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PRIVATE COMPANY VALUATION: A CASE OF MEHILÄINEN OY

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I hereby declare that I have compiled the thesis independently

and all works, important standpoints and data by other authors

have been properly referenced and the same paper

has not been previously presented for grading.

The document length is 11640 words from the introduction to the end of conclusion.

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ABSTRACT

This thesis unfolds the art and science of private company valuation in the health sector in Finland during a time in which the sector could only be described as the backbone of the country. The pandemic affected the entire sector and in doing so both private and public providers sought new ways to improve and grow through digitalisation and collaboration. The aim of this thesis is to find out how to value privately held healthcare firms using Mehiläinen Oy as an example. In doing so, differences between private and public company valuation are discussed and how these factors affect the process along with reviewing theoretical background on different valuation approaches. Furthermore, this thesis examines the changes in the industry and for Mehiläinen Oy during a time of economic instability. Finally, this study uses intrinsic and market valuation approaches to determine a value for the firm while demonstrating how these methods can be applied to similar private firms in the healthcare industry.

According to this study, the two valuation methods used for Mehiläinen respectfully reached significantly different valuations with intrinsic valuation presenting a much higher value for the firm. This can be explained as the market approach assumes firms to be homogeneous disregarding company specific differences that the target firm has in comparidon to the peer group. Thus, in conclusion, the intrinsic valuation method represents a more accurate value of the firm.

Keywords: Private company valuation, Discounted cash flow, Comparable company analysis

INTRODUCTION

This thesis will discuss the valuation process of privately held companies using Mehiläinen Oy as an example. As private and public companies share a variety of similarities, these two are also accompanied with differences (Pinto et al. 2015), which are also evident in valuation processes. This thesis will discuss and demonstrate the differences and their impacts on how a valuation for a privately held company can be achieved using Mehiläinen Oy as an exmple. The author has chosen this company due to its activity in recent years. The firm has focused on expanding internationally and digitally, placing them in an interesting position. Mehiläinen Oy is a Finnish private firm and the parent company of the Mehiläinen concern established in 2005 although the concerns history dates back over 100 years to 1909. The firms' main operations revolve around healthcare and with services at over 670 medical centers is one of the largest healthcare providers in Finland. The firm also has operations in Sweden, Estonia and Germany. (Mehiläinen 2022)

The main goal of this thesis is to understand how valuation for privately held healthcare companies can be achieved. As the pandemic affected every industry on a global scale, this thesis aims to discuss the changes in the industry and at Mehiläinen during this time to better understand the final chapter of this thesis which will revolve around calculating the value for Mehiläinen using several different methods. Thus, the following research questions will be used in this thesis:

1) How has the Covid-19 pandemic affected private healthcare providers?
2) How do private and public company valuations differ?
3) What are the advantages and disadvantages of different valuation methods?
4) What is the value of Mehiläinen?

Before the final valuation can be achieved it is important to thoroughly explain how this can be attained. Thus, this thesis will be split into two separate chapters. The first chapter being the literature review where the author will go over theoretical aspects and frameworks of valuing private businesses whereas the second chapter will demonstrate the valuation. In the practical chapter the author will give an overview of the industry, the company and the impacts of Covid-

19. The second chapter will also go over the specific research methods and valuation approaches necessary for valuing the company. In this case the valuation methods used include an intrinsic valuation approach: the Discounted Cash Flow valuation (DCF) and a relative valuation approach: the market approach. The author will describe and discuss these methods thoroughly in the literature review along with the alterations and inputs needed when using the aforementioned methods to perform a valuation of a private company.

To value the company, the author will use data obtained from Patentti- ja rekisterihallitus, Virre (the Finnish patent and registration office). Along with this, secondary data from public firms will be obtained from Yahoo Finance and Marketscreener. 4 years of financial statements from Mehiläinen Oy namely the income statements and the balance sheets will be used to value the company while providing detailed explanations and guidance for future valuations for similar companies. Based on the methods used and the results attained by the author from the financial statements the author will be able to give a conclusion and summary on the value of the company.

1. LITERATURE REVIEW

Firstly, prior to valuing anything one needs understand the components that go into valuing a company along with what "value" means. Value essentially means the worth of something. According to the Merriam-Webster dictionary of English (2022), value is defined as "the monetary worth of something". However, the meaning of value is much deeper than that. Philosophers for centuries have pondered on the matter and according to Ralph Perry's General theory of value (1926), value at its most primitive and generic sense can be seen as "any object of any value." (Rice 1943, 42). As this thesis will focus on business valuation the author has focused on the following definition of valuation which will act as a framework for the practical part of this thesis. "A business valuation is a general process of determining the economic value of a whole business or company unit." (Hayes 2022b)

As the author is performing a company valuation for a private company, the traditional methods of valuing public companies must slightly be altered. The literature review will go over the different methods used for valuing private companies as well as the specific differences when valuing private companies compared to public ones. As an example we can look at the discounted cash flow (DCF) method, "The biggest problem in using discounted cash flow valuation models to value private firms is the measurement of risk (to use in estimating discount rates), since most risk/return models require that risk parameters be estimated from historical prices on the asset being analyzed." (Damodaran, 2002). Thus, it is not possible to simply use the formula, input the data and calculate the value. Educated assumptions must be made. In addition, when valuing a company it is important to understand what the purpose and goal of the valuation is. In general, valuations can be categorized into two categories; enterprise value and equity value. Enterprise value calculates the value of the entire firm including all debt whereas equity value is the value of the business less debt. In other words equity value is the value of the firm that is attributable to shareholders. (Pignataro 2013, 279-284)

1.1. Private and public company valuation

Valuing private companies has both similarities and differences to valuing public companies. For example, public companies are governed by accounting standards which help investors, analysts and the like not only identify and understand what the financials statements include and mean but also gives us the ability to compare data between firms. As the renowned scholar and author Aswath Damodaran has noted, when comparing these standards with what is required by private firms, the regulations are far less cut in stone. Following this, as there are less regulations requiring private companies to report in the same manner as public companies, it is also harder to get information from private companies. These differences have the ability to change the value by affecting discount rates, cash flows and expected growth rates. (Damodaran 2002)

Due to these factors, challenges when valuing private companies arise when examining company specific factors along with stock specific factors. Company specific factors include the lifecycle, size, markets as well as the goals of management along with several other factors. (Pinto et al. 2015) This section will go over the factors and differences between private and public companies.

1.1.1. Company specific factors

Company specific factors distinguish the company itself. In other words, every company is unique from the ground up, these company specific factors can be categorized in the following manner (Pinto et al. 2015, 514-516):

- Lifecycle
- Size
- Shareholders and management
- Short-term investors
- Quality of management
- Information
- Tax concerns

Typically, there are differences in the lifecycle of companies, and this will influence the appraisal process of a them. Public companies tend to be further along in their respected lifecycle. When generalizing, private companies include early-stage businesses with minimal capital and assets. However, this is not a given, private companies also include large and more importantly stable companies, as an example we can look at Huawei, the firm is private yet among the largest mobile phone manufacturers in the world. Private companies also include companies which are in the process of liquidation as well as already failed ones. Along with the lifecycle, there are naturally

differences in size as well. When looking at the size of private firms, as they tend to be smaller compared to their public counterparts, market premiums and risks often increase. Small firms, due to their size may have reduced growth possibilities as access to capital is not available in the same scale as is the case with public companies. In addition to this, smaller sized private firms may find it more difficult to employ or attract high level managers. This can also have an impact on performance, increase the risk and possibly hinder growth prospects. (Pinto et al. 2015)

In addition to the aforementioned slighly more evident differences, differences may arise in the structures of firms. When discussing shareholders, there may be (often times the case for smaller private firms) an overlap between sharehoders and management, this means that shareholders are also part of the management teams in private firms and have controlling interest as owners. This changes several things. Primarily private firms will have less outside pressure from external investors, and second, they have more of an option to take longer-term perspectives on decision making compared to public firms. (Damodaran 2002; Pinto et al. 2015) On the contrary, according to Pinto et al. (2015) when dealing with public companies, some investors may sway towards short-term trading. This will impact the managements decisions to follow investors and support the share prices in the short-term. And, as mentioned above, this pressure is lifted from private firms allowing them to focus on longer-term decision making which can be seen as positive in firm valuation.

When companies are looking for investors, private firms may find this process to be more challenging as investors often demand high quality financial information. This often times is not much of a challenge for public companies as their information is readily available and easily comparable. As for private companies, the limited financial and other information may deter or increase the burden on investors when considering either an equity investment or loan. Finally, when discussing the matter of taxes. Private firms may place higher importance on reducing reported taxable income and corporate tax payments as this benefits the owners. (Damodaran 2002; Pinto et al. 2015)

Typically, company specific factors vary from either being an advantage or disadvantage to private firms. For example, private firms may find it easier to make decisions for the long-term while not having such immense pressure on the short-term effecs that public companies face. Then again, the corporate structure and growth prospects can be seen as a disadvantage for private firms. The overlaps of shareholders and management in private firms also produce issues along with potential

intermingling of business and private expenses (Petersen et al. 2006; Damodaran 2002; Pinto et al. 2015).

1.1.2. Stock specific factors

As with company specific factors, stock specific factors differ substantially between public and private firms. The following list discusses the factors differing between the two (Pinto et al. 2015, 516-518):

- Liquidity
- Concentration of control
- Agreements

When discussing the topic of liquidity, the stock in public companies is typically far more liquid than that of private companies, they have more shareholders, and their shares are registered on public markets. In addition to liquidity, one of the main differences revolve around the dispersion of control between the two. Private firms have far less diverse dispersions when it comes to control, oftern times this control is concentrated to only one or a few investors. Thus, decision making may be done to solely benefit some shareholders and contrarily detriment others. When discussing the matter of agreements affecting liquidity, private firms may also face difficulties as some private firms have shareholder agreements that effect the liquidity of shares. This is done by simply restricting the ability of shareholders to sell shares at any given time. (Pinto et al. 2015) When looking at the stock specific factors, it is easy to note that effects are more or less always negatitve for private firms. Their lack of liquidity, the concentration on control and possible agreements restricting sale of shares hinder their value to investors.

1.2. Valuation methods overview

When valuing a business there are multiple different methods that analysts, investors, accountants, buyers and sellers can use. This is important to understand as different methods apply better for different businesses as every firm is unique. Intrinsic valuation uses an approach of valuing a business through calculating future cash flows that the company expects to generate. In relative valuation, the value of the business is achieved based on how similar businesses are priced as. And finally, the asset approach uses the balance sheets of a business to find the assets and liabilities to calculate the value.

According to Smucker (2020, 58-59) there are generally six ways to value a business. However, most professionls would narrow this down to the aforementioned three separate methods (Schanel 2020; Hitchner 2017, 8-9):

- The asset approach in its primitive form is essentially equivalent to the book value of the company. In essence the asset approach calculates the value of the company by subracting all liabilities from the value of all assets.

- The income approach uses a method to determine the value of a company based on its ability to generate future income hence the name income approach.

- The market approach focuses on comparable businesses to determine a value for a company based on the selling price or multiples of comparable companies. It is important to note that it is not mandatory to use data solely from publicly traded companies, information from the sale of privately owned companies can also be used. (Sharma, Prashar 2013; Hitchner 2017)

The importance of choosing the correct method or methods to use when valuing a business are crucial. Especially when working with private company valuations, as some methods of valuation do not directly work and require additional steps and assumptions to be made. This can be seen in the upcoming subchapters discussing individual methods. If every method is not applicable for private firm valuations, that leads to the question, what methods can be used and applied for private company valuations?

1.3. Discounted cash flow

"The most widely used models among a variety of all business valuation methods are the discounted cash flow models (DCF) namely the method of free cash flow to firm (FCFF) and free cash flow to equity (FCFE)." (Bilych 2013). The DCF model also includes a method called the dividend discount model or DDM, however this will not be used due to its inapplicability for companies not paying dividends. Thus, this thesis will focus on valuing the company using the FCF method. The FCF term received increased attention in the 1990s (Al Zararee, Al Azzawi 2014,

13-14). Although widely popular, this method along with all others is imperfect and does have limitations. As an example, the DCF method relies heavily on the asumptions made, thus if the assumptions are not realistic the accuracy of the valuation suffers. (Larrabee, Voss 2012) The formula for DCF is visible below.

$$DCF = \frac{CF1}{(1+WACC)} + \frac{CF2}{(1+WACC)^2} + \cdots + \frac{CFn}{(1+WACC)^n} \qquad (1)$$

where
CF = Cash Flow
$WACC$ = Weighted Average Cost of Capital
n = forecasted period (years)

1.3.1. Free cash flow

The discounted cash flow model appraises what is known as the intrinsic value of a company. The model accomplishes this by adding all future cash flows and discounts them to present value hence the name: discounted cash flow. To be able to calculate DCF one must calculate the Free cash flow of the company, which includes two separate methods: Free Cash Flow to Equity (FCFE) also known as Levered Free Cash Flow (LFCF) and Free Cash Flow to Firm (FCFF) also known as Unlevered Free Cash Flow (UFCF). Once the FCFF is properly computed it is possible to discount the cash flows to present value (PV). (Pignataro 2013, 291-292) Thus, reaching a present value for a company.

According to Pinto et al. (2015, 296-298) FCFF is the cash flow that is available to the suppliers of capital after all operating expenses have been paid while FCFE is the cash flow available to the holders of common equity after all operating expenses as well as debt have been paid. When calculating FCFF there are several different ways to compute this, one of which uses Earnings Before Interest and Taxes (EBIT). Using EBIT to calculate FCFF the following formula is applied:

$$FCFF = NOPAT + Non - cash\ charges - CAPEX - \Delta NWC \qquad (2)$$
where
$NOPAT -$ non operating profit after tax,
$CAPEX -$ capital expenditure,
$\Delta NWC -$ change in net working capital.

In this formula Net Operating Profit After Tax or NOPAT is calculated by multiplying (1-tax rate) with EBIT and represents the firms operating profit generated from operating assets (Karpáč et al. 2021, 570). Non-cash charges are expenses that do not involve cash payments: depreciation and

amortization. Capital expenditures or CAPEX can be seen as the company's long-term investments or expenses into buying, upgrading, and maintaining physical assets. In contrast OPEX or operating expenses can be seen as the expenses associated from generating revenues. (Pignataro 2013) Change in net working capital is the difference between working capital in subsequent accounting periods.

Other methods to calculate FCFF are to either use Net Income or Cash Flow from Operations as a starting point instead of EBIT (Damodaran 2002; Hayes 2022a). The principle however is the same. After calculating Free Cash Flow to Firm, it is possible to calculate Free Cash Flow to Equity. To get FCFE from FCFF the following formula can be used (Pinto et al. 2015).

$$FCFE = FCFF - Int(1 - Tax\ rate) + Net\ borrowing \tag{3}$$

Calculating FCF on its own does not give an accurate representation of the firm's value. This is because a crucial step stands in between FCF and the value of the firm: discounting. After calculating FCF, it is vital to discount future cash flow to present value (PV) resulting in the intrinsic value of a company. Achieving this requires the use of the weighted average cost of capital (WACC). Because the aim is to value the company "now" as opposed to in the future, WACC is used as it takes the rate of return into consideration discounting it back to present value. (Pignataro 2013)

1.3.2. Present value of free cash flow

There are two methods of calculating Present value of Free Cash Flow: FCFF valuation and FCFE valuation. The FCFF approach is used when valuing the entire business whereas the FCFE approach is used for valuing the equity of the business attributable to the shareholders.

Present value of FCFF formula:
$$Firm\ value = \sum_{t=1}^{\infty} \frac{FCFF_t}{(1+WACC)^t} \tag{4}$$

Present value of FCFE formula:
$$Equity\ value = \sum_{t=1}^{\infty} \frac{FCFE_t}{(1+r)^t} \tag{5}$$

When using the FCFF approach according to Pinto et al. (2015, 298), the value of the firm is equal to the present value of future FCFF discounted at the WACC. Whereas in the FCFE approach the equity value is calculated by discounting FCFE by the required rate of return on equity; r.

1.3.3. Terminal value and growth rate

Terminal value (TV) is the value of a business beyond the forecasted period when the future cash flows can be estimated (Emott, 2017). In the DCF model the terminal value assumes that businesses will grow at a constant growth rate in perpetuity.

$$Terminal\ Value = \frac{[FCF_n \cdot (1+g)]}{(WACC-g)} \tag{6}$$

where
FCF_n —   free cash flow from the last forecasted period,
g —   terminal growth rate (long-term growth rate),
$WACC$ —   weighted average cost of capital.

The terminal growth rate much like the terminal value is the growth rate at which the company is expected to grow assuming perpetuity. In the DCF model terminal growth rate is only applicable when the company under valuation is mature. If this is not the case, for example, if an early stage business is under valuation or contrarily when a company is reaching "maturity", different growth rates are more suitable. Estimating the terminal growth rate is achieved by looking at historical inflation rates and the average GDP growth rate. The terminal value typically sits in between these two metrics as it is not possible for the terminal growth rate to be greater than the GDP. This would result in the firm becoming the economy at some point in the future. (Damodaran 2019)

1.3.4. Weighted average cost of capital

According to Laws (2018, 111) most companies will have a mixed capital structure in which they finance operations with both debt and equity, thus the need for a weighted average cost is necessary for valuation. As every company is unique so are their capital structures. Therefore, there is no universal discount rate analysts can use to discount future FCF to PV and why WACC needs to be calculated for every company. WACC clarifies the capital structure and tells analysts the different mixture of debt and equity financing a company uses to finance operations. By doing so WACC determines the required rate of return that both shareholders and creditors can expect to receive. (Evans, Mellen 2018)

WACC formula:

$$WACC = \frac{D}{D+E} R_d (1 - Tc) + \frac{E}{D+E} R_e \tag{7}$$

where
D — debt,
E — equity,
R_d — cost of debt,
R_e — cost of equity,
Tc — tax rate.

To calculate WACC the cost of debt and cost of equity must be calculated. Cost of debt can simply be defined as the interest expense that a company is paying on its debt outstanding. Whereas cost of equity is essentially the return that a company requires. These are then multiplied by the weight of both debt and equity (weight of debt multiplied by the cost of debt and weight of equity multiplied by the cost of equity). (Pinto et al. 2015)

The cost of debt can be calculated in several different ways. Depending on what the company is, different methods can be used. For example, if the target company were to have bonds outstanding, one of two ways can be used for estimating the cost of debt: 1) the market price of the bond, the coupon and maturity can be used to compute the yield, which will be used as the cost of debt; 2) if the firm does not have bonds that are traded regularly, the rating associated with their bonds can be used to compute the cost of debt. In case of a private firm valuation, as there are no tradable bonds, analysts can create a synthetic rating in order to receive a default spread. (Damodaran 2002) This requires calculating the interest coverage ratio (ICR) of the firm using the following formula:

$$ICR = \frac{OP}{INT} \tag{8}$$

where
ICR — interest coverage ratio,
OP — operating profit,
INT — interest expense.

This leads analysts to a synthetic rating by way of taking the calculated ICR and applying it to default spread charts.[1] Taking the corresponding default spread and adding the risk-free rate (typically the 10 year government bond yield) will result in an estimated cost of debt (Damodaran 2002). As financing with debt is tax deductible there are numerous advantages for firms to use

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[1] These charts are created using averages from rated companies and then sorted based on their bond ratings (Damodaran 2002).

debt. For valuations it is important to take the tax shield into account when calculating the WACC, thus for the cost of debt the after tax cost of debt must be calculated. (Myers 2001)

Difficulties arise when computing the cost of equity as this requires using beta (a measure of volatility or systematic risk), which private companies do not have due to their absence on public markets. Thus, an assumption in this case must be made for the beta. There are three different options for this: Accounting, Fundamental and Bottom-up betas. According to Damodaran the bottom-up method for determining the beta is a great way to calculate the beta for a privately held company due to its low standard of error as it uses an average unlevered beta from similar public companies in the industry. (Damodaran 2002)

The next sub-chapter will discuss the market approach and although it is a completely different method of valuation some principles of the comparable company analysis (CCA) can be applied to the estimate the cost of equity for private firms. Betas for publicly traded companies can be calculated by a regression analysis of the companies returns, however as private companies are not on public markets this analysis is not possible. Thus, for private firms the CCA can be applied to form an average beta of publicly traded firms as a proxy. (Bowman, Bush 2006)

The levered beta formula:

$$\beta_{private\ firm} = \beta_{unlevered}\left(1 + (1 - tax\ rate)\left(Industry\ Average\ \frac{Debt}{Equity}\right)\right) \tag{9}$$

Once a beta for the private firm is estimated the focus turns to calculating the cost of equity. One of the more popular methods used in finance and company valuations the Capital asset pricing model (CAPM) achieves this by using the risk-free rate of return, the market rate of return and the beta. (Larrabee, Voss 2012)

$$E(R_i) = (R_f + \beta_i \cdot [E(R_m) - R_f] \tag{10}$$

where
$E(R_i)$ – expected return on asset or in this case the cost of equity,
R_f – risk-free rate,
β_i – beta,
$E(R_m)$ – expected market return.

It is vital to understand that there is no such thing as risk-free when it comes to finance and company valuation however, the closest thing to what is known as risk-free are considered to be treasury bonds as they are backed by governments. For example, when calculating the risk-free rate for a US company, analysts would take US Treasury bonds (T-bonds). In comparison where the target company is from Finland, Finnish 10-year treasury bonds could be used to compute the risk-free rate. It is also important to note that the risk-free rate takes inflation into account. (Pratt, Grabowski 2014, 70-72) The formula to compute the risk-free rate is as follows:

$$Risk\ free\ rate\ of\ return = \left(\frac{1+Government\ bond\ rate}{1+Inflation\ rate}\right) + 1 \tag{11}$$

The market risk premium is essentially the additional return that the market demands due to the increase in risk involved. Market risk premium is computed by taking the difference between the expected return and the risk-free rate As the name suggests, expected return is used to determine the outcome of an investment and according to Black (1995) there are two ways of achieving this: 1) using theory and 2) using data, both of which present their own set of faults. Using theory presents issues in what porfolios to use and to which factors they are assigned to, whereas using data presents issues regarding the fact that to compute the expected return accurately the amount of data needed is immense. (Black 1995) Regardless of which method is used, the underlying aim is to predict the profitability of an investment. This is achieved by multiplying the probablities of the outcomes by the returns and adding these scenarios to form an expected return. (Chen 2021)

$$Market\ risk\ premium = Expected\ return - Risk\ free\ rate \tag{12}$$

Finally, when calculating WACC, it is important to note and acknowledge the tax shield. As interest expenses that are caused by debt financing are typically tax deductible the cost of debt must be adjusted. This results in a lower cost of debt and an increase in the company value. (Pignataro 2013; Pinto et al. 2015; Laws 2018)

1.4. Comparable company analysis

This sub-chapter will elaborate on the comparable company analysis market approach, what components go into it and finally how it can be calculated. "The market approach aims to derive the value of a company based on how similar firms are priced on the stock exchange or through

company transactions." (Bernstrom 2014). Thus, there are two different ways in which the market approach can be used to calculate firm value. The first being the public company comparables method or comparable company analysis (CCA) and the latter being the precedent transactions approach. This thesis will focus on comparable company analysis as this method provides a great benchmark for valuations using multiple methods to compare how the market would determine the value in comparison to, for example, an intrinsic valuation.

The market approach, whether using the CCA or precedent transaction methods, is widely popular among analysts. However, often times the market approach is used solely as an additional method with the income approach to support the valuation. The market approach is a great tool to verify the results of the income approach using the market for example in instances where M&A's and IPO's are planned. (Dodel 2014)

1.4.1. Peer group

When using the comparable company analysis method in the market approach the first step is to determine the peer group. This typically consists of 5-10 publicly traded companies. When analysing potential peer group candidates, the more similarities they have to the target company the more accurate the valuation will be. Some of the key information to observe and analyse from peer group candidates are the geographical location, size, product or service, revenue and number of employees. (Sharma, Prashar 2013; Bernstrom 2014) This of course requires that the target company is familiar to anyone attempting to form an accurate valuation. It is important to realise that much like any valuation model this too has its own imperfections. In the CCA it may be difficult to find either similar enough or enough similar companies to the target company. (Pignataro 2013, 327-329) As an example, depending on which industry the target company is or which country the target company is geographically located in, difficulties may arise with finding comparable companies within the country in question. According to Bernstrom (2014), it is however, not necessary to form a peer group solely of comparable companies from within that country Bernstrom (2014). As the Finnish market is not from the larger side in comparison to some markets it may be necessary in some instances to expand the search to other Nordic countries depending on the industry or firm to find similarities. This is not a deal breaker in this instance as the countries share many similarities not just in an economical sense.

The data used for this method consist of the financial statements of the publicly traded firms in the peer group. When collecting data is important to note that analysts can use several different sets of data (Rahkonen 2022):

- Historic
    o Last accounting period
    o Last 12 months (LTM)
- Present
    o Run-rate revenue[2]
    o EBIT
- Future
    o Current accounting period
    o Next accounting period

This will result in multiple different values of the firm, which then can either be examined to eliminate outliers or bracketed to form a realistic final value for the target firm.

1.4.2. Multiples

The CCA approach uses multiples computed and obtained from the peer group, which are then applied to the target firm for valuation. What data is needed to compute mutliples depends entirely on what multiples have been chosen and deemed relevant. The analyst must determine this on a case by case basis. Typically these multiples can be catergorized into two different categories: Enterprise value mutliples and equity value multiples. (Bernstrom 2014) The following table shows the different options for calculating multiples when using either enterprise or equity value multiples.

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[2] Run-rate revenue is achieved by looking at the revenue of a current period of a company (typically a week, month or quarter and converting it to annual figures to represent the potential revenue of a year. (Corporate Finance Institute 2022)

Table 1. Enterprise and equity value multiples

Enterprise Value Multiples	Equity value Multiples
EV/Revenue	P/EBT
EV/EBITDA	P/E
EV/EBITA	P/FCFE
EV/EBIT	P/E
EV/FCFF	P/ABV

Source: Bernstrom (2014), prepared by the author

When using the market approach it is also important to realise that some industries will have industry specific multiples. As an example, the author has brought up a potential multiple that the oil and gas industry uses (Feygin, Satkin 2004):

Oil & Gas – Total reserves / Annual production

Valuing a firm using the market approach will be achieved by applying the relevant and selected multiples calculated from the peer group to the firm's corresponding financial data giving an estimation of their value (Finnerty, Emery 2004 & Schmidlin 2014). For this reason, it is vital that the peer group has thoroughly been analysed as this will naturally result in a more accurate value for the firm. As mentioned above the time period for which these multiples are taken from depend on the study. For example, financial data could be taken from both previous years as well as forecasted years.

2. VALUATION OF MEHILÄINEN

Now that the author has discussed theories on the methods of valuation, an overview of the industry and the company are necessary. Subsequently, this chapter will discuss the impacts and changes Covid-19 had on the healthcare industry and company to be specific. Following this, the author will apply the aforementioned methods; the DCF and CCA to value Mehiläinen. Throughout the valuation process the author will also explain and reason the assumptions made and their impact on the final value. For the valuation the author has used the latest data obtained from Patentti- ja rekisterihallitus, Virre (2022) to gather the financial statements from Mehiläinen Oy between the years of 2017-2020 along with using Yahoo Finance and Marketscreener for public companies.

2.1. Background information

This subchapter is dedicated to discussing the current state of the industry in which Mehiläinen operates in along with the state of the company. This is necessary in valuations as a better overview will result in more accurate assumptions which lead to more accurate results. The author will also explain the impacts of Covid-19 on the entire sector as well as to the company.

2.1.1. Industry background

Mehiläinen Oy is a part of the healthcare sector and during recent years the sector has seen a steady compound growth rate (CAGR) between the years of 2016-2020 of 2.1% in Finland. The total revenue of the sector in Finland was 22,2 billion EUR in 2020. Forecasts, however, predict this growth to decelerate to an average CAGR of 1.7% between the years of 2020-2025. The following figure (Figure 1) shows the revenue growth of the sector where the Y axis presents total value in billions of EUR while the X axis shows the corresponding year. (MarketLine Industry Profiles 2021)
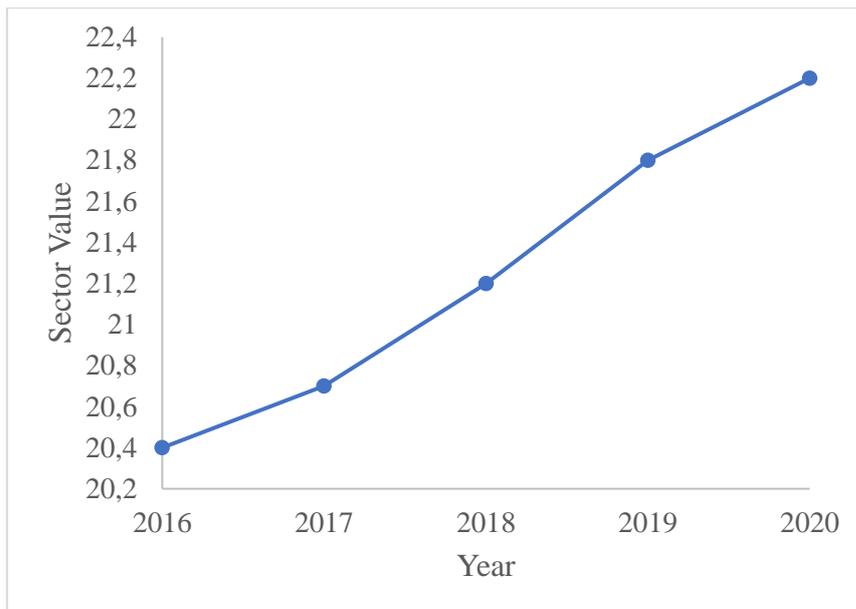
Figure 1. Healthcare sector value in Finland between the years 2016-2020
Source: MarketLine Industry Profiles (2021), prepared by the author

The healthcare sector includes industries such as pharmaceuticals, biotechnology, managed healthcare, and the list continues. Mehiläinen operates in the social and healthcare service industry and is one of the largest private sector healthcare providers in Finland. When looking at the global private hospital market, according to a research report by Facts and Factors (2022), the market size was valued at roughly 820 billion USD in 2021 and growth is not expected to decelerate in the near future.

The industry and healthcare sector have seen massive shifts in operations and opportunities in recent years partly due to Covid-19 along with the overall trends in digitalization and improvements in technology. In the past "the healthcare industry has always found difficulties to achieve the digitalisation transition." (Piña et al. 2021), this has largely been due to ethical issues such as data collection, privacy, data ownership and how to regularize the technologies used (Cummins, Schuller 2020). That being said, Finland is one of the global leaders in technology having the 2nd most advanced digital economy among European countries (trailing only behind Denmark), which also extends to the healthcare industry according to DESI Finland (2021). This has brought larger foreign investments into the country and according to a report on International Venture Capital Investors in Finland (2021), the Healthcare and Medtech industry was ranked 3rd in investment rounds with at least 1 foreign venture capital (VC) and 2nd with at least one Finnish VC.

To understand how this industry works and why this topic is relevant, one must understand how the healthcare system in Finland functions and what the current landscape of the sector looks like. For example, when looking at expenditures to healthcare in Finland and comparing these figures to other countries we can see that similar trends are visible. Appendix 1 shows the health expenditure as a percentage of GDP in Finland and in 2019 which amounted to a total of 9,2% (The World Bank 2022), however it is more important to understand the entire curve looking at historical data. Although health expenditure as a percentage to GDP has been a steady decline in recent years, the overall growth is most likely caused by the ageing population. The later growth seen between 2018-2019 may be caused by the impact of Covid-19 and additional investments made to meet the necessary precautions. It is also worthy to address that the average percentage of health expenditure to GDP in Europe for 2019 was 9,9%. The difference here can be explained in part to the level of efficiency achieved in the Finnish healthcare system and during this time specifically due to countries with higher infection rates needing more resources to hinder the spread of Covid-19.

With one of the best universal healthcare systems worldwide, why is there a market for private healthcare in Finland? In Finland municipalities are responsible for these services. Thus, they have several options to supply these. Firstly, they can provide services themselves or collaborate with nearby municipalities to meet the demand. Contrarily they can buy such services from private companies. Private healthcare in Finland can be thought of as something that compliments public healthcare providing over a quarter of services in the country. As mentioned above, private companies can sell their services to municipalities but also directly to clients. (International Trade Administration 2021)

2.1.2. Company background

Mehiläinen Oy is a Finnish private firm, part of Mehiläinen Group which has its roots dating back over 100 years. Mehiläinen operates in the Healthcare sector, mainly providing private and public healthcare, as well as social care. Aside from Finland, the Mehiläinen group operates in Sweden, Estonia and Germany as well. Through the groups subsidiary "BeeHealthy" which offers digital healthcare services, the group has expanded its operations in Europe, as well as the Middle-East and Africa becoming the leading operator in the EMEA-region (Mehiläinen Annual report 2021).

According to Mehiläinen's Annual report (2021), they are heavily in favor of digitalization not only for economic purposes but for environmental reasons as well. During the pandemic Mehiläinen was quick to realise the potential economic benefits of telehealth both nationally in Finland and internationally. In a press release the CEO of Mehiläinen Janne-Olli Järvenpää stated that opportunities in digitalization internationally are evident as the expertise in Finland is greater (Mehiläinen 2022). This was in reference to their acquisitions in 2020 and 2021 in Sweden and Germany. The environmental benefits according to their annual reports stem from reducing travel to and from facilities as well as having energy-efficient and environmentally friendly computer rooms, which reduce their environmental impact.

What sets Mehiläinen apart and why the author chose this company specifically was their heavy investments in M&A in recent years and their forward thinking vision. Their annual reports categorize their international expansions as expansions in two business areas. This referring to expansions digitally through both their aforementioned subsidiary Beehealthy and Mehiläinen's digital services, as well as organically through tradional healthcare services. These acquisitions as well as the building of new premises can be seen in the companies financial statements as they tripled their investments in 2021.

In the Finnish market Mehiläinen is seen as part of the "big 3" referring to the three largest private healthcare providers in the country alongside its competitors Pihlajalinna Oyj and Terveystalo Oyj both of which happen to be publicly traded companies. Out of these three companies, Mehiläinen group has the most employees and locations. Their revenue can be divided into three main categories: Healthcare services in Finland, Social care services and Healthcare services internationally. The revenue distribution for 2021 between these three can be seen on figure 3.
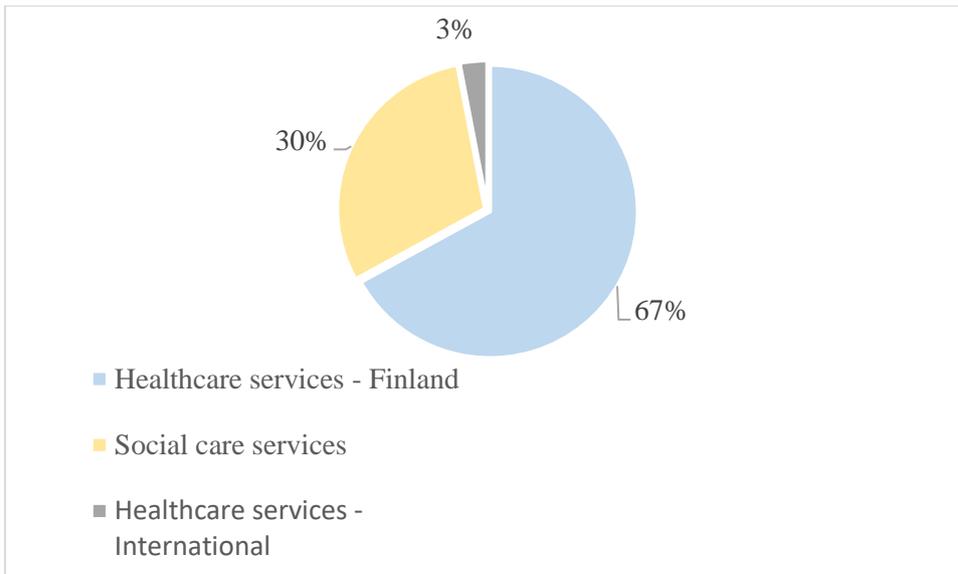
Figure 3. Revenue distribution of Mehiläinen 2021
Source: Mehiläinen 2022, prepared by the author

Mehiläinen is a very forward looking company with visions of expanding globally both digitally and physically. Hints of what the future may hold for Mehiläinen are already visible with their international expansions and acquisitions along with their subsidiary Beehealthy paving the future of telehealth on a global stage.

2.1.2. Covid-19

It would be naive to disregard the effects of Covid-19, increasing the already existing strain on the sector and increasing the investments into necessary healthcare services in Finland due to an ageing population. Although restrictions have been slowly winding down and life as we knew it, is beginning to return, the pandemic is not yet over and the damage inflicted on industries is still evident, according to a statement by the World Health Organization (WHO) in February of 2022, over 90% of countries are still facing disruptions in the continuity of essential health services. This has only increased both the need of private healthcare services and their collaboration with public services, which fits in with the mission of Mehiläinen, as according to one of their key points regarding their mission is to organize high quality and cost-effiecient public services in collaboration with public-sector-decision-makers. (Mehiläinen 2022)

"As with the rest of the economy, the health sector saw a sharp drop in revenues and employment at the onset of COVID-19 in the spring of 2020." (Wager et al. 2021). This was the result of healthcare providers cancelling elective care and patients opting to avoid facilities. Although a

sharp drop economically was to be expected from any industry, according to a document by OliverWyman (2020), "healthcare has proven economically resilient relative to other sectors". Taking Mehiläinen as an example, they have been able to grow their revenue annually during the pandemic even with an early shock from the population and reluctant patients feeling discomfort to enter facilities.

It is evident that a lot of shifts have happened in the industry to maintain stability and clientel throughout the pandemic. The healthcare sector has seen a massive shift in digitalization. This newfound digitalization (referred to as Telehealth in the industry) during lockdowns, although behind comparing to other sectors, has seen a drastic increase in demand (Piña et al. 2021). According to the Merriam-Webster dictionary of English, Telehealth is described as "health care provided remotely to a patient in a separate location using two-way voice and visual communication (as by computer or cell phone)". In other words it is the healthcare industries equivalent to Microsoft Teams or Zoom for lectures or meetings. This way self-isolating doctors have had the opportunity to continue taking care of patients and patients have been able to get professional help without leaving the house.

2.2. Valuation using the discounted cash flow method

The FCFF Discounted Cash Flow method will be used to obtain a value for Mehiläinen Oy. This section will be divided into 3 sub-sections: Calculating WACC, calculating and estimating future cash flows to the company and then calculating the value of the firm.

2.2.1. Weighted average cost of capital

In order to calculate the value of future cash flows to PV, WACC must be calculated. WACC discounts future cash flows of a company to their present value, thus enabling a present time valuation based on FCF. This section is dedicated to obtaining the discount rate which will be used in the final section of the DCF valuation method. The author will start by calculating the cost of debt using a synthetic rating. This means that the companies interest coverage ratio must be computed (Damodaran 2002). Once this is achieved data from various sources can be used to obtain a default spread for the company based on their interested coverage ratio.

$$ICR = \frac{OP}{INT} \tag{12}$$

where
ICR – interest coverage ratio,
OP – operating profit,
INT – interest expense.

The interest coverage ratio for Mehiläinen Oy for 2020 was 2,6 and comparing to competitors such as Terveystalo, Mehiläinen is still considered a small cap firm thus their credit rating according to Damodaran (2022) will fall under the category of B+ giving them a default spread of 4,05%. Next the author will use the yield of Finnish 10 year government bonds[3] to determine a risk-free rate. Using the latest data (as of April 2022) rather than taking a geometric mean of past data will not represent an accurate value as in this case the author is computing a current value for the firm. This leads the author to taking the latest bond yield to determine the risk-free rate. Thus, the risk-free rate is assumed to be 0,72%. The risk-free rate will be used alongside the default spread to compute the cost of debt which can be seen on table 2. The cost of debt on its own is not enough as it does not take taxes into account, thus for WACC calculations the after tax cost of debt must be calculated. These calculations can be seen on tables 2 & 3.

Table 2. Cost of debt

Default Spread	4,05 %
Risk-free rate	0,72 %
Cost of Debt	**4,77 %**

Source: Author's calculations based on data obtained from Damodaran Online database (2022); Thomson reuters datastream (2022)

The cost of debt on its own is not enough as it does not take taxes into account, thus for WACC calculations the after tax cost of debt must be calculated. The calculation for the after tax cost of debt can be seen on tables 3.

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[3] The author has assumed that Finland will not default.

Table 3. After tax cost of debt

Cost of Debt	4,77 %
Effective Tax rate	31,07 %
After Tax Cost of Debt	**3,29 %**

Source: Author's calculations based on data obtained from Mehiläinen's Financial Statements (2017-2020)

For the after tax cost of debt the author has take the average tax rate from the previous 4 years to obtain an after tax cost of debt for Mehiläinen of 3,29%. Next, in order to calculate WACC the value for the cost of equity must be obtained. As mentioned in the literature review, this valuation will use the bottom-up beta method to determine cost of equity. The following formula will be used to determine the beta for Mehiläinen:

$$\beta_{private\ firm} = \beta_{unlevered}\left(1 + (1 - tax\ rate)\left(Industry\ Average\ \frac{Debt}{Equity}\right)\right) \tag{13}$$

As this method requires the use of an industry average debt to equity ratio, the author has assumed that the peer group average D/E ratio will resemble Mehiläinen's more accurately due to their similarities. The author has computed a weighted average D/E ratio and weighted beta from the peer group which is visible in the following table.

Table 4. Peer group weighted beta and D/E ratio

Company	Beta	D/E ratio	Taxes	Weighted Beta	D/E ratio weighted
Medicover AB	1,17	1,36	26,70 %	0,63	73 %
Attendo AB	0,68	2,80	20,90 %	0,06	23 %
Ambea AB	1,3	2,19	21 %	0,10	17 %
Humana Ab	1,04	1,93	21,10 %	0,05	9 %
Terveystalo Oyj	0,9	0,92	19,10 %	0,23	23 %
Mean	**1,02**	**1,84**	**21,76 %**	**1,06**	**1,46**

Source: Author's calculations based on data obtained from Yahoo Finance

This data is necessary in order to calculate the average unlevered beta of the peer group which will then be followed by the computations for the levered and unlevered betas for Mehiläinen. Unlevered beta formula Pignataro (2013, 308):

$$Unlevered\ beta = Levered\ beta/(1 + (1 - tax\ rate)\left(\frac{Debt}{Equity}\right) \tag{14}$$

This will give us an industry average unlevered beta of 0,50. In order to get the levered beta for Mehiläinen the author will compute this in the following manner:

$$\beta_{private\ firm} = Average\ unlevered\ beta(1 + (1 - tax\ rate)\left(weighted\frac{D}{E}ratio\right)) \tag{15}$$

This will give us a levered beta of approximately 1 for Mehiläinen. To reach the unlevered beta for Mehiläinen the author will use the same formula they used to get the industry average unlevered beta which will result in an unlevered beta for Mehiläinen of 0,20. According to Professor Aswath Damodaran (2002), there are several ways to proceed from here. Analysts can either calculate the total unlevered beta and levered beta to adjust for market risk and non-diversification of the buyer/buyers, or leave it as is. In this thesis, however the author will leave the beta for Mehiläinen as is, due to lack of information and knowledge of hypothetical buyers.

To calculate the cost of equity the author will use the CAPM model.

$$CAPM = R_f + \beta\left(ER_m - R_f\right) + CRP \tag{16}$$
where
$R_f -$ risk-free rate,
$\beta -$ beta,
$\left(ER_m - R_f\right) -$ market risk premium,
$CRP -$ country risk premium.

In this model the author will use the unlevered beta calculated from Mehiläinen, the risk-free rate used for the cost of debt as well as an estimated market and country risk premium which results in a cost of equity of 5,01%. (Damodaran 2022)

The final inputs needed to calculate WACC are the debt, equity and tax rate of the firm. These have already been used in calculations for the cost of equity and debt, however for clarification will be shown in table 5. The author wants to note that the debt and equity used were taken from the last year of financial statements from Mehiläinen (2020) while the tax rate was computed by taking the average tax rate between the years of 2017-2020.

Table 5. Debt, equity and tax rate for Mehiläinen 2020

(MEUR)	Debt	Equity	Tax rate
	543	91	31,47 %

Source: Author's calculations based on data obtained from using Mehiläinen financial statements 2017-2020

Using this data the author is able to compute the WACC for Mehiläinen Oy, which will amount to 3,54%.

2.2.2. Free cash flow to firm

This section is dedicated to calculating the free cash flows to the firm. FCFF was computed for the years 2021-2026 and is visible in table 8. However, prior to computing this, the author will explain and discuss the assumptions made in regards to the financials of Mehiläinen for the same years to better explain and help understand how the FCFF was reached. For the assumptions the author has studied the financial statements and annual reports of the firm to predict possible and plausable future estimations. According to the annual report of the entire concern for 2021, organic growth accounted for roughly two-thirds of revenue growth while acquisitions accounted for the rest. In addition to this, Mehiläinen's focus is on organic growth both nationally and internationally rather than relying on acquisitions to boost this rate in the short term. (Mehiläinen 2021)

Using historical data to assume forecasted net sales growth and cost of goods rates for Mehiläinen, although an option, would most likely not result in the most accurate of growth rates as the larger a firm or organization becomes the harder it will be to maintain that growth rate. When forecasting the net sales growth rate and cost of goods percentage change year by year, the author has looked at GDP forecasts in Finland made by the Bank of Finland (BOF). In June of 2021, BOF released forecasts that expected GDP to rise in Finland for 2021 and 2022 by roughly 3% when having 2015 as a reference year. Growth was expected to slow down in 2023 to grow by 1,3%. (Bank of Finland 2021) In a press release in March of 2022 the BOF forecasted GDP growth to slow down to anywhere from 0,5% to 2% between the period. Furthermore, BOF predicted inflation rates to increase along with this. (Bank of Finland 2022)

In addition to this, the author assessed previous years' net sales growth and cost of goods percentage change. These figures have decreased from 2018 onwards thus when making an assumption for these factors, it is deemed reasonable by the author that both figures will decrease slightly in the future in comparison to the average figures using historical data. As the health sector is not extremely volatile to market fluctuations, these factors will likely not decrease drastically. For the net sales growth rate the average for the period of 2017-2020 was roughly 13% and for the cost of goods sold 14%. This on its own presents the dilemma that the sales growth is smaller than the cost of goods sold forecasted rate. Thus, the author has made the assumption that net sales growth rate will slightly decrease from the 2020 rate of 10% to reach a stable 9% taking into account organic growth, new acquisitions and the increase in collaboration between private and public healthcare providers. Cost of goods sold will also most likely continue on the same path it has been on and as the firm's goals are to become more efficient with the help of technological advancements the forecasted estimate of 8% has been deemed reasonable by the author. (Mehiläinen 2021)

When making assumptions for the service expenses, staff costs and appropriations, as they have been fairly stable and are expected to change in accordance with how much the firm's revenue changes, the author has taken the percentage of revenue that each figure individually represents from the last year of financial data and applied this to the forecasted years. The table below demonstrates these figures. Although such a percentage in staff costs can seen unrealistic, the author has taken into account staff costs not only related to practioners and nurses, but also staff costs incurred through the digitalisation of services which will require a more diverse employee base. Along with this, as the firm continues to expand internationally, they will evidently need to hire and retain more practioners.

Table 6. Income statement assumptions; Service expense, Staff costs & Appropriations 2020-2026

(MEUR)	2020	Percentage of Revenue
Revenue	**605**	
Service expenses	102	17 %
Staff costs	163	27 %
Appropriations	16	3 %

Source: Author's calculations based on data obtained from Mehiläinen's Financial Statements (2017-2020)

When making assumptions for depreciation, amortization and impairment the author has studied historic years and although Mehiläinen's annual reports place great importance on organic growth and the FCCA (The Finnish Competition and Conusmer Authority) has intervened with Mehiläinen's M&A's (KKV, 2020), it is unlikely that the recent trend of acquisitions will end at Mehiläinen. This can be seen as the expansions of the firm are not solely within the Finnish borders, and as the firm is expanding in Northern Europe the author assumes that acquisitions will not halt. Although the property, plant & equipment (PP&E) for Mehiläinen decreased during the years 2019 and 2020, the author has assumed that this will steadily increase during the forecasted period. In this valuation depreciation, amortization and impairment will be take as a percentage of last years net PP&E, it is also forecasted to slightly increase at a rate of 9%. This will allow the author to make forecasts for CAPEX as it uses data from PP&E as well as Depr. Amor. & Imp. This can be seen in the following table.

Table 7. CAPEX calculation 2017-2026

(TEUR)	2017	2018	2019	2020	2021e	2022e	2023e	2024e	2025e	2026e
Depreciation (beg)	15	18	49	55	30	32	35	39	42	46
PPE (end prev. year)	…	54	60	34	32	34	38	41	45	49
PPE (end current year)	54	60	34	32	34	38	41	45	49	53
CAPEX		24	23	53	33	35	39	42	46	50

Source: Author's calculations based on data obtained from Mehiläinen's Financial Statements (2017-2020)

After the assumptions have been made for the forecasted years it is now possible to compute the FCFF for Mehiläinen. This can be seen in the following table.

Table 8. FCFF calculation 2021-2026

(MEUR)	2021e	2022e	2023e	2024e	2025e	2026e
NOPAT	77	77	76	73	69	62
Depr. & Amor.	30	32	35	39	42	46
CAPEX	33	36	39	42	46	50
Δ NWC	3	3	4	4	4	4
FCFF	71	71	69	66	61	53

Source: Author's calculations based on data obtained from Mehiläinen's Financial Statements (2017-2020)

In order to calculate the terminal value of the company, it is necessary to discount the future cash flows to present value. This is achieved by using the WACC calculated in the previous section. The terminal value will be calculated by using a terminal growth rate. According to Professor Damodaran, analysts alter the growth rate to reach a final valuation which is suitable for their narrative (Damodaran 2019). However, this does accompanied with certain rules. As mentioned in the first chapter the terminal growth rate can not exceed the GDP growth, thus it typically sits between the GDP percentage change and the inflation rate. The author has analysed historical GDP statistics and inflation rates in Finland along with expected GDP rates and inflation rates between the years of 2021 and 2026. Historic inflation rates between 2000-2020 in Finland resulted in an average of 1,45% while future inflation rates were expected to rise to an average of 1,78%. (The World Bank 2022; Statista 2021) As the firm is stable and extraordinarily high growth rates are not likely to happen the author has deemed it reasonable for the terminal growth rate to be 2% for Mehiläinen.

With the terminal growth rate and WACC, it is possible to compute the enterprise value of the firm. The enterprise value of the firm represents all future cash flows discounted back to present value and is visible in table 8 along with Mehiläinen Oy's enterprise value which is calculated to be 3260,48 MEUR and will be the final value of Mehiläinen Oy using an intrinsic valuation method.

Table 9. Enterprise value using the DCF method 2021-2026

Enterprise Value (MEUR)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
PV FCFF	68,66	65,79	61,98	57,06	50,86	43,18
PV Terminal Value	2912,95					
Enterprise Value	3260,48					

Source: Author's calculations based on data obtained from Mehiläinen's Financial Statements (2017-2020)

2.3. Comparable company analysis

The market approach method was used to compare Mehiläinen Oy to publicly traded companies. This method is widely used due to the lack of assumptions needed when valuing the company as the data needed for this approach is public. This method however, is accompanied with

assumptions as this method assumes that the comparable companies are homogeneous allowing for comparison using value multiples (Chen 2020). This method was used as a way of observing and comparing the results of the DCF method to analyse the accuracy of the valuation.

The comparable companies used in this valuation approach can be seen in appendix 2 along with their value multiples. The value multiples used in this method consist of the 3 enterprise value multiples, namely the EV/EBIT, EV/EBITDA and EV/sales or EV/revenue. These however are not the lone EV multiples, however due to their simplicity as well as popularity especially with the EV to EBITDA multiple they will be utilised in this study. (Finnerty, Emery 2004) As some of the firms are not located in the EURO region their market cap and Enterprise value will be in "millions of SEK", however this will not have an impact on the multiples. Appendix 2 also shows the average and median values for the value multiples which will be used to value Mehiläinen. The author has used Yahoo Finance and Marketscreener to analyse data and has used Marketscreener to collect all data (data collected in April 2022, Marketscreener). The author has opted to use the averages from these multiples instead of the medians.

When calculating the enterprise value the author has used the value multiples for the latest year of financial data available for Mehiläinen. The enterprise value of Mehiläinen can be seen on tables 10 and 11. Table 10 estimates the valuation for Mehiläinen using 2020 data.

Table 10. Estimated value for Mehiläinen using peer group multiples 2020

Estimated Mehiläinen Financials	
(MEUR)	**Year 2020**
Revenue	617,56
EBITDA	94,68
EBIT	24,90
Estimated Mehiläinen Valuation	
EV/revenue	1014,83
EV/EBITDA	1022,07
EV/EBIT	690,26
Enterprise value	**909,05**

Source: Author's calculations based on data obtained from MarketScreener (2022)

The EV for Mehiläinen using 2020 amounted to 909,05 million euro, however as mentioned above, this method will also use forecasted data to estimate a vale. Table 11 will also take the estimated multiples for 2021 and 2022 into account. The author took the average implied enterprise values from EV/revenue, EV/EBITDA and EV/EBIT for the years 2020-2022 to obtain the value for the firm.

Table 11. Estimated value for Mehiläinen using peer group multiples 2020-2022

Estimated Mehiläinen Financials			
	Actual	Estimate	
(MEUR)	2020	2021	2022
Revenue	617,56	673,14	733,73
% Growth	9 %		
EBITDA	94,68	124,56	163,86
% Growth	32 %		
EBIT	24,90	29,93	35,97
% Growth	20 %		
Estimated Mehiläinen Valuation	**EV/revenue**	**EV/EBITDA**	**EV/EBIT**
Implied Enterprise Value	1014,83	1022,07	690,26
Implied Enterprise Value Y2	1046,18	1823,49	619,33
Implied Enterprise Value Y3	955,31	1303,32	677,53
Enterprise value	**1016,92**		

Source: Author's calculations based on data obtained from MarketScreener (2022)

Thus, when considering forecasted years their value rose by approximately 100 million to a total EV of 1016,92 million euro. The author has also opted to make a comparison from the chosen peer group multiples to Damodaran's average multiples from Europe for EV/EBITDA and EV/EBIT in this industry as they represent a larger peer group. These multiples are taken from western European public firms in the industry thus these multiples could also be used in this comparable company analysis.

Table 12. Estimated value for Mehiläinen using industry average multiples 2020-2022

Estimated Mehiläinen Financials			
	Actual	Estimate	Estimate
In MEUR	2020	2021	2022
Revenue	617,56	673,14	733,73
% Growth	9 %		
EBITDA	94,68	124,56	163,86
% Growth	32 %		
EBIT	24,90	29,93	35,97
% Growth	20 %		
Damodaran Multiples 2022		**19,76**	**36,8**
Estimated Mehiläinen Valuation	**EV/revenue**	**EV/EBITDA**	**EV/EBIT**
Implied Enterprise Value Y3		3237,81	1323,78
Value of the firm	**2280,79**		

Source: Author's calculations based on data obtained from Damodaran Online Database (2022)

Using the European industry average multiples roughly doubles the Enterprise value of Mehiläinen in comparison to the average multiples when computing enterprise value using the chosen peer group multiples from northern Europe. Using Damodaran's value multiples the enterprise value was estimated at 2280,79 million euro. Regardless of whether the focus will remain on the chosen comparable companies or a much wider range of comparable companies in this valuation approach, weaknesses are evident. If the focus is solely on the chosen comparable companies, the risks of whether or not the peer group was selected to form the best possible sample is always debatable. Whereas, if choosing to focus more on entire industry average multiples, the risk for inlcuding outliers and non-homogeneous companies being in the mix increases.

DISCUSSION

The aim of this study was to compute the value of Mehiläinen Oy and in doing so explaining the differences between public and private company valuations, explaining the most suitable valuation methods while demonstrating them in the second chapter. This was possible by analysing the current state of the healthcare sector, the company and how the pandemic affected these. This thesis aimed to show how private and public firms differ when it comes to valuation and what adaptations and assumptions must be made in such instances.

When calculating the value using DCF the author found that the assumptions made had significant impacts on the expected enterprise value, thus the author decided that making accurate assumptions were difficult and in certain areas not feasable in the scope of this thesis. However after analysing annual reports, press releases and financial statements, the author found that the assumptions made, although imperfect, were deemed realistic for the firm. The value of the firm using the DCF method will change depending on the narrative or point of view analysts want to put forth. If analysts are cautious and conservative, placing greater influence on the curernt instability in Europe due to the ongoing pandemic and war in eastern Europe, the assumptions made will most likely be much more conservative. On the other hand, if analysts are optimistic when valuing Mehiläinen, they may view acquisitions during the pandemic as a way in which Mehiläinen has capitalised economic difficulties and acquired shares of firms at a discounted price along with the increased collaboration between public and private healthcare providers due to the pandemic. The author has decided in line with the scope of this thesis to focus on reasonable asumptions taking a middle ground as the future of stability in Europe is still unraveling.

The enterprise value of Mehiläinen with the DCF model was calculated to be 3260,48 million euro. This could be caused my many factors. As expressd in this thesis, every company is unique amd a company such as Mehiläinen which has invested heavily into expanding internationally, may face issues when using the market approach as this does not include growth prospects, thus the value using this approach would represent the market "standard" disregarding company specific factors. When calculating the market approach the author used both current and estimated data. The

valuation of Mehiläinen using peer group data from the last data available for Mehiläinen (2020) resulted in an enterprise value of 909,05 million euros which is significantly less than the value using the DCF model. When using forecasted data for the peer group (2021e and 2022e) the enterprise value for Mehiläinen was estimated at 1016,92 million euro which is slightly larger than that of the prior peer group analysis however still significantly lower to the DCF valuation.

Comparing the DCF and CCA methods, due to the conflicting results between the two methods the author wanted to use Professor Aswath Damodaran's enterprise value multiples by industry (EU) to see if the EV would change significantly from using the peer group multiples. Using the multiples obtained from Damodaran, the EV of Mehiläinen was estimated at 2280,79 million euro, which is much closer to the value of the firm when using the DCF approach. This lead the author to come to the conclusion that when using the chosen peer group multiples in the CCA analysis, the value would not represent the firm accurately. The author formed this conclusion after analysing the target company and their financial statements while also performing analysis on the peer group. Thus, the author has deemed Damodaran's industry average multiples to be more accurate considering all things.

In this study the author found several limitations, as mentioned in the literature review, data for private firms is trickier to find (Damodaran 2002) and this turned out to be true. When obtaining financial statements for the company, Mehiläinen Oy (the parent company) did not have financial statements for 2021, thus it was required to utilise the latest data obtainable (2020) along with financial statements and annual reports from the whole concern. Along with this the financial statements were not formatted in congruency to one and another and had significant differences between them on how data was presented.

In this study the author found that for the market approach when analysing the comparable companies and their financials, data differed between databases (Yahoo Finance and Market Screener). Thus the author had to decide on which to use and avoid taking data from multiple sources to avoid bias results.

This thesis provides a foundation for further study on private firm valuation. As the war in Ukraine brings uncertainty across Europe as well as the entire world all the while Covid-19 cases are on an incline, studying the impacts of such uncertain and unstable environments on the healthcare sector in Europe is highly recommended. The post-pandemic years will bring light to the sustainability

and awareness of telehealth in the industry and to the public enabling further researh in this specific area. The author also recommends researching the changes in cooperation between public and private healthcare providers as the Covid-19 pandemic progresses and runs its course, and with that the economic changes private sector healthcare providers will go through.

CONCLUSION

The main aim of this thesis was to estimate the value of a private firm in the healthcare sector using several different valuation methods. In doing so, the author has explained the different methods and models applicable for a private firm valuation, the differences in valuation between private and public firms and the impacts of Covid-19 on both the firm in question and on the industry as a whole. The objective of this thesis was not only to perform a company valuation for a private firm but to discuss what methods are most suitable for this company and possibly other private businesses in the health sector. Private firm valuation can seem very tricky due to the lack of information on the target firm and the assumptions, adjustments and adaptations that need to be made during the process. For example, when calculating the cost of equity, as private firms do not have betas, adaptations to "normal" methods must be used. In addition to this, information regarding such adaptations is often times much more difficult to find in comparison to methods for public firms. That being said, it is not impossible to find such information from past literature and studies as was demonstrated in this thesis.

The healthcare sector as a whole has experienced interesting times in recent history and in Finland these differences can ultimately be categorized into two separate categories: 1) the increase of telehealth and 2) the increase in cooperation between public and private healthcare providers. There are several reasons for this increased collaboration namely the pandemic inducing more strain on providers along with an ageing population. Telehealth on the other hand is not something completely new that surfaced during the pandemic, however the awareness of the public and investments into telehealth sprung aggressively in consequence of the pandemic.

Mehiläinen has been experiencing large growth, through expansions and acquisitions is recent years, which is seen on both their financial statements and annual reports thus growth is expected for the upcoming years. With an increase in need for healthcare services in Finland throughout recent years, the domestic market enables future growth for the private firms in the sector. These opportunities can also be visible in the Nordic and Baltic countries through ageing populations and healthcare service distress due to the pandemic. Mehiläinen's successful global expansions in the

telehealth industry also provide a glimpse into the future of healthcare services. Their strategic acquisitions along with expansions in telehealth during recent years put Mehiläinen's future in an optimistic place where assuming their cash flow will continue to remain healthy would not be an unrealistic expectation to have.

When comparing the accuracy between the DCF and CCA approaches due to the unique position of Mehiläinen's heavy investments into M&A and successful expansions in the telehealth, the author has made the assumption that the CCA scenarios used provide an acceptable value for a haphazard, quick valuation. However, for an accurate valuation as the DCF approach uses intrinsic data and detailed company analysis the author has deemed this approach to be more accurate. Thus the author will determine the final value of Mehiläinen to be 3260,48 million euro.

Private firm valuation differs significantly compared to public ones. When valuing privately held firms it is important to properly analyse the industry and market the firm is operating in. In addition, as this thesis demonstrates, it is worthy to use different methods regardless of whether or not the final valuation will be equal. In such cases where the values do differ, further analysis is required to improve the understanding of the firm. In this case Mehiläinen seems to be in a strong financial situation and aims to expand further through acquisitions and digitalization in the future. The increase in collaboration between private and public healthcare providers along with the growing telehealth market make the future of Mehiläinen Oy a bright and attractive firm for both domestic and foreign investors. Thus, the author has concluded an intrinsic valuation to be more accurate.

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APPENDICES

Appendix 1. Health expenditure as a percentage of GDP in Finland 2000-2019
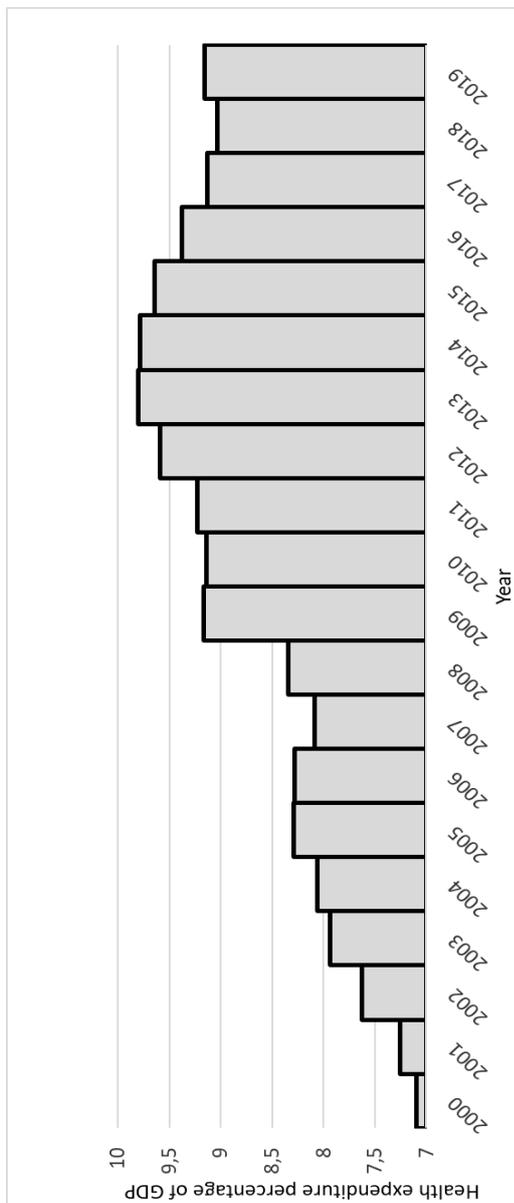
Appendix 2. Average and median multiples for comparable companies

Company	Ticker	Market cap 2020	EV 2020	EV/EBIT 2020	EV/EBITDA 2020	EV/Revenue 2020	P/E 2020	Yield % 2020	P/B 2020
Medicover AB	MCOV-B.ST	2413 (MSEK)	2694 (MSEK)	43,95	17,05	2,70	89,4	0,43 %	5,39
Attendo AB	ATT.ST	7141 (MSEK)	19401 (MSEK)	28,83	9,45	1,58	-7,88	0	1,47
Ambea AB	AMBEA.ST	6148 (MSEK)	14524 (MSEK)	20,26	8,73	1,31	17,1	1,77 %	1,42
Humana AB	HUM.ST	2988 (MSEK)	6499 (MSEK)	14,35	7,89	0,83	12	0	1,34
Terveystalo Oyj	TTALO.HE	1278 (MEUR)	1769 (MEUR)	31,25	10,85	1,79	27,9	1,29 %	2,25
Average				27,73	10,79	1,64	27,70	0,70 %	2,37
Median				28,83	9,45	1,58	17,10	0,43 %	1,47

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