at which publicly traded companies issue restricted shares in private placements in relation to the stock price of the publicly traded company. Publicly traded shares and restricted shares tend to be identical and if this holds, then the discount on restricted shares must reflect a discount for the lack of liquidity (Koeplin et al., 2000). Fogelson refers to the Securities and Exchange Commission (SEC) Rule 144 which permits holders of restricted shares to sell a limited number of shares after a two-year holding period (Fogelson, 1982). These rules forces holders of restricted shares into at least a two-year period of illiquidity. This rule was two years until 1997 and has been reduced to one year since. However, the same concept applies (Damodaran, 2005). One could argue though, as the rules now apply for only a year, the discount should be smaller because of the reduced time of illiquidity.

Silber (1991) writes in his article that companies that issue restricted stock usually offer a price discount in relation to the securities trading on the public market to compensate for this relative illiquidity. According to research done by Silber, the restricted stock traded at an average discount of 33.75% compared to the company's publicly traded shares. However, the size of the discount varies quite a bit between firms. For example, firms with large revenues and positive earnings have significantly lower discounts than firms with lower revenues and negative earnings.

The other way to estimate the size of the discount is through studying the Pre-IPO Discount. This measure of the illiquidity discount is calculated by comparing the transactions that occurred when the company was still private

with the price at which the stock was initially offered to the public (Koeplin et al., 2000).

2.1.8 Firm specific characteristics

Previous research regarding the Private Company Discount such as the study made by Koeplin et al. (2000) have discovered considerable evidence that the PCD differs depending on firm specific characteristics. Firm size has been identified as one of the most influential factors in earlier studies. Harjoto & Paglia (2010) found that larger businesses offer lesser discounts on average than smaller businesses. The industry of the acquired company also plays a role in the magnitude of the applied discount, with the smallest discount occurring in the transportation sector and the largest discount in the information services sector. Additional evidence on the influence of profitability and acquirer qualities on the PCD was discovered in this study as well. However, according to research done by Block (2007), the highest and lowest discounts are found in the manufacturing and financial industry respectively. Therefore, we firmly believe that the size of the discount is mostly correlated to the specific firm, rather than the industry that it operates in.

2.1.9 Deal characteristics

When proceeding deals, the payment method could vary between the acquiring companies. The payment method has an impact on the future financing of the firm, the owner structure, and the leverage of the firm (Faccio & Masulis, 2005). Officer (2007) discovers in his study that owners of targeted private firms are getting paid with a 22% discount when the acquirer pays cash as opposed to a discount of 12% when paying with equity. This is the result of sellers wanting liquid payments instead of a payment with illiquid stocks. Goergen & Renneboog (2003) discusses in their article that the targeting firm's managers should prefer financing the acquisition in cash when they believe their own share price is undervalued. This, because then only the targeting shareholders will gain on future share price movements. With that in mind, the

managers should prefer to finance the acquisition with equity stakes in their companies when they think that the share price is overvalued.

The usage of advisors is common during M&A processes. Servaes & Zenner (1996) discovered that for instance the complexity and the targeting firm's history of acquisitions has an impact on the choice on whether to use an investment bank as an advisor during the transaction or not. Bowers & Miller (1990) elaborated that the usage of an investment banker could affect the shareholders wealth in two different ways. Firstly, some investment bankers can possess the ability to discover firms which through acquisitions could have economic gains. The authors of the article studied this question by comparing the holding period returns from firms which were contracting high end investment bankers with firms who didn't contract investment bankers. The result was that the firms who used high end investment bankers had a higher holding period return in the future. Secondly, the investment banker could have advantages such as knowledge in the market and could use this in the negotiating process. However, the authors could not prove this. One conclusion that can be drawn from these articles is that it may indicate that the financing decision and the usage of an investment banker could in fact have an impact on the private company discount.

2.1.10 Macroeconomic factors

Deals tend to cluster in time. This is by Maksimovic et al. (2013) described as merger waves and these waves might be explained by the macroeconomic climate. High M&A activity often takes place in times when valuations are unusually high. Merger waves occurs when new technology have been created or when de-regulations have led to unmet needs being unleashed (Rhodes-Kropf & Viswanathan, 2004). This could indicate that when in times of high merger and acquisition activity, more companies are demanding to acquire firms which lead to a lower private company discount.

2.1.11 Relative valuation

Relative valuation is a way to estimate the value of an asset by looking at the price of comparable assets relative to a variable such as for example earnings, EBITDA or sales. The majority of the valuations that we make on a daily basis are in fact relative valuations as most assets are valued depending on how similar assets are priced on the marketplace, from the property you buy to the equities you invest in. One downside to this way of valuing assets is that unlike for example discounted cash flow valuation, which looks for intrinsic value, relative valuation places a greater emphasis on the market being correct (Damodaran, 2012).

When using the relative valuation method, the toughest challenge lies in finding comparable firms. The private firm needs to be matched with a public company counterpart that's in approximately the same size, industry, life cycle, capital structure and risk (Pinto et al., 2015).

This study is going to compare multiples between private companies and similar public ones and therefore, the relative valuation method is very relevant.

2.2 Earlier studies

2.2.1 Restricted Stock Studies

A large portion of the previous research on the illiquidity discount has been done using the restricted stock approach. A restricted stock is a security, issued by a publicly traded company, that is not registered with the Securities and Exchange Commission (SEC) and has to be sold through private placements to investors. The stock can then only be resold under provisions of SEC Rule 144 which means that the holder of the stock cannot sell it in the open market within one year from the date it was acquired. The restricted stock is often issued at a price much lower than the trading price of the public stock of the company and the difference in price can be viewed as a discount for lack of liquidity (Damodaran, 2005). Comment (2012) uses the restricted stock approach in his article and the evidence from his study shows a discount for

lack of marketability (DLOM) of around 5-6%. This is significantly lower than preivous research using the same method which has had DLOMs as high as 20% to 40% (Comment, 2012).

2.2.2 Pre-IPO Studies

Another way of calculating the illiquidity discount, which is also used in some previous studies, is the Pre-IPO approach. This is done by comparing the initial public offering price of the firm to the prices on transactions regarding the shares of the firm prior to the initial public offering. The difference between the two prices can be viewed as a discount for illiquidity (Damodaran, 2005). However, there are several disadvantages to IPO studies. These studies also suffer from limited sample sizes and a lack of information on the parties involved in the transactions, which could be linked. Furthermore, the company's operating and financial features may change throughout the three-year period prior to becoming public. Finally, because most private companies never go public, it is unknown whether the findings of this study apply to ordinary private companies (Harjoto & Paglia, 2010).

2.2.3 Acquisition Studies

In a study made by Koeplin et al. (2000) they matched one recently acquired private company with a public company acquired around the same time. To make the comparison more reliable, they also filtered for size and industry so that the two companies would share as many characteristics as possible. Then, they compared the valuation ratios paid for both companies and the price difference between the two concluded the discount or premium paid for the private company. When using the earnings multiples for comparing the transactions in the domestic area, the private companies traded at a discount of between 20-30% on average compared to its listed counterparts. When measuring the book value multiples, the average discount is a bit lower and when studying the revenue multiples, they found no significant difference between the private and the public companies.

For the foreign non-U.S. companies, they found no statistically significant differences between the book value multiples and the revenue multiples of the acquired companies, not matter if they were private or public. However, when using the earnings multiples, private companies were acquired at a discount of between 40-50% on average compared to similar public companies. Koeplin et al. (2000) points out that the observed multiples do have a higher variation and thus, the measured discount is not as statistically significant as the one for the domestic companies. As to why the variation in multiples is higher on acquisitions of foreign companies, the authors believe that differences in accounting standards between the countries could be an explanation.

According to research made by Officer (2007), unlisted targets sell at a discount of 15% to 30% on average compared to control-related sales of public enterprises, and nearly 70% of the unlisted targets in his sample are acquired at lower multiples than those offered to acquire comparable publicly traded firms. He also mentions in his article that the method of payment affects the discount on the acquisition of private stand-alone firms. According to his research, the discount when the acquirer is paying with cash is 22% on average whereas if the buyer is exchanging stock in the acquiring firm for equity in the private target, the discount is on average 12% instead. Given that cash offers instant liquidity while stock does not, this result supports the theory that unlisted target sellers accept lower acquisition multiples in exchange for liquidity.

Klein & Scheibel (2012) uses the acquisition approach to perform their research as they wanted to look more into controlling interests rather than looking at minority stakes taken in the private company. Rather than researching the American market, as the studies mentioned above, Klein and Scheibel are analysing the Private Company Discount on the European market, specifically companies from the 11 countries that were the founding members of the euro on January 1, 1999. In their sample, 57% of the transaction pairs had a PCD and 43% of the private companies were acquired at a premium compared to its public counterpart. The average (median) PCD was around 5%

(8.50%), however, the size of the discount varied quite a lot. The observed PCD ranged from a discount of 65% all the way up to a premium of 200%.

3 Methodology

In this chapter, the process for collecting and filtering the data is presented. The calculations of the Private Company Discount are shown and potential concerns with the method are discussed.

3.1 Methodological approach

The aim of this report is to conduct an analysis in an effort to conclude if private companies trade at a discount compared to publicly traded companies. A quantitative approach is possible by collecting data from private and public company deals made from 2002 until 2021. All the private acquisitions that are collected will be matched with a public one. The matching process is of high importance to reduce the risk of not having a fair comparison. Comparing the private firm with a public firm who doesn't share any similarities such as the sector that the company operates in would decrease the reliability of the study and may lead to a skewed result. If there in fact does exist a discount on privately held companies, we will discuss possible factors that may have an impact on the price difference between private and public companies.

The study will be performed on the Swedish market and all data have been collected through Thomson Reuters Eikon Refinitiv.

The first step when collecting the data is to setup the criteria for the deals. Firstly, the targeted company should have its headquarter in Sweden. The targeted company should be private, and the completed deal should have been announced between January 1st 2002 and December 31st 2021. All deals presented should have a disclosed deal value of at least 1 million US Dollars and the acquisition must be for at least 50% of the company's shares. These filters resulted in 859 private company deals and 230 public company deals. The private companies that are lacking financial information such as the EV/EBITDA multiple are being removed and this results in 26 private deals. The same method is used with public companies, and it renders in 121 companies. Because of the small sample when using the EV/EBITDA-

multiple the EV/Sales-multiple is also used which makes 93 private companies available with financial information. Lastly, a third multiple is used, the EV/Earnings, this resulted in 67 observed private companies with the available multiple.

When matching the private firm deals with the public company deals, there is some potential problems that needs to be considered according to Damodaran (2012). Firstly, the deal value is often not just linked to value of the business being sold. The deal could consist of external agreements that could be included in the price such as the previous owner still working in the business after the transaction. Secondly, when matching the companies, time is of high importance. This is because private companies are not expected to be purchased and sold in a short period of time like the public firms. Crashes like the one in second half of 2008 when public companies decreased approximately 45% in market value cannot be seen directly in the private market. Lastly, problems when using valuations variables such Price/Sales (P/S), Price/Earnings (P/E) and EV/EBITDA could be misleading because of the fact that the accounting standards differs between private and public companies (Damodaran, 2012).

3.2 Valuation multiples

In effort to compare the valuations of the companies that have been collected, it is necessary to use multiples. This multiple method is the fairest procedure with the intention to draw authentic conclusions.

The EV/EBITDA-multiple is one of the most used multiples all around the world by financial analysts. EV/EBITDA is explained as the ratio between the enterprise value and earnings before interest, tax, depreciation and amortization (Fernández, 2002). Enterprise Value is an advantage to use because it represents the underlaying value of the firm's business instead of just the value of equity. This makes it easier to compare firms with different leverage (Berk & DeMarzo, 2020). Koeplin et al., (2000) supports this thesis and writes in their article that EBIT and EBITDA multiples are both

independent from capital structure. The article also discusses the difference between using the EBIT and EBITDA multiple. The two is both used as an estimation of how much of the company's cash flow is left for paying debt to lenders and dividend to the shareholders. EBIT is different from EBITDA in the way that EBITDA adds depreciation in the calculation which is not a cash expense. When looking at EBITDA instead of EBIT, amortization is also added back.

The second multiple that will be used is Enterprise Value to Sales ratio. This multiple presents the firm's ratio between enterprise value and sales (Damodaran, 2012). This multiple will be used in order to collect a larger sample.

A third multiple, EV/Earnings, is used and this ratio explains the ratio between the Enterprise Value and the firm's earnings. The firm's earnings are presented on the last row of the financial report and it represents how much is left for the company's shareholders (Damodaran, 2012).

3.3 Matching pairs

The matching process begins with filtering private firms and public firms within the same Macro Industry which are retrieved from Thomson Reuters Eikon Refinitiv. The private company transaction is then matched with a public company transaction. The majority of the transactions are within three years of each other but in order to collect a larger sample, we accepted a time difference for the acquisitions of a maximum of six years apart. As the data concerning the EV/EBITDA multiple was collected, the number of valid observations dropped significantly. Therefore, we decided to mainly focus on the EV/Sales multiple as this resulted in a larger sample. However, we will include the calculated PCD for both the EV/EBITDA multiple as well as the EV/Earnings multiple, with reservation for statistical insignificance as the sample size is limited.

The original sample got reduced to only 11 matched pairs when using the EV/EBITDA multiple, however, we matched 38 pairs using the EV/Sales multiple and 20 pairs using the EV/Earnings multiple. As the earlier studies has researched either the U.S. market or the European market, both of which are quite a lot larger markets, we were aware of the fact that we wouldn't get as large of a sample researching only the Swedish market. However, though we think that 11 matched pairs are too low to draw a fair and reliable conclusion, we believe that 38 observed pairs are enough to do so.

3.4 Calculation of the Private Company Discount

The calculation of the PCD is made by using the private multiple and the public multiple as shown below:

$$PCD = 1 - \left(\frac{multiple_{\ private}}{multiple_{public}}\right)$$

This calculation is made with every matched pair in the sample and results in a number that will be less than 1. The number explains how much of a discount or premium that is paid to acquire the private firm in relation to its matched public counterpart. The model allows for premiums over 100% but not for discounts lower than 100%. To get rid of extreme values that could potentially skew the result of our study, we have decided to treat our sample the same way as previous research done by Goetz (2021) by removing transactions that have 100% premiums and above.

3.5 Concerns with method

When acquiring private companies, key person in the firm are often also the owners. A part of their compensation may be an employment contract. If the employment contract is above market compensation, this may lead to the private firm being valued less than the market value when just looking at the published deal value (Koeplin et al., 2000). In our matching process, the private firm has been matched with a public counterpart and because transactions are not being made every single day, it has been necessary to find

the closest announced transaction. This have in some cases been multiple years apart which could lead to a misleading PCD because the macroeconomic trends may have changed. Synergy effects have not been taken into account when matching the firms which could also lead to misleading results because the acquiring firm may be willing to pay a premium to be able synergize the companies.

Another potential concern regarding our data could be things such as the fact that we haven't taken factors like growth and risk into account while matching the pairs. Although we have matched every private company with the public one that is closest in size and date of acquisition as well as in the same sector, we observe the existence of a large size difference between the public and private companies.

4 Empirical analysis and results

This chapter presents the results of the data that´s been collected. The data is being discussed in effort to be able to provide a foundation for an analysis and a conclusion in the upcoming chapters.

4.1 Results

Our study shows that that a Private Company Discount does in fact exist on the Swedish market. All the three multiples used when comparing the acquisitions of private companies compared to public ones shows a mean and median PCD of between 30-50%.

The calculations show whether the private company was acquired at a premium or a discount compared to its matched public company. The numbers are presented as the percentage difference between the multiple of the private firm in relation to the public firm. A negative number means that the private company was acquired at a premium compared to the public one.

The articles previously discussed confirm the fact that the majority of the private companies are acquired at a discount compared to their publicly traded counterpart. However, we can observe the existence of private firms that have been acquired with premiums. A reason that the private company was acquired at a higher multiple than its public counterpart could be synergy effects or technology that has been invented that could not be seen through our valuation multiples.

Noteworthy is that this study is made on a time period of 20 years. The long period of time increases the sample but also makes it possible to calculate a historical average. If the private company discount moves from its average, either higher or lower, we could observe times when merger activity is higher demanded and, in this case, the PCD would usually decrease and when demand is lower it is often cheaper to acquire companies as the competition is not as big, this usually leads to an increased PCD on the market.

	PCD EV/EBITDA	*PCD EV/SALES*	*PCD EV/Earnings*
N	11	38	20
Mean	0,48	0,32	0,32
Median	0,50	0,46	0,49
Standard error	0,09	0,09	0,12
Standard deviation	0,30	0,54	0,55
Minimum	-0,15	-0,99	-0,82
Maximum	0,90	0,96	0,98

Table 1 – Descriptive statistics PCD

The numbers in table 1 represents the discount on the private companies compared to their matched public counterpart. A negative value indicates that the private company was acquired at a premium compared to the public one. The results of our study shows a mean EV/EBITDA PCD of 48,5% and a median of 49,63%. The multiple with the greatest number of observations in our sample is the EV/Sales with 38 pairs matched. This resulted in a mean and median PCD of 32,26% and 45,97% respectively. The last multiple used in our sample is EV/Earnings with 20 matched pairs. The result using this multiple as a measurement was a mean PCD of 32,37% and a median of 48,97%.

As previously written, a negative number represents a premium paid for the acquired private firm and thus, the highest premiums collected from our sample can be seen in the "minimum" section of the table. This shows that at least one of the private companies was acquired at almost double (99%) the EV/Sales multiple to that of its matched public company. The highest premium paid on an EV/EBITDA multiple was 15% while the highest looking at the EV/Earnings was 82%. On the contrary, the highest discounts observed was 90% when looking at the EV/EBITDA multiple, 96% when using the EV/Sales multiple and 98% looking at the EV/Earnings multiple.

When matching the deals, the size was one factor taken into account. As size was only one of several factors, in some cases the existence of a fairly large size difference between the private and the public company could be observed.

The size difference is measured in sales and in our sample the largest difference was 1378 million USD. Although this is a relatively big difference, it doesn't necessarily indicate that the matching is not fair. In this specific case the private company, Grundia AB, is valued at an EV/Sales-multiple of 1,38 and the public company, Nobina AB, is valued at 1,15. This shows that a premium has been paid to acquire the private company compared to the public firm.

We see no clear connection between the private companies that was acquired at a premium in relation to its matched public company. The three private companies with the highest premiums were all from different sectors and these were the Energy and Power, High Technology and the Healthcare Equipment & Supplies sectors.

If we look at the private companies that was acquired with the highest discount in our sample, no connection was found here either. The sectors that the three companies with the highest discounts operates in were High Technology, Industrials and Retail.

Acquisition Multiples

	Private Firms		**Public Firms**	
	Mean	Median	Mean	Median
Enterprise Value/Earnings	27,42	16,38	47,96	27,34
Enterprise Value/EBITDA	9,97	7,88	30,73	12,75
Enterprise Value/Sales	1,37	0,82	2,79	1,62

Table 2 – Mean and median multiples for private and public firms

As table 2 above shows, the public firms in our sample were acquired at higher mean and median multiples in all three different multiples used in the study. As opposed to table 1, who shows the mean and median PCD from summarizing every multiple difference that's calculated from the matched pairs. Table 2 shows the mean and median acquisition multiples for the whole sample without taking the matching process into account.

4.2 Testing for statistical significance

In a study like this that compares numbers, in this case multiples, with each other, it's important to test the results for statistical significance. To do this, an independent t-test for two-samples with unequal variances is being used.

As we can see in table 3, the results from comparing the differences in multiples between private and public companies are not significant with an alpha-value of 0,05. However, the t-test shows that the difference is significant with an alpha-value of 0,1. As the table shows, there is quite a large difference in the multiples between private and public companies. Due to the large differences in the mean multiple between private and public companies, we believe that if the sample size was bigger, it would probably have been significant both on the 0,05 and the 0,01 level.

Ratio of Enterprise Value to EBITDA

	Private companies	*Public Companies*
Mean	9,97	30,73
Variance	51,94	1277,48
Observations	11	11
df	11	
t Stat	-1,8884904	
P(T<=t) two-tail	0,0856005	
t Critical two-tail	2,20098516	

Table 3 – t-test on the EV/EBITDA multiple

The ratio of Enterprise Value to Sales was the multiple with the highest number of observations in our sample and as shown in table 4, the results of our study are significant at an alpha-level of 0,1 as well as 0,05.

Ratio of Enterprise Value to Sales

	Private companies	*Public Companies*
Mean	1,37	2,79
Variance	4,34	9,06
Observations	38	38
df	66	
t Stat	-2,375229161	
P(T<=t) two-tail	0,020451629	
t Critical two-tail	1,996564419	

Table 4 – t-test on the EV/Sales multiple

The third multiple used in this study is the ratio of Enterprise Value to Earnings. Here we found no statistically significant difference on an alpha-level of 0,05 nor on 0,1. Table 5 illustrates a P-value of 0,3092 to show this.

Ratio of Enterprise Value to Earnings

	Private companies	*Public Companies*
Mean	27,42	47,96
Variance	2103,54	5789,22
Observations	20	20
df	31	
t Stat	-1,033860089	
P(T<=t) two-tail	0,30919997	
t Critical two-tail	2,039513446	

Table 5 – t-test on the EV/Net Income multiple

To summarize the results of our study, we find that there is a statistically significant difference between the multiples of private and public companies when looking at the EV/EBITDA and the EV/Sales multiples. However, the difference on the EV/Earnings multiple does not seem to be statistically significant according to the t-test made on the results of the sample.

5 Analysis

In this chapter the data results will be linked with the theory. The findings of our study will be discussed and analyzed to provide a better understanding on the Private Company Discount.

The main purpose of this study was to see if there is a difference in how the market values companies that are private compared to companies that are listed at a marketplace. We wanted to study if there in fact exists a private company discount (PCD) and which factors that may impact the pricing of private companies. The data confirms the theory that private companies trade at a discount compared to their publicly traded counterpart. As written earlier, the discount for lack of marketability could be one of the reasons that investors value private companies at lower than a comparable public one. Koeplin et al. (2000) conclude that investors should prefer owning assets that are liquid over assets that are illiquid and private companies are generally not as liquid as public companies that are traded at a marketplace. While the selling process of large stakes in public companies could be expensive, the relative illiquidity in private ones generally makes it even more costly and the process of finding a buyer is usually ending up being a longer process. When owning shares in publicly traded firms you always have the possibility to reach out to the open market which allows for many more buyers. In our data collection, we only allowed stake purchases of 50 percent and above. This should remove the risk for valuation differences between minority and majority stakes because all our observed deals involve a majority stake purchase of the company's shares. If this filter was not being used, this factor could be a reason for a misleading result.

Other reasons for the discount according to the theory could be accounting information differences. Investors should always be able to rely on the accounting information presented in a public company's annual reports. The accounting standards for those companies are governed by law (Ball &

Shivakumar, 2005). This is one reason why investors generally prefer owning publicly traded companies instead of privately held ones.

We also know that management could have an impact on the valuation of the company. Many small businesses are dependent on a small number of people to be existing. Therefore, companies with this issue can't be valued the same as a company with a diversified management and board (Damodaran, 2012). Hence, it is important for acquirers to take this in mind when valuing small private businesses and maybe offer an employment when acquiring the company to secure that the key persons stay in the company during the takeover. This also strengthens the theory´s contribution that the published deal value may not include all the value that is being offered.

Also, the macroeconomic climate should have an impact on the PCD. Times with high merger and acquisition activity should lead to a lower PCD as the demand to purchase companies is higher. As stated in the introduction, 2021 was a record year when looking at the number of transactions. At the same time, the stock market was also on record breaking levels and investors could observe their assets increasing in value. Putting those facts together with historically low interest rates from central banks, the demand for purchasing companies became immensely high and stock listed companies with acquisitions as their main business idea were rewarded. However, many of these companies has seen significantly decreases in market value in the first quarters of 2022 as the interest rates has started to rise and the macroeconomic climate has been generally nervous due to both a high inflation as well as the Russian invasion of Ukraine.

We cannot prove which and how much of these factors is having an impact on the private company discount, however, these factors are an indication of which factors that could affect the discount. We can with high certainty say that there exists a discount on the Swedish private companies compared to its publicly listed counterparts, and this should not come as a surprise. Several previous studies who researched acquisitions on markets in other countries

have found similar results as we have, and therefore it would be more surprising if our research showed no PCD on the Swedish market than if it did.

As stated previously, we couldn't find any clear connections between either the private companies who had been acquired at the highest premiums or the private companies that got acquired with highest discounts in relation to its matched public company. This further strengthens our thesis that the applied discount is mostly connected to the individual company and its firm-specific characteristics rather than the sector that the company operates in.

6 Conclusion

Our study indicates the existence of a PCD on the Swedish market on all the three different multiples used to measure the valuation of the acquired companies. While the discount on the EV/Earnings-multiple wasn't statistically significant, the EV/EBITDA and EV/Sales was indeed, on the 0,1 and 0,05 level respectively. The results are in line with previous studies made in other countries in the sense that private companies are usually acquired at a lower multiple than similar companies that are publicly traded. We therefore strongly believe that the PCD is a global phenomenon, and we have reason to believe that as shown in previous studies, the main reason for its existence is mostly explained by the difference in liquidity between a private company and a company that is traded on a public marketplace. Illiquidity makes an investment more risky and potential buyers generally therefore want a discounted price to account for this.

However, the statement that a buyer can apply a standardized discount on all private companies is something that we believe is a large simplification as we observed significantly different valuations in our sample. The variation in multiples is probably connected to firm-specific characteristics of the given company such as size, sector and other parameters like growth and profit margins. Our perception is therefore that every company must be valued individually as there are so many factors that needs to be considered. The fact that we couldn't find any clear connections between the private companies that was acquired at the highest premiums and the private companies that was acquired at the highest discounts further strengthens this thesis. However, we find it reasonable that private companies are acquired at a slight discount compared to its public counterparts to account for the lack of marketability as well as the illiquidity of the stock.

6.1 Suggestion for future studies

During the work with this study, we have discovered some potential future studies that would be interesting to read about. We are aware of the fact that finding financial information regarding private company deals can be a challenging task. However, as we don't have access to all the existing databases containing financial information about mergers and acquisitions and we believe that if we were to use those databases, a larger sample size might be possible to collect. An interesting thesis would be if there exist different private company discounts in different sectors. For example, is the PCD larger in the Construction sector than in the High Technology sector? Another interesting thing to study could be whether Sweden's PCD has changed over time, or if it moves to its historical average. Comparing this data with other comparable countries would increase the knowledge of which macroeconomic scenarios and factors that drive the PCD.

7 References

Bajaj, M., Denis, D. J., Ferris, S. P. & Sarin, A., 2001. Firm Value and Marketability Discounts. *Journal of Corporation Law*, p. 89–115.

Ball, R. & Shivakumar, L., 2005. Earnings quality in UK private firms: comparative loss recognition timeliness. *Journal of Accounting and Economics*, February, pp. 83-128.

BDO, 2022. *Highest levels of transactions for 13 years as 2021 sees a surge in deal activity.* [Online]
Available at: https://uk-www.bdo.global/getmedia/4c94ed9b-e911-4226-b109-d8767cce69ff/PCPI-Q4-2021.pdf.aspx
[Accessed 20 April 2022].

Berk, J. & DeMarzo, P., 2020. *Corporate Finance.* 5 ed. Essex: Pearson Education Limited.

Block, S., 2007. The Liquidity Discount in Valuing Privately Owned Companies. *Journal of Applied Finance,* 17(2), pp. 33-40.

Bowers , H. & Miller , R., 1990. Choice of Investment Banker and Shareholders' Wealth of Firms Involved in Acquisitions. *Financial Management,* 19(4), pp. 34-44.

Comment, R., 2012. Revisiting the Illiquidity Discount for Private Companies: A New (and "Skeptical") Restricted-Stock Study. *Journal of Applied Corporate Finance,* 24(1), pp. 80-91.

Damodaran, A., 2005. *Marketability and Value: Measuring the Illiquidity Discount.* [Online]
Available at:
https://deliverypdf.ssrn.com/delivery.php?ID=076096124100085126074104093083096089121045061078028062023070089075003112064107090110039054098101105044027122113114085106087057054021037039099089028 1

271231030400490551260231130950031200280041020261240190840750000
[Accessed 5 May 2022].

Damodaran, A., 2012. *Investment Valuation.* 3rd edition ed. New Jesrsey: John Wiley & Sons Inc.

Faccio, M. & Masulis, R., 2005. The Choice of Payment Method in European Mergers and Acquisitions. *The Journal of Finance,* 60(3), pp. 1345-1388.

Fernández, P., 2002. *Valuation using multiples. How do analysts reach their conclusions?,* Barcelona: IESE.

Fogelson, J. H., 1982. Rule 144 - A Summary Review. *The Business Lawyer*.

Goergen, M. & Renneboog, L., 2003. Shareholder wealth effects of European domestic and cross-border takeover bids. *European Financial Management* , 20 February, pp. 9-45.

Goetz, S., 2021. *www.degruyter.com.* [Online] Available at: https://www-degruyter-com.proxy.lnu.se/document/doi/10.1515/jbvela-2020-0027/html#j_jbvela-2020-0027_ref_043
[Accessed 14 04 2022].

Harjoto, M. & Paglia, J. K., 2010. The Discount for Lack of Marketability inPrivately Owned Companies: A MultiplesApproach. *Journal of Business Valuation and Economic Loss Analysis*.

Klein, C. & Scheibel, M., 2012. The Private Company Discount from a European Perspective: An Analysis Based on the Acquisition Approach for Comparable Transactions of European Target Companies. *The Journal of Private Equity,* 16(1), pp. 74-82.

Koeplin, J., Sarin, A. & Shapiro, A. C., 2000. The Private Company Discount. *Journal of Applied Corporate Finance*.

Lindsten, P. O., 2022. *Dagens Industri.* [Online] Available at: https://www.di.se/nyheter/affarerna-flyttar-ut-fran-borsen/ [Accessed 13 April 2022].

Maksimovic, V., Phillips, G. & Yang, L., 2013. Private and Public Merger Waves. *The Journal of Finance,* 68(5), pp. 2177-2217.

Officer, M. S., 2007. The price of corporate liquidity: Acquisition discounts for unlisted targets. *Journal of Financial Economics*, pp. 571-598.

Pinto, J. o.a., 2015. *Equity Asset Valuation.* 3rd red. Hoboken: John Wiley & Sons.

Rhodes-Kropf, M. & Viswanathan, S., 2004. Market valuation and merger waves. *The Journal of Finance,* 59(6), pp. 2685-2718.

Servaes , H. & Zenner, M., 1996. The Role of Investments Banks in Acquisitions. *The Review of Financial Studies,* 9(3), pp. 787-815.

Silber, W. L., 1991. Discounts on Restricted Stock: The Impact of Illiquidity on Stock Prices. *Financial Analysts Journal*, Jul/Aug, pp. 60-64.

Statistiska Centralbyrån, 2022. *Företagsregistret.* [Online] Available at: https://www.foretagsregistret.scb.se/Rakna?RakneTyp=RAKNA_FORETAG#
[Accessed 13 April 2022].