Dipartimento di Impresa e Management
Corso di Laurea Magistrale in Gestione d'Impresa

Cattedra di Analisi Finanziaria

Evaluation of company performance, a comparative analysis between two companies operating in the pharmaceutical industry: Novo Nordisk A/S and Menarini srl.

Prof. Fabrizio Di Lazzaro
Relatore

Prof.ssa Francesca Di Donato
Correlatore

Matteo Margarita
738361
Candidato

Anno Accademico 2021/2022

Table of Contents

Introduction

All the data, included in the balance sheet and in the income statement, allow to understand and to analyze company's results in terms on performances and risk. Moreover, thanks to those evaluations, the goal is to improve and formulate future decisions.

A company analysis may also be based on the type of product or service sold, technology development, demand analysis or competitive analysis within the industry. However, all these variables mentioned above, will not be part of this paper, that is focusing on the ratios and financial methods of evaluation.

The start point of the paper relates to the fact that when two or more companies, that operate in the same industry, have different results in terms of performance or in relation to other financial ratios, it should be figured out what are the reasons behind those results.

The *question* of this paper on one hand aims to give an answer to the problem mentioned above, through a comparative analysis based on ratios, on the income statement analysis, on the income lavers analysis and on the profitability, between two companies that operate in the pharmaceutical industry but are originally from two different countries: Italy and Denmark.

The two companies taken into consideration are Menarini srl (Italy) and Novo Nordisk A/S (Denmark).

On the other hand, the *question* of the paper has also the goal to explain how the strength and liquidity analysis based on ratios, that apparently can evaluate a company as "risky", are usually not indicative.

In this case study, in fact, it will be seen how the Danish company Novo Nordisk, that is seemingly risky, is definitively safe. This misunderstanding usually happens because elements of the balance scorecard, as for example provisions (9 billion), that make for example the debt equity ratio high, should not be seen as an "insolvency risk".

In order to find an answer to our question, it is needed to proceed through 2 steps.

This first step (related to the companies' analysis) will answer just in part to our research question; it's aim is to analyze the two companies under different point of views, thanks to the financial measures mentioned above.

It is the basis to understand, in the second step of our research, the main differences in terms of results and to figure out how the two analyzed companies could implement its performances based on the better results achieved in a specific area by the other one.

Paper's Structure

The paper's structure will be divided into 3 chapters plus the conclusion.

The first chapter aims to give a theoretical imprint to what will be applied in practice later.

In turn, it is divided into five paragraphs, each of which has the role of providing essential theoretical and technical notions regarding the study and what will be analyzed later. The first paragraph is related to the financial ratios analysis, the main goal of the paragraph is to underline the measurements that are used to maintain an established situation. It is focused on the relationship between monetary income and expenditure, the main questions are: How are the fixed assets financed? Is the company able to cover its debts? Both these two questions have the risk as the central point is that it can't be too high and there must be a prudent managing of it.

The second paragraph is inherent to the management areas analysis, there are three different management areas, each one related to different elements. The first one is the operating area, in this situation, income and costs are directly connected to the classical operations that the company does (production and sales). The second one is the extra-operating area, into this area there are all the assets that don't contribute to the business development, a clear example about these could be buildings or financial titles.

The third paragraph is about the analysis of the revenue levers. In this chapter many formulas will be explained, in order to highlight the reaction that will be caused after the variation of some elements as for example the profit or the contribution margin.

The fourth paragraph is focused on the integrated profitability analysis, main ratios and financial leverages will be take into consideration. What's the goal in this context? To figure out important issues for the stakeholders, as for example how much profitable is the equity founding or how much profitable is the investment done by the company.

The fifth paragraph aims to give an explanation about WACC's formula, explaining why it is used and how to calculate it.

The last paragraph of the first chapter, is related to the tax situation of the two countries, both the systems will be examined, highlighting the impact that this variable has on the companies.

The second chapter, as explained at the beginning, is completely related to the analysis of the two companies. Firstly, an overview of the pharmaceutical industry and of the two companies will be given.

After that, both companies will be analyzed thanks to the financial measures. It is important to underline how the analyses are not just related to one year but to the last three years, in order to understand the trend.

The third chapter, after carrying out the several analyses with an interpretation of the results and after the analysis of the spread Rona(1-t)- wacc and Roe- Ke, aims to compare the two companies in 2020 and to answer the research question initially posted.

Finally, there will be the conclusion, highlighting the contribution that this paper gives to the research.

CHAPTER 1

FINANCIAL ANALYSIS: GOALS AND COMPANY'S EVALUATION

1 Measures for the company's solvency and liquidity

1.1.1 Capital strength analysis

Capital strength is defined as the extent to which a company can meet its payments and interest (payments) in the long term. It is of fundamental importance that a company is able to respect its payments since, if the company becomes insolvent for a long period, there is a risk of liquidation and consequently bankruptcy. What are the measures that can be used to measure the company's long-term indebtedness? One of them is the debt ratio. The objective of the debt ratio is to measure the amount of long-term debt financing as a proportion of its overall capital structure.

It is easy to understand that the higher the ratio is between these two factors (long term debt and overall capital structure) the higher is the risk of insolvency on the part of the company and consequently the company can be described as weak (Harris, M., Raviv,A. 1991).

Moreover, we can highlight three different situations. The first situation is the one where assets are entirely financed with the equity. What is the result of this strategy? A risk almost equal to zero and a great capital strength, in fact there is no risk of insolvency, thanks to the fact that there is no need to pay any debts due to external financing sources (Gompers, P., Lerner, J., 2003).

The second situation is where the fixed assets are fully financed with no current liabilities.

In this case, is not present the same solidity that was present in the equity financed assets.

The only way for the company to carry out its business activities is through financing from parties outside the company, so there is no financing from shareholders. A direct

consequence is that, once sales have taken place, the revenues must be used to cover the financing received (Berk. J, DeMarzo. P, 2017).

Obviously, there is also the hypothesis that the company is not able to respect the debts, it can happen when the income is not received before the deadline of payments. This in turn leads to the risk of insolvency, which in turn, as mentioned above, may cause the liquidation of the company (Kim, E. H.,1978).

Finally, there is a third situation where assets are financed by current liabilities. In this situation there are not enough cash flows to cover all the payments that must be made in the short term, which obviously leads to a reduced solidity of assets. In addition, as in the previous case, the company's dependence on external parties is very high and consequently the risk of defaulting on debts is also high.

Several indices can be used to control the risk of monetary inflows and outflows beyond 12 months. The first one we analyse is: *Fixed asset to equity capital ratio = Equity/ Fixed Asset*.

This ratio allows to understand how much equity manages to finance the asset, obviously, the higher this value, the greater the solidity of the company. The international accounting standards in this regard require constant supervision and very often a distinction is made between the tangible fixed asset to equity capital ratio and the intangible fixed asset to equity capital ratio, to be more detailed (Bragg, S. M., 2012).

The second one is *Fixed asset to equity capital and medium-long term debt ratio = (Equity + consolidated liabilities) / Fixed Asset.*

What is the objective of this ratio? The aim is to understand how much debt the company has for each individual unit of assets. Furthermore, it is important to make a comparison between the two ratios. If Fixed asset to equity capital and medium-long term debt ratio > Fixed asset to equity capital ratio (it is the first formula analysed) is an excellent result, if they are equal, it is good; moreover if Fixed asset to equity capital and medium-long term debt ratio >1 and Fixed asset to equity capital ratio >0.6 it is discrete and then, the more it tends to decrease the lower the results are.

We will now examine the level of elasticity and rigidity of the investments made. The aim is to show that there are certain investments that can be converted into cash in a shorter time than others (obviously shorter is the conversion time the better it is). Two ratios can be used to verify the slow and fast recovery of investments.

The ratio of fixed assets to total assets = Fixed assets / invested capital. The higher the value, the higher the rigidity.

The ratio of the Investments Flexibility = *Current assets / invested capita*l. The higher the value, the higher the elasticity.

Another important element to be considered is the degree of depreciation of machinery. There are certain machines that have already been depreciated to a large extent, which means that there will have to be new investments in the future to replace them. This means that new investments will have to be made in the future to replace the equipment. For this reason, the depreciation rate of the equipment must also be taken into account when analysing the two indices above.

For example, if a company has a higher fixed asset to equity capital ratio and fixed asset to equity capital and medium-long term debt ratio than another company, this does not mean that its capital strength is higher, because the variable related to the degree of depreciation must also be considered (G.Musco, 2015).

Finally, we look at two other indices that specify how dependent or autonomous the company is from a financial point of view.

As mentioned above, the greater the autonomy, the lower the risk of insolvency since there is no need to ask for external support from the financial point of view.

1.1.2 Debt ratios

Although debt ratios are part of the balance sheet analysis, it is important to pay special attention and to separate them from the analysis of the ratios seen so far. Two first distinctions can be made about corporate indebtedness, between the consolidated indebtedness ratio and the current indebtedness ratio.

Consolidated debt ratio = consolidated liabilities/invested capital.

Current debt ratio = current liabilities/invested capital.

Once this distinction has been made, in order to check whether the level of debt is higher in the short term or in the long term, we can move on to the analysis of the debt equity ratio.

Debt-equity ratio = total liabilities/equity. It is a very good indicator to assess how much debt is in proportion to each unit of equity, based on that there could be different values that will be now analysed. A value greater than 2 is a symbol of very high risk and lack of financial autonomy, in this situation it should be reduced the amount of

founding received by external's company actors; a value that goes from 1 to 2 highlights a sustainable risk, however it must be always supervised because of the fact that it cannot go over 2; a value that goes from 0.5 to 1 underlines a total normality and a medium risk; finally for values that go under 0.5 there is a remote risk and excellent financial autonomy. However, this ratio presents a limit, in fact the value is influenced by all the operative operations that a company does, as for example all the commercial debts. That is the reason why, if there is the need to analyse just the proportion between the financial capital acquisition and the equity, it should be used the *debt financial ratio= financial debts/equity*. In that way, only the financial debts (debts made up for the acquisition of capital) are taken into consideration (Bragg, S.M.,2012).

1.1.3 Liquidity Analysis

Liquidity analysis refers to a company's ability to meet its payments, but unlike the solidity analysis seen above, it refers to the short term. Here as well, if its debts to external parties are not met, there may be a risk of insolvency and consequently a liquidation crisis. On the other hand, the greater the level of resources available to cover its payments, the stronger the company will be.

To better understand this risk, it is necessary to compare short-term assets and liabilities, this is called a first level analysis, showing afterwards the speed at which the elements within the net working capital are renewed (Holden, C. W., Jacobsen. S. E., Subrahmanyam, A. 2014).

The first index of this session to be analysed is the *current ratio = current assets/current liabilities*. This value needs to be higher than 1 if it is lower, the amount of capital is not sufficient to cover current liabilities, what does this lead to? This leads to an inability to meet its debts soon and a consequent risk of insolvency. Furthermore, it is also very important to point out that a value of 1 is often not sufficient since within the short-term income there are also permanent stocks of inventory, this obviously implies that the real value of the current ratio is less than 0; although the stocks of inventory are seen as a positive item, they are not really optimal to meet the performance due to creditors (Holden, C. W., Jacobsen. S. E., Subrahmanyam, A. 2014).

In addition, one can also calculate the current availability margin which is equal to the difference between total current assets and total current liabilities

The second index of this analysis, the quick ratio, considers a fundamental element such as inventory. *Quick ratio = total liquidity/current liabilities*. This ratio is used to check whether liquidity can cover short-term liabilities. If the value is higher than 1, the situation is good, if it is lower, it is not. However, this ratio does not ensure that the income will be able to meet the payments to be made, since there may be delays or simply credits (deferred liquidity), (Cagle, C.S., CGMA, C., and Campbell, S.N.,1980).

The above problem can be solved by the *second cash ratio = immediate liquidity/current liabilities*. This ratio excludes any problems that may arise due to a delay in the conversion of receivables. In addition to these ratios, the following can be calculated: "the *primary treasury margin = total liquidity - current liabilities*, if the value is negative, there is a treasury deficit; *the secondary treasury margin = immediate liquidity - current liabilities*, if the value is negative, there is the risk that if there is a delay in the conversion of receivables, the company would not be able to cover current liabilities" (G. Musco, 2015).

Finally, regarding liquidity analysis, it is important to understand how dependent the company is from inventory.

The inventory dependency ratio = (current liabilities - total liquidity)/stock). For values above 1 there is not a problem since there is no cash deficit to cover, for values below 1 neither the inventory nor the treasury can cover the current liabilities but, in this case, the problem lies elsewhere and does not depend on inventory. Values, which are around 1 show a high dependency which could manifest itself in a difficult process of monetary recovery of inventories (Lemke, K.W., 1970).

1.1.4 Net working capital duration management

Net Working Capital (NWC) is a measure of the difference between current assets and current liabilities. It emphasises the degree of liquidity in the company and obviously the greater the difference between current assets and current liabilities, the lower the risk of insolvency.

However, there is often the problem that cash inflows do not coincide with cash outflows.

This problem, if not managed well, can lead to a lack of synchronisation that would only bring problems to the company.

To solve this problem, there is the cycle duration of the net operating working capital, which shows the time that elapses between the payments that must be made and the receipts that must be collected inherent only to the operating management.

The objective is therefore to understand the average time it takes for current assets to be converted into money. This calculation can be made for various elements such as: raw materials in inventory, semi-finished products in inventory, goods in inventory, finished products in stock, trade receivables, trade payables.

The calculation follows a general logic that can be applied for each single category that was mentioned in the previous paragraph, for that reason it will be shown just the general calculation.

We indicate with n: the number of times we must repeat the process for a category; z = the average value of that category; y = the value of costs or revenues related to z; finally, we must multiply everything by the number of days in the reference period (365).

Once this is understood, the following operation is: $n = (y / z) \times 365$.

A practical example to let it be understood better can be: *average stocking time of finished products = (average of the values of finished products during the year / cost of production sold during the year) x 365* (Knauer, T., and Wöhrmann, A. 2013).

If all average inventory times are added together (net of trade payables), this will give the average time from payments to receipts for current operations. If the value is positive, this means the number of days passed between the payment of debts and the collection of revenues, which indicates a financial requirement. If, on the other hand, the value is negative, it shows the time that elapses from the collection of revenues to the payment of debts, following which it is easy to deduce that the payment of debts can be made through the income.

FINANCIAL ANALYSIS: GOALS AND COMPANY'S EVALUATION

1.2 Income statement analysis

In the preceding paragraphs, we observed what measures could be taken to ensure that all the payments that the company has to creditors can be made, without the insolvency risk.

The aim of the second part of this chapter is to understand the results of the business management carried out. For this purpose, all income statement items must be considered in order to be able to carry out an analysis in as much detail as possible. As we will see in more detail in this section, it is appropriate to make distinctions relating to the management to be able to differentiate in the best possible way what has been done by the company until that moment. For example, a good management in the operating profit area doesn't mean for sure that there will be a great profit. It is therefore important to understand where management has played a positive role and where certain strategies need to be reassessed. In fact, if the business activity is analyzed in a general way, it wouldn't be easy to figure out where it should be paid more attention.

1.2.1 Gross Profit

The aim of gross profit is to understand how much the company efficiency is, at using its labor and supplies in the productions of goods or provisions of services. The formulation is : *Gross profit= revenues (sales) – cost of goods sold (COGS)*. Costs in this area are directly and only proportionated to the production phase, they are related to direct materials, such as raw materials and inventory; direct labor, such as wages for production workers; equipment costs used in production; repair costs for equipment; utilities for production facilities; shipping costs. As it is highlighted COGS consider just variable costs, directly linked to sales, if for example one unit of sales is added, variable costs will be higher; analyzing variable costs and revenues, we can figure out how much variable costs impact on revenues (Edwards,J.B.2016).

Thanks to the Gross Profit we can measure the company's efficiency over the time, the ratio that should be used is: Gross Profit Margin = (Revenues – Cost of goods sold)/Revenues. Using that formulation, we can make a comparison between more years, of course Gross Profit Margin is different from Gross profit that is a currency value. The main limitation of Gross Profit is that it is known just for public companies (in this case it is shown as a separated element) but not for private companies, in this case if investors want to know more about the operational management (Gross Profit) they should analyze it by themselves (Suresh, P., and Basu., P. K., 2008).

1.2.2 EBITDA

EBITDA is an intermediate result between the Gross Profit and the EBIT or Operating Profit. In fact, there are two possibilities to calculate it, depending on whether you start from the top or the bottom. If we start from the top and we say therefore to start from the Gross Profit, we must subtract from this result the SGeA(Sales General and Administrative) expenses: selling are all costs that result from the sale and distribution of products, general are all costs related to rent that must be paid and administrative refers instead to all those expenses such as salaries of workers or managers. If one starts from the EBIT, to obtain the EBITDA it would be sufficient to add the depreciation expense and amortization expense (Grant,J. ,and Parker, L, 2002).

EBIT can be used for various reasons: firstly, to compare companies and industries in terms of profitability (because capital expenditure does not include financing); secondly, when the net profit is not particularly high or even negative, and as a result of this it is important to highlight EBITDA; thirdly, in high-technology sectors with high depreciation costs, EBITDA is shown at first to investors because depreciation in this situation is particularly high (Nissim, D, 2019). However, it is important to keep in mind that EBITDA is not a real measure, in certain circumstances it can be very useful, (e.g., in high-tech sectors) but sometimes its value can explicit something that is not true compared to the real situation.

1.2.3 Operational Management - Operating profit (EBIT)

Operational management refers to all activities involving human resources, materials, machinery, and technology. As more elements are involved, it is obvious that a strong organization is needed from a strategic point of view and consequently several

questions need to be asked. How big should the production facilities be? How should the IT network be managed? How are management projects established?

The aim is to provide a service or a product to the consumer and it is undoubtedly the core of the business activity.

Operational Management therefore relates to all those activities that are employed during the supply chain, starting from all the operations of production to the ones of sale (Goldstein, R., Ju, N., and Leland, H, 2001).

Costs in this area are directly proportionated to the production phase, they are costs for raw materials, machinery, maintenance of machinery or salaries.

Revenues are also directly proportional to the sales phase of the products, but as well important to highlight that income obtained from the capital gain resulting from the sales of equipment is also part of operational management.

If, for example, a machine was paid 10 000 $, its depreciation is 5 000 $ and it is then sold at 6000 $, there is a capital gain of 1000. This revenue, although not directly part of the production linked to the sale, is a revenue to be included in the operational management, because that specific machine has contributed to the production until that moment.

The operating result, also called EBIT, allows us to understand how much profit is derived from the core business, excluding financial management (which will be analyzed later) and taxes. It is therefore focused on the performance of the business, it considers all the elements that characterize it, from the cost of wages to the depreciation of machinery, but it is not yet real and cannot be defined as net profit for two reasons: 1) The balance of other management operations that are independent of the core business (non-operational, non-predictable and financial) is still missing. 2) Taxation is not considered, but it does subtract a large part of the profit (Berk,J., and DeMarzo, P, 2017).

1.2.4 Extra-operational Management - EBIT adjusted

In the previous section we analyzed all costs and revenues of an operational nature, while in extra-operational management they are linked to accessory management, it means all those activities that are not part of the company's business.

This area includes all those assets, which result in an economic gain for the company, but which are not part of the business. For example, if a company sells clothes but has five properties and all of them are rented out, in order to make a profit from the lease,

all earnings for this activity are part of the extra-operating business, of course, all costs, such as maintenance or administration, must also be included in this area. In addition to capital assets, all financial investments are also part of this extra-operational area. In fact, companies (especially big ones), can decide to carry out these types of activities: participations in other companies and investments in titles. In the first case, the company decides to invest in the performance of other companies, the better it will be, the greater will be the profits, there is therefore a participation in the capital of one or more companies (Luehrman, T. A, 1997).

Regarding investments in stocks, the situation is different since they are either bonds issued by a state to finance itself or bonds issued by public authorities or companies (always with the aim of financing themselves). Certain balance sheet items belonging to this class must therefore be considered when calculating the balance of non-operating activities. All financial income and expenses are included in this class, however, there is one case where participations are part of the extra-operating activities.

If, in fact, a subsidiary contributes in some way to the production of the parent company, the activity carried out must be calculated in the operating activities. Although the contribution to production by the parent company is not direct, the business activity benefits from it and therefore the activities are attributable to the operations management. For example, if a subsidiary produces tires for vehicles and the subsidiary sells the cars, in this case, the subsidiary is conducting an activity in the economic chain of production.

In addition, revaluations and devaluations must also be recognized in extra-operating activities.

Once both operating profit and extra-operating profit results have been calculated, we can add them to obtain: ADJUSTED EBIT: operating revenues - operating costs +/- extra-operating management (Laitila, M, 2011).

The goal of the ADJUSTED EBIT is to show what is the company's result before interest and taxes (EBIT), considering all the extra-operating activities, without outstanding management operations, as it will be underlined later in the next chapter, includes all activities resulting from events that could not be predicted.

1.2.5 Outstanding Management – Stated EBIT

By outstanding management, all those activities that are certainly random and therefore cannot be predicted are referred to. As far as this category is concerned, it must be highlighted, that there are two situations in which the elements of the balance sheet are part of this area. The first case is when corrections must be made for past years. For example, if a company has decided to change its valuation criteria, changes must be made to the values previously reported, or if there are costs or revenues from the previous year, all of them must be included in the outstanding management area (Joshi, M, 2015).

The second case is different and refers to all those situations where there is a loss of value or the exact opposite, an example is when an incorrect estimate was previously made and consequently the value was underestimated (Musco. G, 2015).

The result of unpredictive operations, when added to the result obtained previously (adjusted EBIT), gives us a new result: stated EBIT, if there are not extra-operative operations all the unpredictive operations will be just added to the operating profit.

1.2.6 Financial Management – EBT

The last area that needs to be considered is the financial area, within this area we find all the funding implemented different from risk capital, this is the case for example of funding that a company can obtain through banks or through bonds issued or interest expenses and other charges that generate a funding from the financial point of view. This area is identified without considering assets or liabilities but going directly to the net operating balance (Robison, L. J., and Barry, P.J, 2020). For example, if there is an interest income of 300 000 and interest expense of 350 000, there will be a net financial expense of -50 000.

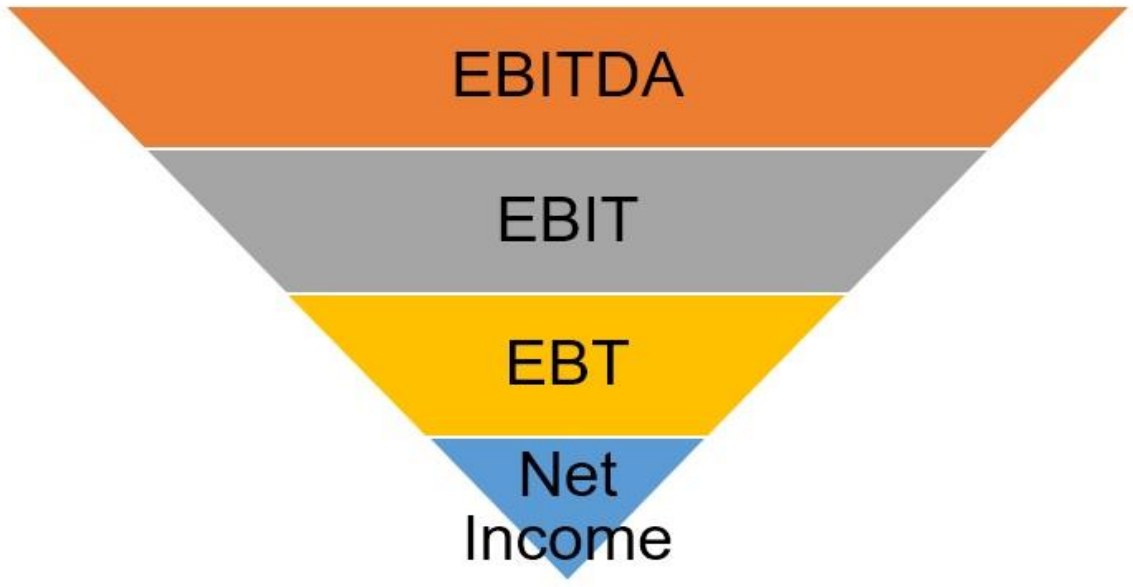
If we subtract or add financial management balance to the previously calculated EBIT, we obtain EBT, that is the last indicator directly related to company's management. In fact, after obtaining this result, the last operation to be done to obtain the net profit is to subtract the taxation from this value, which, however, as can be easily deduced, is independent from the management of the company.

1.2.7 Net Income

As a result of all operations at company level, there is net income. In addition to the cost of goods sold (COGS), other expenses for net profit include operating expenses, income taxes, interest expenses on loans and debt, depreciation of fixed assets, and SG&A (selling, general, and administrative expenses). Obviously, the balances of all the various managements are also included.

Net Profit value is the best indicator to highlight company's healthy, as it said above it is calculated at the net of all expenses that must be done (from productive expenses to tax expenses). For that reason, looking at this result is particularly important for all the investors that want to make a capital investment to the society, companies with a high net profit are considered better than others with a low profit. It is important for the banks too, when in fact a bank director must decide if a loan should be grant or not, the first element that should be analyzed is the net profit of the company to make sure that the company itself will be able in future to respect the debt previously stipulated (Skinner,D.J,1999).

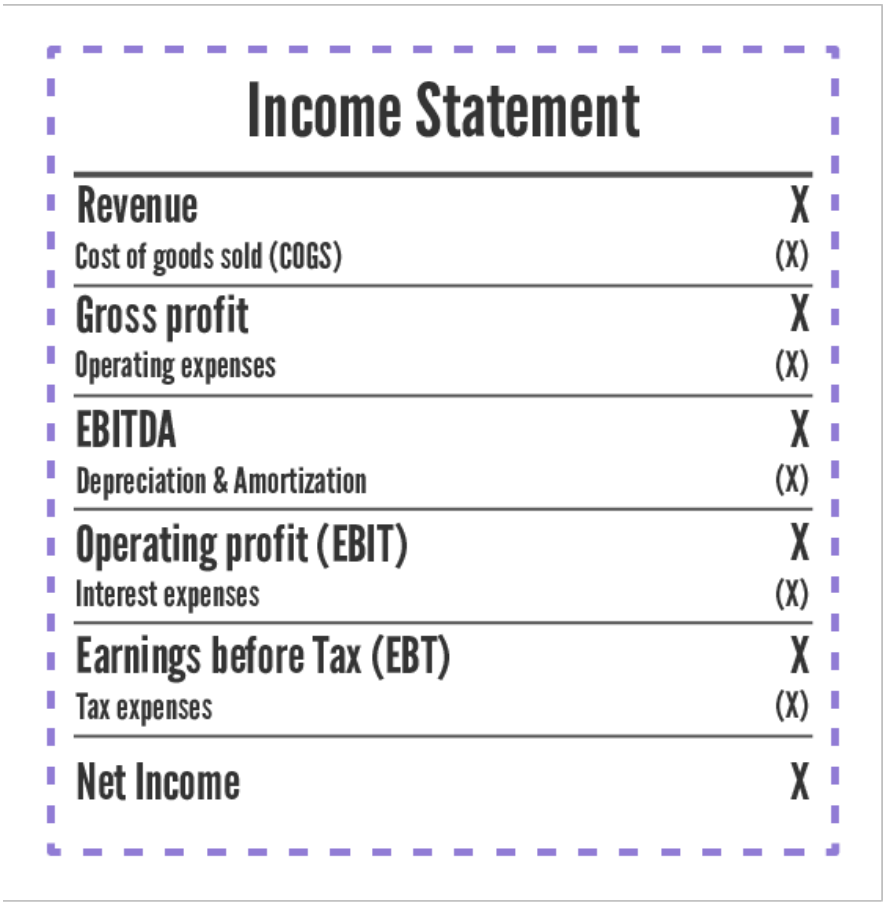
The diagram below shows all the various steps that can be calculated, from the top to the bottom, more it goes down more items are included in the calculation.



(Xplaind, 2022).

The table below does not refer to a real company, it is just an example to show throw a chart

what has been explained before. It is not explicated the fact that there can be a balance of the extra-ordinary operations and no-predicted operations, that happens, because sometimes they are included before the general item EBIT (the international principles do not require other areas). However, there could be the situation where it's important to divide the different area



Income Statement	
Revenue	X
Cost of goods sold (COGS)	(X)
Gross profit	X
Operating expenses	(X)
EBITDA	X
Depreciation & Amortization	(X)
Operating profit (EBIT)	X
Interest expenses	(X)
Earnings before Tax (EBT)	X
Tax expenses	(X)
Net Income	X

1.3 Income levers analysis

In this section, operating leverage and financial leverage will be analyzed. In the previous sub-sections, we looked at how the income statement can be broken down, considering different levels of the analysis. Now, in the next paragraphs, we will use the elements present in the income statement in order to understand how much one of them changes based on the variation of another one.

1.3.1 Operating Leverage

There are several possibilities to calculate the degree of operating leverage, based on specific needs.

a) Degree of operating leverage

The first one is the typical and general way. It highlights the change in the operating income proportionated to the change in sales; it underlines how much is the operative risk based on the costs structure; it helps to figure out how well are all the machines used for the production. A result that for example is around the value of 2 means a high degree of operating leverage, it emphasizes that the profit is more sensible to the change of sales, and it happens all the time that fixed costs are almost independent from the production phase. On the other side, a value around 1 highlights a constant change of operating income based on a sales change. It is a degree that is based on past performances (Novy-Marx, R, 2011).

$$\text{Degree of Operating Leverage} = \frac{\%\ \text{Change in Operating Income}}{\%\ \text{Change in Sales}}$$

Operating leverage is a formula used in accounting to understand how much net income can vary as revenues change. It is important to note at the outset that if a company has a very high gross profit value and does not incur high variable costs, it has a high degree of operating leverage. However, an high degree of operating leverage explicit how an error that could be made in the sales forecast will have bad consequences in the cash flow projections. (Dugan, M.T., and Shrinver, K.A., 1992)

Different circumstances can be understood through operational leverage. First, it is possible to understand what is the operating break-even point that a company needs to reach to understand in advance what is the minimum value it is needed to achieve in order to cover its costs and then make a profit. In addition, another very important element that can be understood from the analysis of operating leverage is how well the company is using inventory, assets or generally all fixed costs. Why is it important to

understand this? Because a good management of fixed costs such as machinery, for example, allows high profits without incurring higher expenses or changing the price, which is highlighted by a higher degree of operating leverage (Dran Jr, J. J, 1991).

"However, it is important to emphasize that operational leverage must be used between companies operating in the same sector. In fact, it is evident that there are sectors, such as the IT sector, where fixed costs are very high (high salaries for software programmers, for example), while there are other sectors where fixed costs are very low (sectors where, for example, there are no high fixed costs for rent and production)" (Berman, J., 2014).

Obviously, a greater operational leverage is given by those sectors where fixed costs are high, and it becomes then important to understand what the operational break-even point is because once it is reached there are no more uncertainties related to high variable costs. In the case of a company operating in a sector where fixed costs are low but variable costs are uncertain and vary based on sales or performance, the degree of operating leverage is lower

(Lord, R.A, 1995).

b) Degree of simple operating leverage

The second method that can be used refers to the proportion throw the contribution margin and the operating income, the contribution margin is obtained from the difference between sales and total variable costs.

The *DEGREE OF SIMPLE OPERATING LEVERAGE* ratio is the one below.

$$\text{Degree of Operating Leverage} = \frac{\text{Contribution Margin}}{\text{Operating Income}}$$

There are four main reasons that explain the importance of this ratio. The first and basic one is related to the prevention of how much the operating profit change based on the variation of the contribution margin. The second one explicit the relevance of fixed costs, in fact if the fixed costs do not change (there is not a variation) the ratio's value is the same that would be obtained by the classical degree of operating leverage. Moreover, if the result is positive, the minimum value that could be obtained is 1; it is

the situation where there aren't fixed costs and the profit is equivalent to the contribution margin.

The third and probably the most important function of this leverage is related to the operating risk of a company, more is the degree higher, more the risk is higher. If for example two companies have in 2022 the same amount of revenues but the year later the revenues of each company decrease for the 10%, the impact that this change could have differs from the degree of the operating leverage.

In fact, the company that has a high value of the degree will have a low profit, the reason is because of a high level of rigid costs. More is the percentage of fixed costs, less there would be the profit.

The only situation that could allow a high level of degree of operating leverage is the one where a company has just started its business and has the goal to grow more.

Finally, the fourth reason why this leverage is used, refers to the good or bad administration of fixed costs. A high degree means for example a partial use of machinery compared to the capacity that the machinery themselves have. In this case, the solution could be a higher level of investments so that the machinery will have a full use without an increase of costs.

In relation to the argument above, to better understand the reasons for an increase in operating profit following an increase in sales (at the same costs), one can refer to the degree of combined operating leverage (Glover, K. J., & Hambusch, G, 2014).

The formula is: degree of combined operating leverage = (%change MC / % revenues) x(MC/UO). In this circumstance it can be understood whether the increase in profit due to an increase in sales is due to a better utilization of production capacity or to a better ability to reduce variable costs directly related to sales.

c) Degree of operating leverage based on the costs structure

Finally, the third method is completely based on a proportion that is focus on the costs structure, both at the numerator and denominator we find Q(quantity) that multiply P (price) – V (variable costs), in addition at the denominator, at the result founded, it must be subtracted the fixed costs value.

$$\text{Degree of Operating Leverage} = \frac{Q(P-V)}{Q(P-V)-F}$$

In relation to the argument above, in order to better understand the reasons for an increase in operating profit following an increase in sales (at the same costs), one can refer to the degree of combined operating leverage. The formula is = (%change MC/ % revenues) x(MC/UO).

In this circumstance it can be understood whether the increase in profit due to an increase in sales is due to a better utilization of production capacity or to a better ability to reduce variable costs directly related to sales (Dran Jr, J. J, 1991).

Through the values of the ratios based on the cost structure and the index based on the degree of simple operating leverage, important strategies can be decided on regarding an increase in production or not. There are cases where, based on the structure of one's own fixed costs, it is worthwhile to increase production (this can be deduced from the number of revenues that would be generated), and other cases where revenues are not sufficient, and an outsourcing strategy is appropriate (Dugan, M.T., and Shriver, K.A, 1989).

1.3.2 Financial leverage

The degree of leverage is an index to understand how much debt is allowed in a company. This answer is given by considering how much a company's EPS changes as EBIT varies. It is important to understand this because if there is a lot of volatility and as a result EPS varies as much as EBIT varies, it is required to be very careful about the company's overall debt.

Leverage is therefore very important to understand how to optimize expenses and reduce costs. Obviously, the more stable the EBIT is, the more stable the EPS is and the more leverage you can have.

If, on the other hand, the situation is very volatile, a lot of attention must be paid to debt since one has much more uncertainty and an higher degree of financial leverage is related to a greater financial distress risk (Campbell, J, Y., J. Hilscher, and J. Szilagyi 2008).

There are two main ways that can be used to calculate the degree of financial leverage.

1) **DFL= %CHANGE IN EPS / % CHANGE IN THE EBIT**

2) **DFL= EBIT/EB**

1.4 Profitability Analysis

The goal of the profitability analysis is to understand whether the investments made by the shareholders have generated a profit and have covered the costs, a healthy balance at company level must certainly be ascertained. It should also be noted that the profitability analysis is directly linked to several variables such as: the number of investments made by the company, the propensity to take risks, the level of debt, the reference time horizon and the economic situation in a given period (during the covid period, for example, a lower profitability is expected). With reference to the above, it is easy to deduce that the greater the risk a company intends to bear, the greater the eventual profit should be, but this depends on other factors such as the position of the company in relation to others or its strategic orientation. Another deducible element is that the higher the investment made, the higher the expected profitability should be. Finally, profitability also depends a great deal on the economic cycle in which the company finds itself at that time (Gonçalves, T., Gaio, and F., Robles).

If, for example, the company's business is at the beginning of expansion, a higher profitability is expected than for companies operating in a saturated or mature market.

1.4.1 ROI

"When you put money into an investment or a business endeavour, ROI helps you understand how much profit or loss your investment has earned. Return on investment is a simple ratio that divides the net profit (or loss) from an investment by its cost. Because it is expressed as a percentage, you can compare the effectiveness or profitability of different investment choices". (E. Birken and B. Curry, 2021)

ROI is a very simple index to use, which is why it is used in many different circumstances, such as an investment in a production plant but also an equity investment, which is why it is a simple but also generic index. The basic rule is very clear: if the ROI of an investment is positive, then it is possible to proceed with the investment as it generates a positive profit; if, on the other hand, the ROI is negative, as there is a loss, there is no point in proceeding with the investment. However, it is not always necessary to make an investment if the ROI is positive. For example, if you must choose between several investments, it is logical to opt for the investment with the highest ROI and consequently discard all the others with a lower ROI. If, for example, a five-year investment gives an ROI of 25% and a one-year investment gives

an ROI of 15%, although the first of the two investments give a higher return, it is not automatically obvious that it is better, because of the much shorter time taken into account. This situation highlights a major limitation of ROI.

Another limitation about ROI is that it only considers the initial costs of the investment while there are many other costs such as tax costs, maintenance costs or transaction costs that should be highlighted (Parry, S.B, 1996).

Moreover, ROI very often must be distinguished from its financial function, as investments are very often made for social purposes. For example, installations that significantly reduce energy consumption, although not optimal from a financial point of view, have a very important social purpose and therefore the "financial result" in this circumstance is of less importance (Serwinowski, M. A., and Jessica, M, 2010).

A good ROI, in addition to what we have said, depends on how much risk was taken at the time of the investment. If an investor is risk-averse, a particularly high ROI can be expected afterwards, but if the risk taken is high, a higher return should be expected (Levenson, N., 2011).

There is no industry where there are higher ROI than others, it all depends very significantly on the time variable. In certain decades there are industries that have higher profits than others, without a doubt in the last period the industry that has generated higher profits is the technology industry.

How is ROI calculated? There are two different ways to calculate it, in both cases the result is the same.

1) ROI = (Net Profit / Cost of Investment) x 100

2) ROI = (Present Value – Cost of Investment / Cost of Investment) x 100

ROI can also be calculated in two different ways, the first is when taking into account the capital employed before operating liabilities, the second is when taking into account the capital employed after operating liabilities. The first one can be mentioned as ROI * the second one ROI.

With ROI* the aim is on the one hand to maximize output volumes on the basis of the resources used and on the other hand to be as efficient as possible by using the least amount of resources possible at the lowest cost. The objective of ROI*, also known as gross ROI, is to consider not only the initial investment but also other factors such as

the procurement, production and sales processes. For this reason, it is easy to see that the ROI* will have a lower value as the denominator has a higher value. Once the ROI* has been calculated, if you wish to calculate the net ROI, simply subtract all the expenses mentioned above (e.g. production and sales expenses) from the value found in the denominator. If we put ROI/ROI* in proportion, we obtain the degree of commercial leverage, which expresses how much the operating profitability grows thanks to the commercial liabilities (F. Di Lazzaro, 2015).

1.4.2 *ROE*

Return on Equity (ROE) is the measure expressed by the net income divided by the value of its total shareholders equity, expressed as a percentage.

The importance of ROE derives from the fact that it allows to measure how efficiently the company manages the capital contributed by its investors. For this reason, the shareholders themselves can monitor this value in order to verify the value performed so far by the governance. The higher the value of ROE, the more efficient is the management (Berk, J., and De Marzo, P., 2017).

The usefulness of ROE is usually in comparing companies in the same industry, as comparing companies in different industries do not allow an objective analysis, but if the companies belong to the same industry, financial efficiency can be assessed more objectively.

However, there are two main problems in calculating ROE: the first is in relation to the fact that ROE is subject to high variations if debt capital increases. In companies with a very high debt capital, usually also the profit tends to be high compared to the equity paid in by the shareholders. Apparently in such a situation the ROE could be equal to or above 50%, but the risk of financing is not taken into account, because debt capital has to pay interest in the future and this factor is not shown in the ROE formula, which we will see later. Another limitation of ROE is that if you want to make a comparison between two companies, there may be cases where some companies include intangible assets such as goodwill in their equity and others do not. This obviously implies higher ROE values for all those companies that do not include intangible items in their equity.

ROE formula = (Net Income / shareholders equity).

ROE has at its numerator the profit made by the company before it is distributed in the form of dividends to shareholders (Damodaran, A, 2007). The denominator has the

equity which is obtained by making the difference between all assets and liabilities and is equivalent to what the shareholders initially paid in plus profits or minus losses. In addition, ROE can also be calculated by taking into account different periods, such as years or quarters.

In conclusion, ROE is undoubtedly a simple and interesting measure to understand the company's performance based on the initial paid-up capital, and it helps to understand how much is financed through equity and how much through debt. The best solution, in general, is to adopt an approach that includes both financing methods.

1.4.3 RONA

RONA as the ratios analyzed before is an important financial measure that highlight how well-fixed assets and net working capital are performing and how much important is their impact in relation to net income. In fact, there may be situations where for each unit of income earned there may be a higher profit than has been achieved so far, obviously, even in this situation, the RONA of a company should be compared with the RONA of other companies in the same industry.

RONA is an extremely useful measure in all those activities with a high intensity of fixed assets, for example, companies within the manufacturing sector with many plants and machinery. A high RONA indicates excellent utilization of fixed assets, both efficiently and effectively, but as with the other indices analyzed above, company's health cannot be based on this measure alone. Furthermore, if the operating income is not as high in the RONA calculation as it might be due to expenses from extraordinary activities, it is possible to add such expenses to the operating income (Berzakova, V., Bartosova, V., and Kecova, E, 2015). Although in fact the operating income should be a balance without addition of other items, since only in the following years the effects of such expenses will be seen.

We are going now to analyze RONA's formula and what does it mean.

RONA= Net profit / (Fixed assets + *NWC*)

As you can see from the formula, the RONA consists of net income (all assets and liabilities related to the company's operating activities) on the numerator and net working capital (the balance between the company's current income and current expenses) on the denominator, which is added to fixed assets.

- *Rona and the financial leverage effect.*

When there are no financial debts the value of the RONA coincides with the one of the gross ROE. However, when gross ROE is greater or less than 0, there is no such equality, and this gives rise to a "leverage effect" which can be either positive or negative. In relation to what has just been said, it is necessary to take into account the average rate of financing (of financial debts) which must be compared with the RONA and can give rise to three different situations. The first situation is where the RONA expressed as a percentage is higher than the average funding rate, the more debt financing there is and the greater the difference between the RONA and the average funding rate, the better the results will be. This shows that debt financing is very efficient since it increases the return on capital and is a classic example where leverage is used to increase the profitability of equity, however it should not be exaggerated otherwise it could cause a boomerang effect.

The second case is that of neutral leverage where the RONA is equal to the average rate of debt financing and consequently there is no positive or negative impact on income from financial debt, which neither increases nor decreases the return on equity.

Finally, the last case is where financial debt is a negative factor and reduces gross ROE. In this situation the RONA is lower than the average debt financing rate. This negative effect is greater the greater the difference. It should be noted that if the return on investments is lower than the financing rate, any type of financing in the form of debt is inefficient and would only lead to further losses (Aydemir, A. C., Gallmeyer, M., and Hollifield, B. 2007).

RONA is a value that can undoubtedly grow but this growth because of investments can reach a certain threshold, once this threshold is reached the investments made will no longer receive the same return as before. Moreover, the average financing rate is a value that is directly related to the risk assumed by the company. For example, in the case of a company with a high risk because of a high level of debt, the party that undertakes to seek financing, due to the high risk of insolvency, will only do so in exchange for a high financing rate. With this last concept just explained, there is even more justification for what was said earlier, at a certain point RONA does not grow anymore and continuing to finance itself through debt would be inefficient (Di Lazzaro, F., 2015).

1.4.4 Extra-operational management leverage degree

In the course of this first chapter, we have already explained how there are three different types of management within the company's activity: operational management, relating to all the activities directly linked to the core business; extra-operational management, relating to activities that the company carries out, but that cannot be attributed to the core business; extraordinary management, relating to all those activities that cannot be predicted initially.

We will now analyze the relationship between RONA and ROI, which expresses the degree of leverage of non-operating activities. If the ratio between RONAn/ ROI is <1 the performance of the ancillary management is less efficient than the performance of the operational management, the greater this gap the greater the effect that the non-operational management has on the return on capital. If the RONAn/ROI is = 1 the return of the two different areas of management is the same. . If RONAn/ROI >1 the return on non-operating management is higher than on operating management (Aivazian, V.A., Ge, Y., and Qiu, J., 201

1.5 WACC

WACC is the weighted average cost of capital. Its formula can be used to understand the cost that a company must bear in order to raise financial resources from both shareholders and third parties. It is also an useful formula to understand what is the principally way that the company adopts to finance itself. There can be scenarios where the company prefers to use more equity than debt from external parties or scenarios where the weight is equal 50% and 50% or scenarios where the company finances itself mostly with debt.

The formula to calculate WACC is the following: WACC = Ke x (E/D+E) + Kd (1-t) x (D/D+E).

Ke = cost of equity

E = *Equity*)

D = (*Debt*)

Kd = cost of debt

t = taxes percentage

In order to calculate the WACC as a first step it must be calculated the cost of equity (ke) through the CAPM method. The CAMP gives the expected return = risk free rate+ (beta* market risk premium). Ri = Rf + ßi x (Rm-Rf).

The weighted average cost of capital of a security, an investment project or a company is a widely used tool for evaluating strategies for buying or selling assets.

Beta is a value that is not always given by public data, it happens when the company is not listed. In order to calculate a beta from a company that is not listed, at first it should be found the average of the unlevered beta of similar companies that operates in the same industry and once it is calculated, is possible to proceed with the following formula:

Beta levered (of the company exanimated) : BETA unlevered *(1+(1-t)(D/E)). Once beta is calculated it can be than calculated the cost of capital (ke). All the other items inside WACC formula are present the balance sheet, except the cost of debt that can be easily calculate doing the proportion between (net interest expenses / debt or taking) and then WACC or taking into account the yield value of an issued bond.

(Berry,S. G.,Betterton,C. E.,and Karagiannidis,.I, 2014)

As it will be analyzed in the following chapters WACC is also used to calculate specific spread as : RONA(1-t) – WACC or net ROE – WACC.

FINANCIAL ANALYSIS: GOALS AND COMPANY'S EVALUATION

1.6 Taxation

Taxation plays an essential role for a company, as noted in section 1.2, taxation is what determines the difference between EB and net profit. Taxation affects companies differently depending on the country. There are countries such as, Holland and Hungary where taxation is very low and therefore, the difference between EBT and net income, is greater in all those countries where the tax rate for companies is much higher. An example of countries where corporate taxation is high are Italy and Denmark, the two countries where the companies that will be analyzed later come from.

1.6.1 Italy

Taxation of corporations In Italy, are taxed through two taxes: Ires and IRAP. These are direct and proportional taxes related to the taxable profit and the value of net production, respectively.
Ires, an acronym for corporate income tax, has a rate of 24 percent and affects the profit determined according to tax criteria; in other words, the statutory profit resulting from the annual financial statements undergoes increases or decreases due to the impact of the tax law, which provides for partial or total non-deductibility of negative income components, or through other mechanisms, again of tax derivation, provides for decreases in the tax base (F.Tesauro, 2007).

1.6.2 Denmark

When talking about business taxation in Denmark, it considered as lower than the average of OECD and EU countries, with 22% of a corporate tax rate. There is no double taxation in Denmark for Danish companies that have their branches overseas,

which makes the country attractive for Nordic headquarters location. The labor costs there are highly competitive, where the employers pay a cost of social contribution rate lowest in the world. It remains less than 1% per year making it maximum around 1350 euros. This includes pensions, insurance of healthcare together with the payment of holiday. For the R&D expenses 130% of the taxes will be rebated as well as 100% rebated taxes from interest arising from acquisitions. After deduction of expenses, the corporate tax must be paid. Nor are there additional taxes such as local, net wealth or franchise. The capital duty and share transfer duty does not exist in Denmark. They have the lowest employer-funded employee benefit costs in Europe (Copenhagen Capacity, 2022).

CHAPTER 2

Financial Analysis

Case studies:Novo Nordisk SA & Menarini srl

The aim of this second chapter is to put into practice all the notions at theoretical level that have been explained in the previous chapter. In order to do this, two companies will be analyzed: Novo Nordisk S/A and Menarini srl. The analysis will be developed following the chronological order also present in the first chapter: (1.1) financial analysis based on ratios, (1.2) income statement analysis, (1.3) income lavers analysis, (1.4) profitability analysis, while particular attention will not be paid to taxation, which, however, is an integral part of the financial statement analysis. A perspective on the sector in which the two companies operate will be given first and then on the companies themselves, a brief reference will be made to their business, their mission, growth over time and where they operate. Once this is done, we will move on to the specific analysis, taking into account the main evaluation methods for each of the macro-topics previously analyzed, once this is done, we will then provide a judgement on the results obtained, providing positive or negative comments accordingly.

2.1 Pharmaceutical industry

Medicine is leading towards new innovative solutions as the development of science and technology have been going hand in hand during the past period. Advantage of research leads to the fact that cell and gene therapies are being more and more accessible. Thanks to the significant improvements in the industry, the well-being of today´s patients has grown, by giving them about 30 years more of life than a century ago. In biopharmaceutical research major steps take part by small achievements. Several diseases can be controlled or even cured thanks to pharmaceutical improvement and targeted treatments.

The pharmaceutical industry has a huge impact on the European economy. The great impact is seen by the fast-growing market where countries outside Europe are in a leading position, meaning that the biggest success is gained by the economic and research activities in countries and markets such as Japan, China and Brazil. It is also one of the top performing high-technology sectors of Europe. To bring back Europe to growth and guarantee the competitiveness in the future in advancing the global economy- the research based pharmaceutical industry may play a big role in it. Yet the industry faces certain challenges such as the additional regulatory hurdles as well as the increasing research and development costs, thus the manufacturing has been affected severely by fiscal austerity measures that have been introduced across many parts of Europe from 2010 onwards.

Both The Menarini Group and Novo Nordisk are part of The European Federation of Pharmaceutical Industries and Associations, which represents the area of research based pharmaceutical industries running in Europe (EFPIA, 20221).

On a global level Novo Nordisk is in 17th position and The Menarini Group in position 39 when talking about the largest pharmaceutical industries in the world. As none of them were producing vaccines for Covid-19, their growth during the past years was not significant, since there has been growth in one and decrease in the other, but relatively small (Drug Descovery and Development, 2022), (Statista, 2022), (Novo Nordisk, 2019), (Novo Nordisk, 2022).

When talking about the competition inside the pharmaceutical industry all the leading companies are situated outside of Europe with rare exceptions. Most European pharmaceutical companies are placed in France, Germany and the UK. On the 2021

scale Novo Nordisk remains the 17th place of all the global pharmaceutical companies, as there has been a great impact on the whole area due to the pandemic, big changes have taken place position wise for some of the previous leaders. When taking into account the enterprise values of the companies in September 2020, Novo Nordisk has a 10th position with a value of 155, 271 million dollars and Menarini on the other hand ha a 27th position with a value of 29,540 million dollars. Whereas the leading company was Roche from Switzerland with a value of 328, 145 million US dollars. (https://www.fiercepharma.com/special-reports/top-20-pharma-companies-2021-revenue)

2.2 Novo Nordisk

Novo Nordisk is a worldwide healthcare company that has its headquarters in Copenhagen, Denmark. The company was founded in 1923. By now they have their production in nine different countries, five of them include the research and development centers. Nearly 170 countries have access to their products and there are 47 000 employees all over the world.

The company was founded in 1923, when insulin was just discovered as a new drug to cure diabetes. Back then it was a collaboration between two different companies that in 1989 reunited and were named Novo Nordisk. Today their main goal is to make the daily life of people, with several diseases such as type 1 and 2 diabetes, obesity, hemophilia easier. They are trying to make it as easy and comfortable as possible for their clients, therefore the treatments are more and more innovative towards the way people want to live and so it would not excessively affect their daily life (Novo Nordisk, 2022).

2.2.1 The mission and vision of the company

They use a patient centered approach in terms of business. In order to reach their goals, they consider setting ambitious goals and striving for perfection. Good relationships and respect are a key between the employees alongside with stakeholders, to which they lately provide several innovations. The main importance is to focus on the development of themselves and their personal performance (Comparably, 2022).

In their work they are trying to use a business philosophy they call ``The Triple Bottom Line´´, which is a balance between financial, social and several environmental aspects.

For Novo Nordisk, as a leading company in their field, it is necessary to work in close collaboration with both the biotech companies and leading universities in order to speed up new drug discoveries. They are constantly open for new partners to collaborate with. Lastly, they are investing in disease prevention, where their goal is to prevent 100 million people from getting type 2 diabetes by the year 2045 (Novo Nordisk, 2022).

They decline their company's success to be defined by the increase in the number of people living with several serious chronic diseases. Novo Nordisk has the knowledge that the high number of people living with chronic diseases in many countries is caused by the financial burden of getting access and providing medical care. Therefore, they are trying their best to provide access to the cure of the diseases in every country all around the world. They define their success by the solutions they can provide, as well as the health and well-being of different communities and people (Novo Nordisk, 2022).

2.2.1 Reaching zero environmental impact

Novo Nordisk is the first pharmaceutical company that uses only renewable power in all their production facilities around the world. Therefore, their goals towards a green future are even bigger. They want to achieve zero environmental impact in all the activities of their business. Novo Nordisk is constantly collaborating with suppliers to reduce the impact on the environment across their supply, therefore they want to cut CO2 emissions from every operation of them belong side from the transportation. Eventually they want to solve the end-of-life product waste, so that there would be zero waste left. Their goal is to be reached by 2045. As they are working in curing the health of human beings, they must show that they also care about the growing consumption and industrialization as well as urbanization that all cause progressively used products. Their biggest consumption is built up on water and energy usage to produce medicines. Novo Nordisk's target of 2045 includes one of 2030 that the company should have zero CO emission from transportation and operations by that time.

How will they achieve zero waste by 2045? New ways of product designs, recycling, and reuse. Collaborating with people who share their goals is one of the most important parts of achieving the goal.

From the year 2020 they switched to using only 100% renewable electricity across the global production. Redesigning existing and keeping in mind the sustainability while designing new products (Novo Nordisk, 2022).

2.2.2 Governance of the company

The governance of the company takes into consideration corporate governance codes, applicable regulations, and the Novo Nordisk Way. The structure of the governance consists principally of board of directors and executive management.

The board of directors takes care of the overall strategic direction, supervision of the performance of Novo Nordisk, alongside with strategy implementation and how executive management gets their work done.

Executive management's main responsibility is the daily management of the company, development together with implementation of strategies and different policies. The timely reporting to the board of directors and stakeholders is under their responsibilities as well. In addition, there is a very important value called “Novo Nordisk Way”, it is a value based on the management system that makes it clear to the workers what the values and ambitions of the company are and how they will be achieved. It is supported by specific policies that are relevant in variable areas of the organization (Novo Nordisk, 2022).

2.2.3 R&D pipeline of Novo Nordisk

Novo Nordisk’s long-standing dedication mirrors their R&D pipeline, where they drive for changes to beat diabetes alongside other serious chronic diseases. The scientists of Novo Nordisk are presently working on novel and inventive treatments to focus on the unmet demands of people living with obesity, diabetes, hemophilia, growth disorders as well as non-alcoholic steatohepatitis (Novo Nordisk, 2022).

2.3 Novo Nordisk - analysis based on ratios

Balance sheet (Orbis website) the value is dollar and all the numbers must be multiplied*1000

	2021	2020	2019
FIXED ASSETS	16,599,555	13,060,122	9,460,297
IMMATERIAL FIXED ASSETS	6,579,742	3,410,096	874,039
MATERIAL FIXED ASSETS	8,437,786	8,298,501	7,572,163
OTHER FIXED ASSETS	1,582,028	1,351,525	1,014,095
CURRENT ACTIVITIES	13,045,632	10,863,873	9,355,443
INVENTORY	2,990,459	3,059,958	2,642,490
CREDITS TO COSTUMERS	6,194,446	4,578,381	3,731,632
OTHER (WORKING CAPITAL)	3,860,727	3,225,535	2,981,321
LIQUID FUNDS	2,664,909	2,105,949	2,318,040
TOTAL ASSETS	**29,645,188**	**23,923,995**	**18,815,740**

	2021	2020	2019
EQUITY	10,782,479	10,453,810	8,627,002
SHARE CAPITAL	70,414	77,588	71,900
RESERVES AND OTHER FUNDS	10,712,065	10,376,221	8,555,101
NO-CURRENT LIABILITIES	3,695,361	1,869,387	1,353,525
LONG TERM DEBT	1,975,401	478,242	450,726
OTHER NO-CURRENT LIABILITIES	1,719,960	1,391,145	902,800
PROVISIONS FOR RISK AND CHARGES	861,733	978,110	890,816
CURRENT LIABILITIES	15,167,348	11,600,798	8,835,213
DEBT	1,960,312	1,103,407	98,713
DEBTS TO SUPPLIERS	1,351,887	943,773	952,381
OTHER CURRENT LIABILITIES	11,855,149	9,553,618	7,784,119
TOTAL LIABILITIES	**29,645,188**	**23,923,995**	**18,815,740**

2.3.1 Strength analysis - Novo Nordisk

We know that capital strength refers to the degree to which the company is able to meet future payments, more the situation is stable, more the capital strength will be greater. From the balance sheet table (taken from the orbis website) we can see that the company in 2021 is financed by 10,782,479 billion USD through equity, 3,695,361 USD billion through non-current liabilities and 15,167,348 USD billion through current liabilities. Before an examination of Novo Nordisk capital strength base on ratios, it can already be seen at first view that it is a normal situation. There is not a situation in which financing is only through equity, nor is there a situation in which the financing is just through debt.

The situation in 2020 at first impact is even better, in fact, while the amount of equity is almost the same there is a significant diminution of current and consolidated liabilities.

Now the analysis based on ratios can be turned on.

- the first ratio we analyze *is fixed asset to equity capital ratio* = Equity / Fixed Asset. Since Equity = 10 782 479 and Fixed asset = 16 599 555 the result is: 10 782 479/ 16 599 555 = 0.645.
- The second is *Fixed asset to equity capital and medium-long term debt ratio* = (Equity + consolidated liabilities) / Fixed Asset. We already know the value of equity and fixed assets, that consolidated liabilities are 3 695 361 and the result is
- (10 782 479 + 3 695 361) / 16 599 555 = 0.872.

Through the calculations made it can be shown that the capital solidity based on these two ratios explicit that the fixed asset to equity capital ratio is > 0.6, a value more than sufficient, but the fixed asset to equity capital and medium-long term debt ratio is not > 1 but in the range between 0.5 and 1 (G.Musco, 2015). At first impact, in fact, the situation is not the best, it can be defined as sufficient but not discreet. Moreover, this sufficiency is given thanks to a good, fixed *asset to equity capital ratio* (0.645); if, for example, this value had been in the range between 0.3 and 0.5, there would have been insufficient capital solidity.

However, it is important to highlight that this insufficient capital strength only applies to 2021, carrying out the calculations for 2020 and 2019 it is noted that: fixed asset to equity capital ratio (2020) = 0.8; fixed asset to equity capital and medium-long term debt ratio (2020) = 0.94; fixed asset to equity capital ratio (2019) = 0.91; fixed asset

to equity capital and medium-long term debt ratio (2019) = 1.05. In both years, especially in 2019, the company's capital strength is undoubtedly at a good level and consequently the risk of insolvency is lower.

Now it can be analyzed one of the most important ratios, *Debt-equity ratio* = total liabilities/equity. The result of this ratio in 2021 was 2, 75 this amount of risk is high, and a particular care must be taken in order to get a lower financial dependency and avoid lack of financial autonomy. Even in 2020, where the debt equity value is 2.28, the situation was not fine, in 2019 it was 2.18, although the situation was better it was not still sufficient.

2.3.2 Liquidity analysis - Novo Nordisk

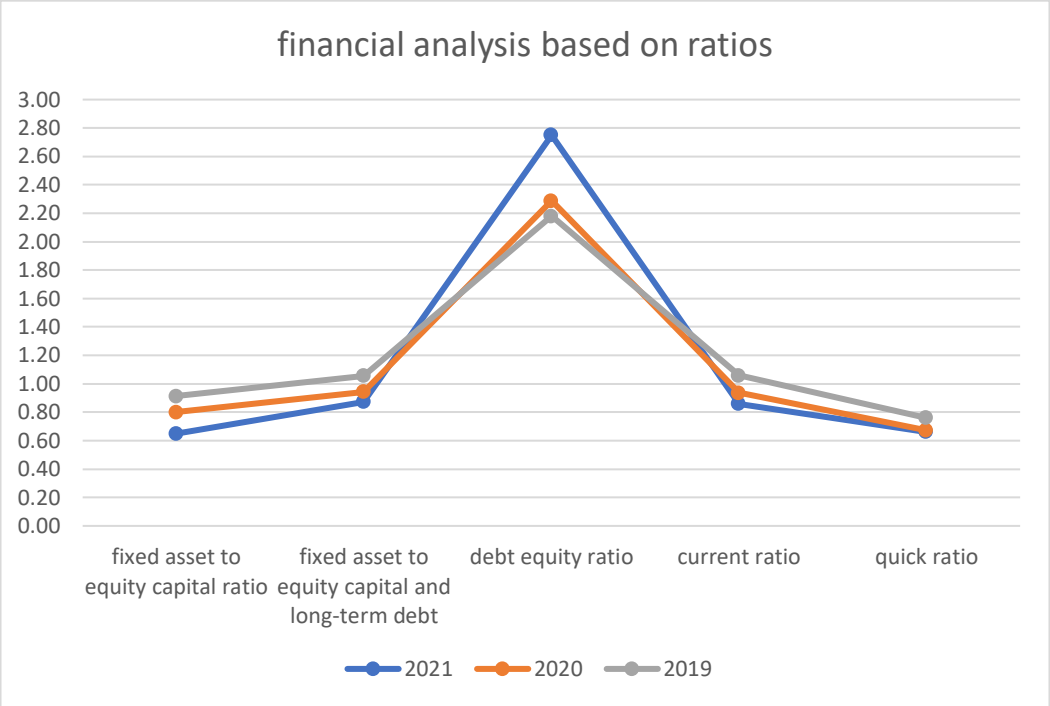
Liquidity analysis is a calculation that is made to be sure that a company can meet its payments to creditors in the short term. A liquidity analysis will be done based on Novo Nordisk' liquidity situation. The first index to consider is *current ratio* = current assets/current liabilities. From the balance sheet we see that current asset = 13,045,632 and current liabilities = 15,167,348, current ratio is therefore = 0.86. Since the value is less than 1, there is an apparent high risk that the company will not be able to meet the payments in the short term. In 2020, this value is still insufficient at 0.93, whereas in 2019 it is sufficient at 1.05.

Another important index is the Quick ratio = total liquidity/current liabilities, this index helps us to understand if the liquidity of the company can cover the current liabilities with the means that can be easily converted into cash (for example, inventory is excluded). So, if we subtract 2 990 459 from the current ratio formula as numerator, we get the quick ratio = 0,66. A close value is also given in 2020, the result is in fact 0,67.

The quick ratio also confirms that Novo Nordisk's available liquidity may not be sufficient to cover short-term liabilities. A value that allows us to be 100% confident is above 1 although it is not particularly easy to achieve, in fact we note that even in 2019 where the current ratio is >1, the quick ratio is below 1.

It should also be noted that, although this value excludes inventory, it always includes credits, which may be difficult to collect from time to time.

	2021	2020	2019
strenght analysis			
fixed asset to equity capital ratio	0,650	0,800	0,912
fixed asset to equity capital and long-term debt	0,872	0,944	1,055
debt equity ratio	2,749	2,289	2,181
liquidity analysis			
current ratio	0,860	0,936	1,059
quick ratio	0,663	0,673	0,760



2.4 Novo Nordisk – income statement analysis

(orbis) All the numbers must be multiply * 1000

Total revenues	21,513,138	21,035,723	18,371,755
Net sales	21,459,490	20,956,484	18,277,835
Other revenues	53,649	79,239	93,920
Costs of goods sales	-3,044,870	-2,944,070	-2,473,974
Costs for research and development	-2,483,082	-2,263,768	-1,934,571
Other income	-6,128,909	-5,942,947	-5,253,674
EBITDA	9,856,277	9,884,938	8,709,537
Total depreciation	-918,277	-949,716	-847,976
Depreciation	-668,475	-711,008	-627,930
Depreciation and losses	-249,802	-238,708	-220,045
Profit at the net of depreciation and losses	8,937,999	8,935,221	7,861,562
Earnings before Interest & Tax (EBIT)	8,937,999	8,935,221	7,861,562
Financial income	35,207	55,633	9,737
Financial expense	-62,641	-121,335	-621,489
Difference between financial income and expense	-27,434	-65,703	-611,753
Others financial income and expense	93,885	-98,719	23,068
EBT (earnings before taxes)	9,004,451	8,770,800	7,272,877
Taxes	-1,725,751	-1,814,580	-1,438,308
Profit	7,278,699	6,956,220	5,834,569

2.4.1 Gross Profit - Novo Nordisk

The first value that can be explicated from the analysis of the income statement is the Gross Profit, through this value we can understand what the profit of the company is without considering costs or items in the balance sheet other than revenues from sales and costs due to production, in fact *gross profit* = net sales - costs of sales (Edwards,J.B.2016).

In 2021 Novo Nordisk's net sales = 21,513,138 billion and costs of goods sales = -3,044,870 billion we obtain a gross profit = 18,038,268 billion. An extremely positive result, from which we can already understand that all the other costs can be covered, and obviously after taxation, the company will be able to obtain a profit. The gross

profit in this situation is particularly high due to the fact that there are low production costs, however, to compensate it there are high research and development costs, as we will see shortly. Furthermore, as can always be seen from the financial statements, production costs are also low in the previous years (2020 and 2019).

The Gross profit in 2020 was in fact 15, 5 billion, extremely high too. A little bit lower but still good was the result in 2019 = 15, 57.

2.4.2 EBITDA - Novo Nordisk

If several items are added to the gross profit of 2021, that has been calculated = 18 468 268 billion, EBITDA can be obtained. As mentioned in the previous paragraph, there will be a big difference between gross profit and EBITDA, because of the presence of research and development costs and because of other costs as salaries or services. Research and development costs are justified and are essential within a pharmaceutical company, as they are the costs that enable the company to sell new products in the future. These costs for Novo Nordisk are = -2,483,082. Furthermore, if we also subtract the revenues which are not pertinent to the production and sales step (-6,128,909 + 53,649), we obtain EBITDA= 18,468,268 - 2,483,082 -6,075,260 = 9,856,277 billion. If we make a comparison with 2020 and 2019 while in 2020 the value is almost the same 9,884,938, in 2019 it is lower. This is due to the fact, that the revenues in 2019 were lower by almost 3 billion. The usefulness of calculating EBITDA allows us to understand how efficient Novo Nordisk's management is without taking into account revenues, income or financial expenses that are not directly related to the core business (Grant,J. ,and Parker, L, 2002).

As a result of the results obtained, Novo Nordisk's EBITDA can undoubtedly be considered positive.

2.4.3 EBIT - Novo Nordisk

If we subtract other operating costs from the previously calculated EBITDA, we obtain EBIT. The operating costs that can be taken into account (in Novo Nordisk's financial statements) are depreciation costs (costs that arise, for example, from the deterioration of machinery over time) and write-downs. The balance sheet in 2021 shows depreciation = -668 475 million and depreciation and losses = 249 802 million, giving a total of 918.277 million. If we subtract the total of depreciation from the EBITDA

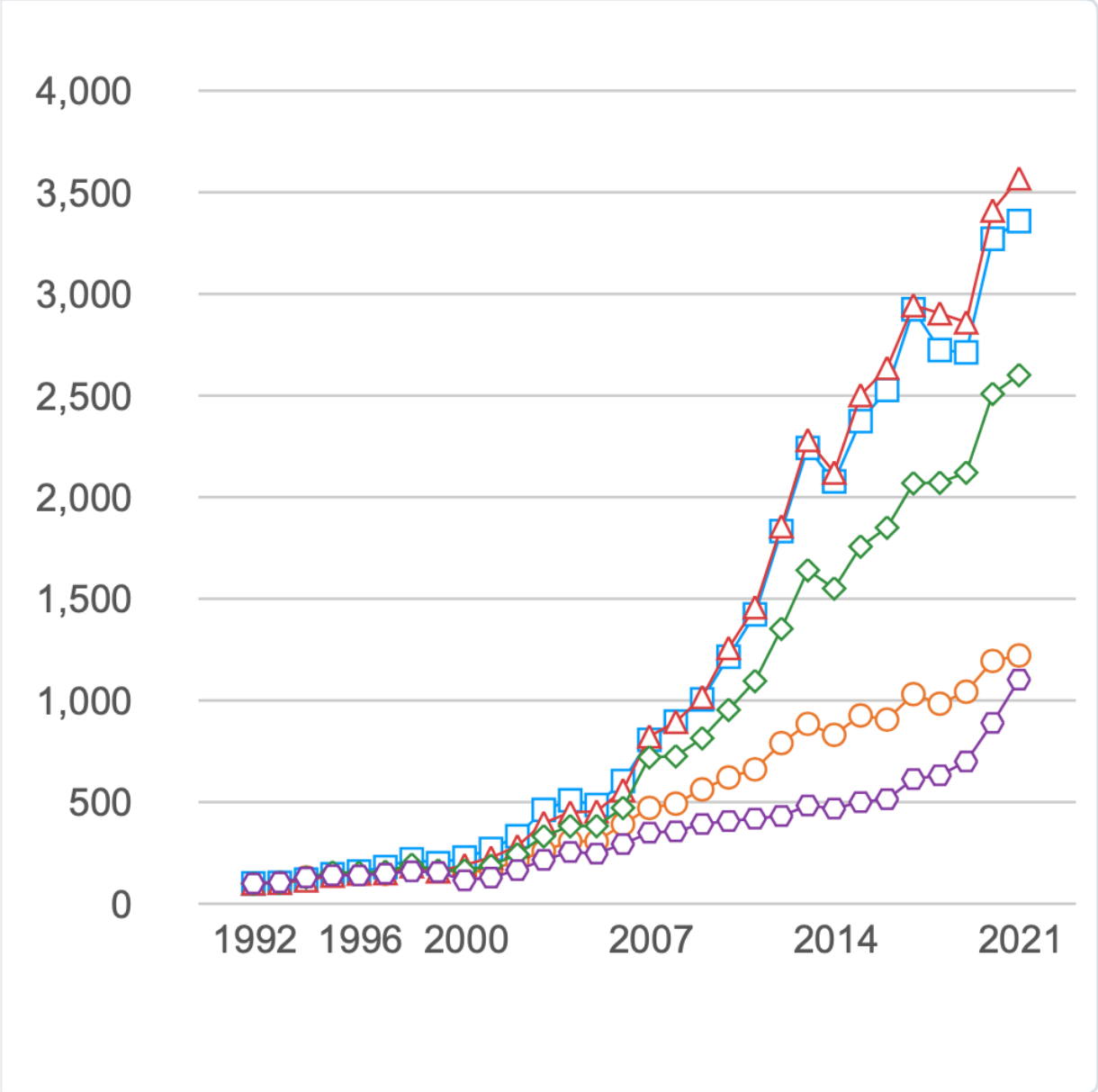
obtained above, we will have: 9,856,277- 918,277= 8,937,999 billion. It can be noted that the difference between EBIT and EBITDA is quite small, this shows that the depreciation of machinery does not particularly affect the company's balance sheet and neither do the capital losses. In 2020 the situation is almost the same, EBIT = 8,935,221 while as it happened for the EBITDA, EBIT's value in 2019 is lower, 7,861,562.

2.4.4 EBT and net profit – Novo Nordisk

The calculation of EBT considers all financial transactions involving the company, we talk about financial management, it is independent from the business and will give a positive or negative balance (Robison, L. J., and Barry, P.J, 2020). In the case of Novo Nordisk, in 2021, we have a difference between financial income and expense = -27,434 million. However, if we also consider other financial income or costs, which have a value of 93,885, million the EBT result is higher than the EBITDA result. The financial management by the managers was very positive and the final result is 9,004,45 billion. On the other hand, the same didn´t happen in 2020 where there was a net balance of the financial management -164 422, EBT was 8,770,800 billion. In 2019 it can be noted the lowest EBT = 7,272,877 billion

Net profit

Finally, all that remains to be done is to deduct tax from the EBT result and the net profit is obtained. Taxation for corporations, although the rate is around 22%, may change as a result of any balance sheet items to be deducted or added to the final tax bill. The highest net profit can be highlighted in 2021 = 7,278,699 billion, then in 2020 = 6,956,220 billion and finally in 2019 = 5,834,569 billion.



Graphic from Orbis

In 1992 the situation was :

- Total sales (billion) = 1,76
- Ebt (million) = 268
- Net profit (million) = 204
- Financial flow (million) = 315
- Total assets (billion) = 2,69

2.5 Novo Nordisk - Income lavers analysis

Thanks to the income statement analyzed above, we can now move on to the income lavers analysis, considering the two main levers: operating leverage and financial leverage.

2.5.1 Operating leverage - Novo Nordisk

Degree of operating leverage

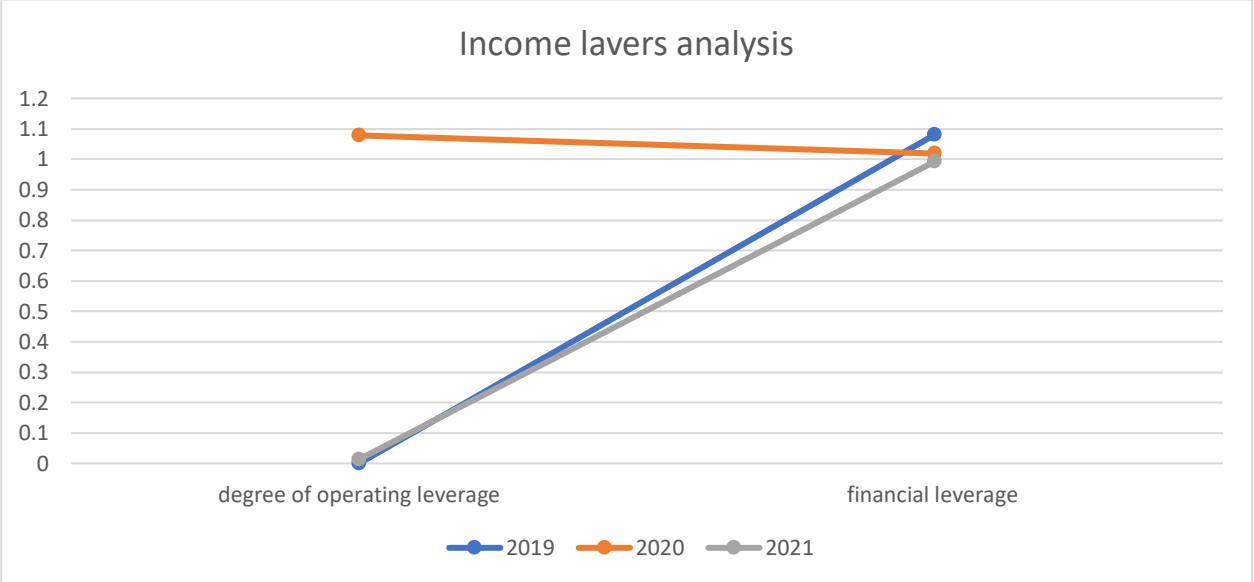
The degree of operating leverage shows how much influence sales have on the company's profit and consequently also the impact of fixed costs. The formula to calculate the degree of *operating leverage* is: % change in EBIT / % change in sales (Novy-Marx, R, 2011). To calculate this difference, we obviously must consider 2 years, 2021 and 2020. The difference in sales between 2021 and 2020 is = 477 415 million that must be divided by 21,035,723, the result is 0,02; the difference in EBIT between 2021 and 2020 is = 2 778 that must be divided to 8,935,221 the result is =0,0003. If we make a comparison between 0,0003 and 0,02, we get a result of 0,01= degree of operating leverage. This value doesn't represent a perfect equilibrium, in fact, the operating profit is not particularly sensitive to variations in sales and fixed costs are neither independent from the production phase. On the other hand, a value higher than 1 would have underlined a higher change in operating income based on a change in sales. A value of 2, for example, is quite high, a planning error could be a problem and for that reason a particular attention should have been paid on it and of course it would have been of primary importance to maintain always high the percentage of sales (Dugan, M.T., and Shrinver, K.A., 1992). In 2020 the scenario is different and more equilibrated, *operating leverage* is 1,08. This value underlines a perfect balance, in fact for each single unit of goods sold, operating will grow for 1,08 times more. It also highlights an equilibrate independency of fixed costs, not too much independent, neither too less.

2.5.2 Financial leverage - Novo Nordisk

In order to calculate what is the maximum debt that Novo Nordisk can ask, it is needed to use the financial leverage, through this ratio, it will perceived how much EPS varies when EBIT varies. The formula is in fact the following *DFL*: (% change in EPS / % in the EBIT) or *DFL* : EBIT/ EBT, for simplicity we use the second one.

DFL in 2020 = 8,937,999 / 9,004,451 = 0.99. The value, less than 1, is due to the fact that the financial management was successful, so the denominator has a higher value. In addition, another important element to note is that a low DFL value indicates low volatility and therefore also low risk (Campbell, J, Y., J. Hilscher, and J. Szilagyi 2008). As a result of the above, since there is a low volatility and there is a low risk, the denominator is higher. DFL in 2020 was 1,01, it is explained by the fact that the financial management is negative, so the value is above 1.

	2021	2020	2019
income lavers analysis			
degree of operating leverage	0,01369898	1,0784151	// //
financial leverage	0,99262009	1,0187464	1,08094252



2.6 Novo Nordisk - Profitability Analysis

The last step to conclude the analysis of the Danish company Novo Nordisk is to carry out the profitability analysis, the profitability analysis aims to judge how well the

capital has been invested by the shareholders over time and consequently the performance of the managers.

2.6.1 ROE- Novo Nordisk

ROE is an index used to understand how efficiently the share capital paid in by shareholders is used, the higher the ROE value is, better is the governance of the company (Berk, J., and De Marzo, P., 2017). *ROE* has the following formula: (net income / shareholders equity) * 100. We know that net income is = 7,278,699 and shareholders' equity = 10,782,479. The net ROE is therefore = 67.5 (multiply the two previous values and then multiply again by 100). The ROE is clearly higher than zero, which shows that the management of the company has been very positive. In addition to the net ROE, we can also calculate the gross ROE. Unlike the net ROE, the gross ROE includes taxation, which means a higher value. In fact, the gross ROE is 9 004 451, and shareholders' equity is 10,782,479. If we multiply it by 100, we obtain a gross ROE of 83.51. This is a confirmation of what has been explained above, the shareholders' equity has generated a significant profit. One criticism that is levelled at the ROE is that the ROE value itself can be influenced (in a positive way) by high debt capital, so we need to check whether this is also the case for Novo Nordisk or not. From the balance sheet data, we can see that ROE (2020) = 66,5, gross ROE (2020) = 83.9 and ROE (2019) = 67.6 and ROE (2019) is = 84.3. In both cases we can therefore see that the ROE is higher. However, if we analyze the debt capital of the company in the years 2020 and 2019, we can observe that in both cases the debt capital was lower, because of it, is evident that the ROE of Novo Nordisk is not affected by debt.

2.6.2 RONA - Novo Nordisk

RONA is a ratio used to understand how fixed assets and net working capital have been utilized. It is possible to see whether the net profit could have been higher than it is.

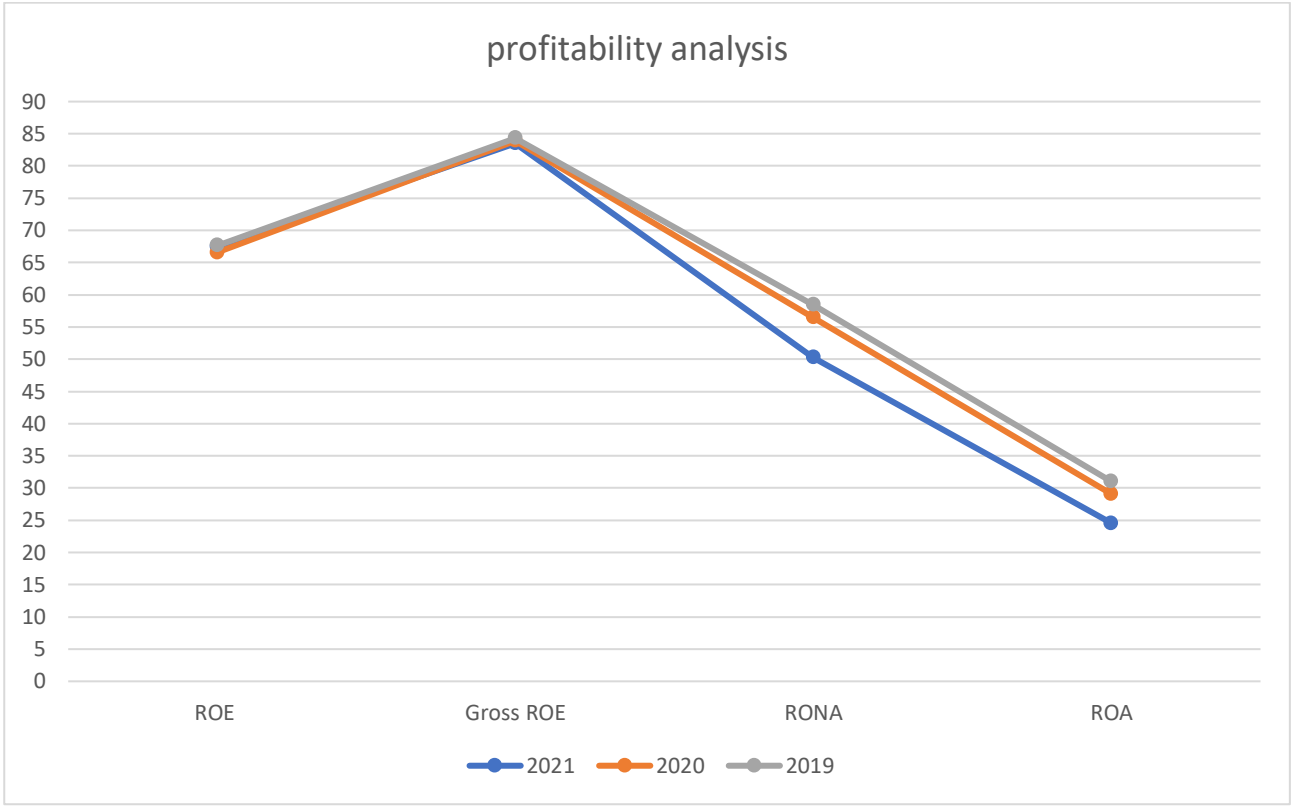
RONA = Net profit / (fixed assets + NWC), we know that in 2021, net profit is = 7,278,699, fixed assets = 16,599,555 and we also know that NWC is the difference between current activities and current liabilities. Current activities are = 13,045,632 and current liabilities are 15,167,348. So, RONA = 7,278,699/ (16,599,555 - 2 121 716) = 0.50*100= 50. It is undoubtedly a positive result, even if it should compare to

another company of the industry. It is also noticeable that in the previous year2020 RONA was also good as it was = 56.

2.6.3 ROA – Novo Nordisk

ROA is the last index that will be analyzed, it is very useful as it allows to understand the ability of the company to make profit through the exploitation of its assets or resources. The formula to calculate *ROA* is = (operating income / total assets) * 100, we know that in 2021, operating income is 7,278,699, total assets = 29,645,188, so the result will be 24.5 or 24%, even a better result was achieved in 2020 where ROA was 29 or 29%. Although it is useful to compare the ROA with another ROA in the same industry (we will analyze this later), we can already see that it is positive since its % is higher than the interest rate provided by the banks.

	2021	2020	2019
profitability analysis			
ROE	67,5048753	66,542438	67,6314785
Gross ROE	83,5100258	83,900511	84,3036434
RONA	50,2747613	56,448177	58,4595282
ROA	24,5527166	29,076331	31,0089797



2.7 WACC Novo Nordisk

In order to understand the cost that Novo Nordisk has to obtain to raise financial resources from shareholders and third parties, it is necessary to calculate the WACC.

WACC = Ke x (E/(D+E)) + Kd (1-t) x (D/(D+E)).

Before going on to calculate the WACC specifically, it is necessary to calculate the cost of equity (Ke) using the CAPM model.

It will then be seen that E(Ri) = Rf + bi [E(RM) - Rf]. The first value in the formula is the risk free, and it is taken as a reference the 10-year interest rate of German bunds that in 2020 = - 0,05% (sole 24h, mercati, website). It is important to highlight how it was the pandemic year.

E(RM) - Rf = risk premium, to calculate the risk premium of the company, because of the fact that the company operates all over the world, it should be used an average risk premium of all the different regions. The average is approximately 6,5% (Damodaran country risk premium report, 2020).

The last value to take into account is the Beta, as the company is already listed,
it is already known and is = 1.19 (Orbis website).

Ke = -0,05 %+ 1.19 * 6,5% = 7,2 %. Once the Ke is calculated, Kd can be calculated.

Kd = net interest expenses / debt. Kd = 0,035 (Novo Nordisk, annual report 2020)

At this point, it is possible to calculate WACC =

0,072*(10, 453 / (1,580 +10, 453)) +0,035 *(1-0,21)*(1,580/ (1,580+10,453))= 6,6%

(all the numbers that refers to E/(D+E) and D/(D+E) must be multiplied for
1 000 000).

This value highlights how into the WACC formula, the equity part has a higher relevance instead of the debt part. In fact, the two different parts of the formula are respectively 6,2% (cost of equity), 0,4% (cost of debt).

2.8 The Menarini Group –

The Menarini group, firstly named, was opened in Naples in 1886. From 1915 until now the company's headquarters is situated in Florence, Italy. Thus, to the fact that during the old days the biggest glass and vial producers, that were needed for the medicine, were situated there. The company is in 140 countries all over the world, where more than 17 000 people work for them. The manufacturing for the company takes place in 18 different locations. The company invests in the future and ensures that there is access to the drugs in the present. There are 10 research and development centers in total. Their focus takes place in therapeutic areas, such as difficulties with pathology ect. The overall company is divided into three sectors: Menarini Ricerche, and Menarini Diagnostics and lastly Menarini Biotech (Menarini Group, 2022).

2.8.1 The mission and vision of the company

The mission of this pharmaceutical company is to cure every disease, by which they hope to lead people to better health, while being happier and where the clients live viable and longer.

The clear vision of The Menarini Group is that well-being is an engagement for the whole lifetime period. The company aggregates their values into four main points being quality, responsibility and integrity, patient focus as well as people care. Under the part of quality, they make sure that the fulfilment of regulatory requirements is succeeded, they work towards reaching the superb standards on today's market where they operate and create an absolute quality culture. Through quality the care of the patients has been improved. When it comes to the responsibility and integrity as part of the value of the company, to be part of the company one should have pride, passion, dedication as well as commitment as part of their personality traits. As those are considered as the quality traits of the company and each employee is a representative face of the company. The high ethical standards have been adopted in all of their working processes. Being patient focused on this company is extremely important as all of their work producing several pharmaceutical solutions is dedicated to their patients. Every activity of them is inspired by the value that they have their patients to work for. As the fourth value of the company is people care, they make sure the company is centered around a person and people in general. Every person as an

individual should be valued and included as the way they are, as the environment of The Menarini Group is highly multicultural. Solidarity for this company is a fundamental part of the respect towards people. The respect and protection of the working environment leads to a better future in their words (Menarini Group, 2022).

2.8.2 Partnering with other companies

Partnering with other companies on the field is a key to the company. They know that they already have a profound background, where they have been long standing. For a good partnership the company has created a business development team that cooperates with several business associates to assess and explore up to date innovative solutions. To provide sustained growth with a relationship focused and solution-based approach, they have their strategic way of looking for new partners. The company is looking for partnerships in five main areas being oncology, pharmaceutical, health consumers, diagnostics, and dermatology with aesthetic medicine (Menarini Group, 2022).

2.8.3 Green impact

The association has made Environmental, Social and Governance (ESG) criteria as part of their business model in order to create long lasting value of what they do and provide. They have chosen to focus on four things that they consider to be the most important out of all, those are circular economy, liable use of the chemicals, leadership to prevent climate breakdown and sustainable management of water usage. The Strategic Sustainability plan is made of two parts, one focusing on enhancing the initiatives that are already on place and the second one being able to recognize new opportunities to reach the sustainability plan (Menarini Group, 2022).

As part of Agri-forestry projects, The Menarini Group has chosen to plant trees. They call their 11 300 planted trees a green lung (Menarini Group, 2022).

2.8.4 The pipeline and products of Menarini Group

The investment of advanced science alongside technology to develop a pipeline with new medicines that consequently change the lives of the patients of the company that undergo serious conditions. The pipeline of the company assigns to drugs in

development, both in preclinical testing and clinical progress as well as lifecycle management with regulatory approval (Menarini Group, 2022).

Menarini with its ten research centers in Europe, The United States of America and Southeast Asia evolves projects from the preclinical stage until the drug registration itself. The collaboration between the business development and licensing marketing teams leads to promising opportunities and puts in use their expertise in drug evolution in order to transform those into high quality cures that improve the lives of the patients. They hope to deliver scientific developments together with meaningful contributions to find innovative solutions to difficult to treat diseases. Their research and pipeline are to be strengthened on science related to infectious diseases and oncology. Those are the two leading areas for the company and therefore they want to put more effort into bringing new therapies alongside with the drugs (Menarini Group, 2022).

2.8.5 The growth of the company during the time

When the company was founded in 1886 it was located only in Italy, during 1964 they opened their first laboratories in the international level, starting with Europe and Central America. During the year of 1978 the first research and development centers were opened and patients who were on pharmaceuticals were introduced. The research in cells took place in 2016 for the first time. In 1964 the company had only 188 workers, where only 10% of them were graduates or technicians. By 2020 the number has grown to 17 650 and the percentage of the graduates and technicians has reached to 91%. 9 400 employees work in Western Europe, 3 400 in Central & Eastern Europe, 3 600 in Asia Pacific and the rest in the US. When taking into consideration the consolidated turnovers moneywise in 1964 the company's worth was 1 million euro whereas in 2020 it increased to 3,750 million euros. By today 76% of Menarini Group's work takes place abroad and 24% still in Italy. Of the work 92% is pharmaceutical, 7% diagnostics and 1% other (Menarini Group, 2022).

2.9 Menarini - analysis based on ratios

Balance sheet (Orbis) the value is dollar and all the numbers must be multiplied*1000

	2020	2019	2018
Fixed assets	1,625,367	978,457	889,632
Immaterial fixed assets	1,050,318	482,664	388,170
Material fixed assets	556,486	477,607	482,313
Other fixed assets	18,562	18,186	19,149
Current activities	4,125,613	4,052,118	3,886,846
Inventory	1,136,630	890,463	809,080
Credits to costumers	1,005,923	963,914	946,509
Other (working capital)	1,983,060	2,197,741	2,131,257
Liquidity founds	759,869	1,342,300	1,270,030
Total assets	**5,750,980**	**5,030,574**	**4,776,479**

	2020	2019	2018
Equity	4,197,748	3,703,822	3,459,516
Share capital	184,065	168,510	171,750
Reserves and other funds	4,013,684	3,535,312	3,287,766
No- current liabilities	468,330	342,527	290,716
Long term debt	77	48	60
Other no-current liabilities	468,253	342,479	290,656
Provisions for risk and charges	417,657	293,401	237,062
Current liabilities	1,084,902	984,225	1,026,247
Debt	43,672	54,325	103,728
Debt to suppliers	651,256	615,100	589,988
Other current liabilities	389,973	314,800	332,531
Total liabilities	**5,750,980**	**5,030,574**	**4,776,479**

2.9.1 Menarini - Strenght analysis

Menarini's strength analysis will be analyzed in order to understand the type of indebtedness which the company makes most use of and obviously in order to verify whether there is a risk of insolvency, a risk which is present when there is an excessive degree of external indebtedness (Harris, M., Raviv,A. 1991). By analyzing Menarini's balance sheet (2020) it is immediately possible to observe that the situation is rather positive; in fact, Menarini finances itself with an amount of 4 197 748 billion USD thanks to equity, with an amount of 468 330 million USD thanks to no-current liabilities and finally with an amount of 1 084 902 billion USD thanks to current liabilities.

We can therefore see a situation in which equity is the most widely used means of financing, the ratio is clearly in its favor: total debts: equity: 1 to 2.7.

It is chancy to say that the company is financed exclusively by equity, it is not a situation where the risk is 0, but it does not show any risk of insolvency that would occur if there was excessive financing through third parties, either through current liabilities or consolidated liabilities.

This, however, remains a strength analysis at first impact, in fact, to be sure that the situation is stable it is necessary to analyze a series of ratios, as will be done now.

Ratios analysis

- the first index must be analyzed is: *fixed asset to equity capital ratio* = Equity / Fixed Asset. Equity = 4 197 748 and Fixed asset = 1 625 367 the result of 2020 is: 4 197 748 / 1 625 367 = 2.58
- The second is *Fixed asset to equity capital and medium-long term debt ratio* = (Equity + consolidated liabilities) / Fixed Asset. What we know is that the value of equity is 4 197 748 and fixed assets value is 1 625 367, we just need to add, from the balance sheet, consolidate liabilities value that is 468,330, as the result of 2020 there will be that: (4 197 748 + 468 330) / 1 625 367 = 2.61

As a result of the calculations carried out, it can be noted that both the fixed asset to equity capital ratio and the fixed asset to equity capital and medium-long term debt ratio are well above the value of 1, in fact the first is equal to 2.58 and the latter = 2.61. These two values indicate excellent autonomy and solvency at the capital level, and the risk of insolvency is close to zero.

Therefore, what was initially analyzed at first sight is confirmed, Menarini has decided to adopt a strategy aimed at reducing as much as possible the risk deriving from financing from third parties, preferring internal financing through its own means.

In order to confirm that Menarini's strategy was also the same in the past as that adopted in 2020, both fixed asset to equity capital ratio and fixed asset to equity capital and medium-long term debt ratio of 2019 and 2018 can be calculated. Through the calculations made, in 2019 and 2018 the two ratios were respectively above the threshold of 3, highlighting absolute prudence and a risk close to zero.

Finally, we analyze the Debt Ratio, the last ratio in relation to the capital strength analysis. Debt Ratio = Debt-equity ratio = total liabilities/equity, we know that total liabilities = (468 330 + 1 084 902)/ 4 197 748 = 0.37. This value for 2020 is less than 0.5 and allows us to have a further confirmation of the remote risk that the company has in terms of insolvency, in fact, a moderate risk would start to occur for values between 1 and 2. There is an excellent financial autonomy and it is possible to resort to debt in order to finance future growth, this trend is also confirmed by a debt ratio of 2019 and 2018 in both cases below 0.5.

2.9.2 *Menarini – Liquidity analysis*

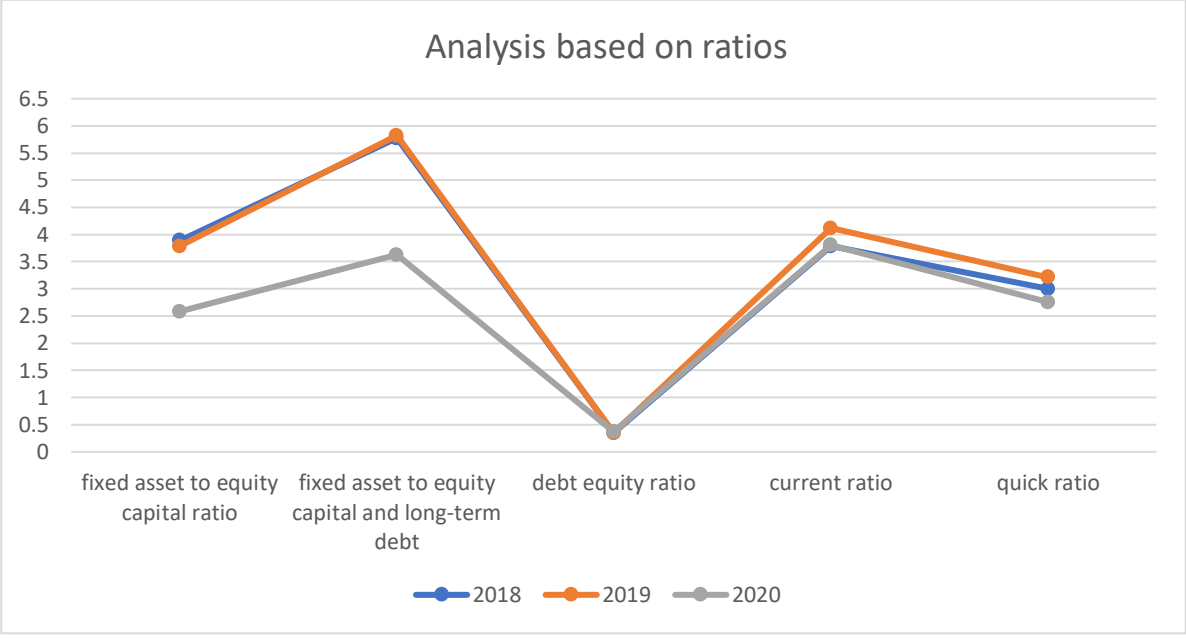
The liquidity analysis is an analysis that is carried out in order to verify and be sure that the company, in the following case Menarini, is able to meet the payments to creditors in the short term, if this does not happen there would be a risk of insolvency as it also happens in the capital strength analysis (Holden, C. W., Jacobsen. S. E., Subrahmanyam, A. 2014).

The first ratio, to be taken into account, will be analyzed*: current ratio* = current assets/current liabilities, from the balance sheet we note that current assets = 4,125,613 and current liabilities = 1,084,902 consequently, current ratio (2020) = 3.8. This value is well above the value of 1 which is considered the minimum value and sometimes not sufficient to meet short-term payments. Again, as was the case for the previous analyses, in both 2019 and 2018, the value of the current ratio is well above 1.

Finally, we can analyze the last index of the liquidity analysis, the quick ratio. Through this ratio we can check whether the company is able to cover short-term liabilities through assets that can be converted into cash easily. Quick ratio = total liquidity/current liabilities. To calculate the quick ratio (2020) we do not need to take into account the inventory which is = 1,136,630, so we will have that (4,125,613-

1,136,630)/ 1 084 902 = 2.7. This value is absolutely positive and does not indicate any risk, in fact, even if the value of 2.7 takes into account the credits that could be transformed into cash more slowly, the value of 2.7 is so high that it doesn't cause any problems.

	2020	2019	2018
strenght analysis			
fixed asset to equity capital ratio	2,58264626	3,7853702	3,88870454
fixed asset to equity capital and long-term debt	3,62801535	5,8242605	5,77629584
debt equity ratio	0,37	0,35	0,38
liquidity analysis			
current ratio	3,80275177	4,1170647	3,78743714
quick ratio	2,75507189	3,2123295	2,99904994



2.10 Menarini - Income statement Analysis

(orbis)

All the numbers must be multiply * 1000	2020	2019	2018
Net sales revenues	4,601,668	4,261,589	4,198,650
Other revenues	187,596	45,843	55,091
Cost of goods sold	3 967 610	3,659,340	3,629,674
EBIT (at the net of depreciation, losses and other costs do not present above)	334,738	392,218	361,888
Financial income and expense	-112,905	28,976	-27,505
Financial income	16,603	24,153	20,560
Financial expense	129,508	-4,823	48,065
EBT	221,833	421,194	334,383
Taxes	47,513	132,220	114,787
Net income	174,319	288,974	219,595
Total extra-operative income/expense	0	0	0
Net income	174,319	288,974	219,595

All the items presented in the income statement above, obtained from the orbis website, are not sufficient to make a detailed income statement analysis. For that reason, several items will be added step by step and will be underlined to differentiate them from the income statement above items. Even the new results added are taken from Orbis website but from another document, “Italian reassessed balance”.

2.10.1 Menarini - Gross profit

From the analysis of balance sheet, a first result that can be obtained is the gross profit, this value is given by the difference between sales and cost of goods sold. The objective of the gross profit is in fact to consider only the balance sheet items related to the sales and production phase (Edwards,J.B.2016). From the balance sheet it is shown that total revenues = 4,789,264 billion (it also includes other revenues for an amount of 187.5 million). Now we must calculate the cost of production = 1,9.

Gross profit (2020) will therefore be = 4, 789, 264 – 1,9 = 2,8 billion.

This value, in proportion to the revenues from production, is not high, even though it is a pharmaceutical company where the gross profit should generally be higher. From what has been analyzed we can say that the operational management, although positive, should be improved. Even in 2019, the gross profit is not particularly high: around 2,6 million and in 2018 it was *2,6.*

2.10.2 Menarini- EBITDA

Once we have calculated the gross profit, we can calculate EBITDA, this last value will take into account all the costs that are not directly part of the production. The value obtained before the gross profit must be subtracted from all the items in the balance sheet except taxes, depreciation, and amortization. EBITDA (2020) will be: = 685.216 million.

It is normal to obtain a lower EBITDA because of e.g., research and development costs, the same situation can also be observed for the previous years: 2019 and 2018. For Menarini most of the costs incurred are directly related to the production phase, in fact the difference between EBITDA and gross profit is not particularly high.

2.10.3 Menarini - EBIT

Up to now, all the items referring to the company's business have been analyzed, but not the operating costs. What are the operating costs for Menarini? They are mainly amortization and depreciation costs. From the data of the reclassified financial statements, it can be seen that there are losses for a value of 60,453 million and depreciation for 290,025 million. If we add 60 453 and 290 025, we get a total of

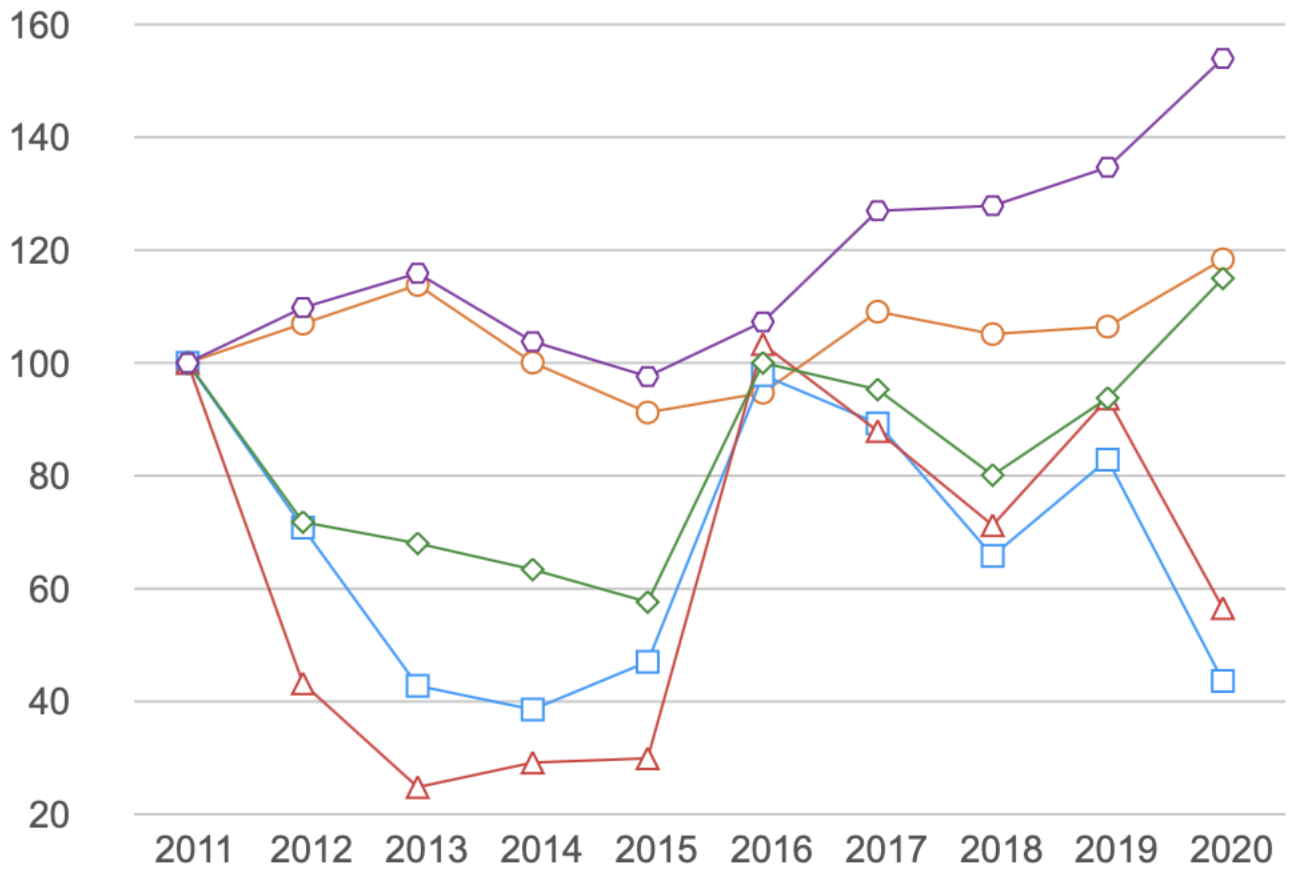
350.478 million. Once we have obtained this value, we must subtract it from the EBITDA obtained previously. EBIT (2020) = 685,216 - 350,478 = 334, 738 million. In this circumstance, we observe that the amortization is rather high, in fact the EBIT with respect to the EBITDA is considerably lower, a situation which is completely different with respect to, for example, the company Novo Nordisk where the amortization has a much lower influence in proportion to the EBITDA.

2.10.4 Menarini - EBT and Net Profit

Once all the analyses relating to operational management have been carried out, we can move on to financial management. This management considers capital gains or losses attributable to financial transactions (Robison, L. J., and Barry, P.J, 2020). In Menarini it can be observed that this financial management balance is negative, in fact we have financial income = 16 603 and financial expense = 129 208, for a balance of 112, 605 million. Therefore EBT (2020) = 334, 738 - 112, 605 = 222, 133 million.

Net income

Finally, the last step to be taken is the calculation of net income. Taxes = 47.513 must be subtracted from the EBT (2020) = 222.133 to obtain the net profit (2020) = 174.319 million. This is a positive value but could probably be higher.



Graphic taken from Orbis

In 2011 the situation was :

- Total sales (billion) = 4,05
- Ebt (million) = 508
- Net profit (million) = 308
- Financial flow (million) = 456
- Total assets (billion) = 3,73

2.11 Menarini - Income lavers analysis

2.11.1 Operating leverage – Menarini

a) Operating leverage

The degree of operating leverage allows us to understand what impact sales have in the company's profit and consequently what the cost structure is within the company, in particular how many fixed costs are present and whether there is good management of fixed costs (Novy-Marx, R, 2011). The formula for operating leverage = % Change in EBIT / % change in sales. So, we must consider 2 years, 2020 and 2019.

The change in sales between 2020 and 2019 is (4,789,264-4,307,432), this result must be divided by 4,307,432 = 0,11.

The change in EBIT between 2020 and 2019 is = (334, 738 – 392, 218), this result must be divided by 392, 218 = -0,14.

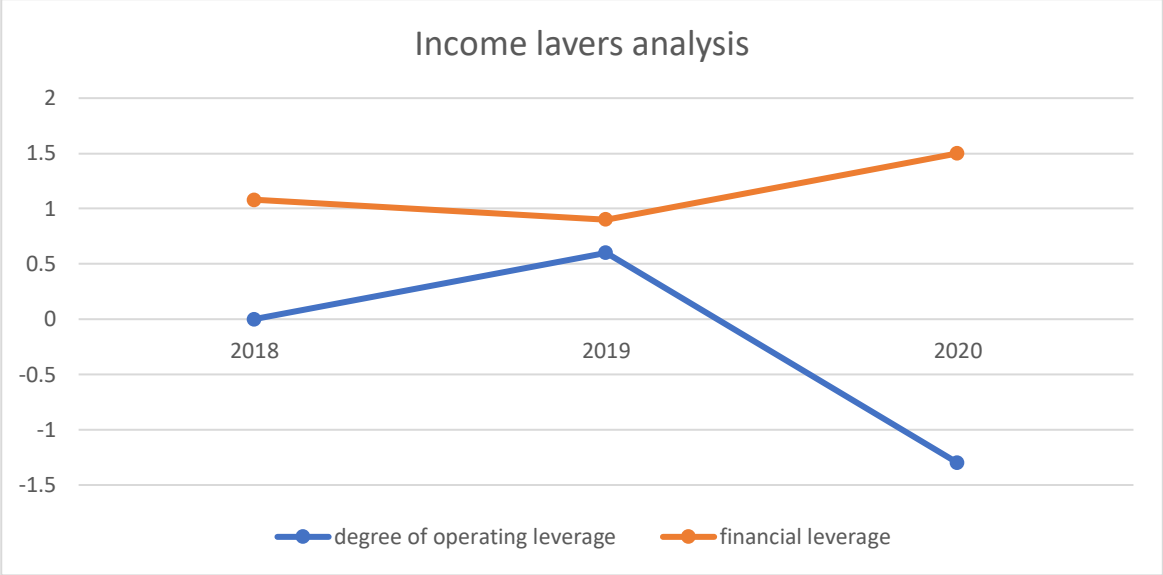
The operating leverage result (2020) = -0,14/ 0,11= -1,31. This is a negative value, due to the fact that the profit in 2020 is lower than the one in 2019 while EBIT in 2020 is higher than the one in 2019; as it is known, a low degree of operating leverage means that operating profit, for a single added unit sold, grow 1,31 time less. A completely opposite scenario is in 2019 where the value is around 0,6, in this case the operating profit grow 0,6 times more.

2.11.2 Financial leverage - Menarini

Through the calculation of leverage, one understands how much debt a given company can take out, in this case Menarini. There are two alternative ways to calculate this. DFL: (% change in EPS / % in the EBIT) or DFL : EBIT/ EBT, for simplicity we use the second one. It is known that EBIT = 392,218 and EBT = 421,194,

The result will be DFL (2020) = 1,5 %. This means that for every 1% change in EBIT or operating income, EPS would change by 1,5 %. The value of more than 1 is due to the fact that the balance of financial management is clearly negative, for this reason, a unit increase of a non-financial component would increase the profit more than proportionally.

	2020	2019	2018
income lavers analysis			
degree of operating leverage	-1,3	0,6	// //
financial leverage	1,50	0,93	1,08



2.12 Profitability Analysis – Menarini

The profitability analysis aims to understand how the managers have invested their capital over time. Also here, as in Novo Nordisk, certain indices such as ROI are not taken into account.

2.12.1 ROE - Menarini

The ROE is an index that allows to understand how efficiently the capital paid by the shareholders is invested, the higher this value, the better the management has been. The ROE has the following formula = (net income / shareholders equity) * 100.

It is shown from the income statement that Net profit = 174,319 and shareholders' equity = 4,197,748. Based on these data ROE (2020) = 0,04% or 4. Although this is a positive value, it is not particularly high and if compared to another company in the sector it could be much lower. The gross ROE is inevitably higher, in fact EBT = 221.833 and the result is 5% or 5.

2.12.2 RONA - Menarini

Through RONA it is possible to understand how well the fixed assets have been used by the company. RONA's formula is Net profit / (fixed assets + NWC),

it is shown that net profit = 174,319, fixed assets 1,625,367 and NWC = difference between current activities and current liabilities, this difference is 3, 040,711 billion.

At the denominator there will be 4, 666, 078. RONA (2020) = 3,73. Again, like ROE, although the result is positive, a comparison should be made with other companies in the industry where RONA is probably much lower.

2.12.3 ROA- Menarini

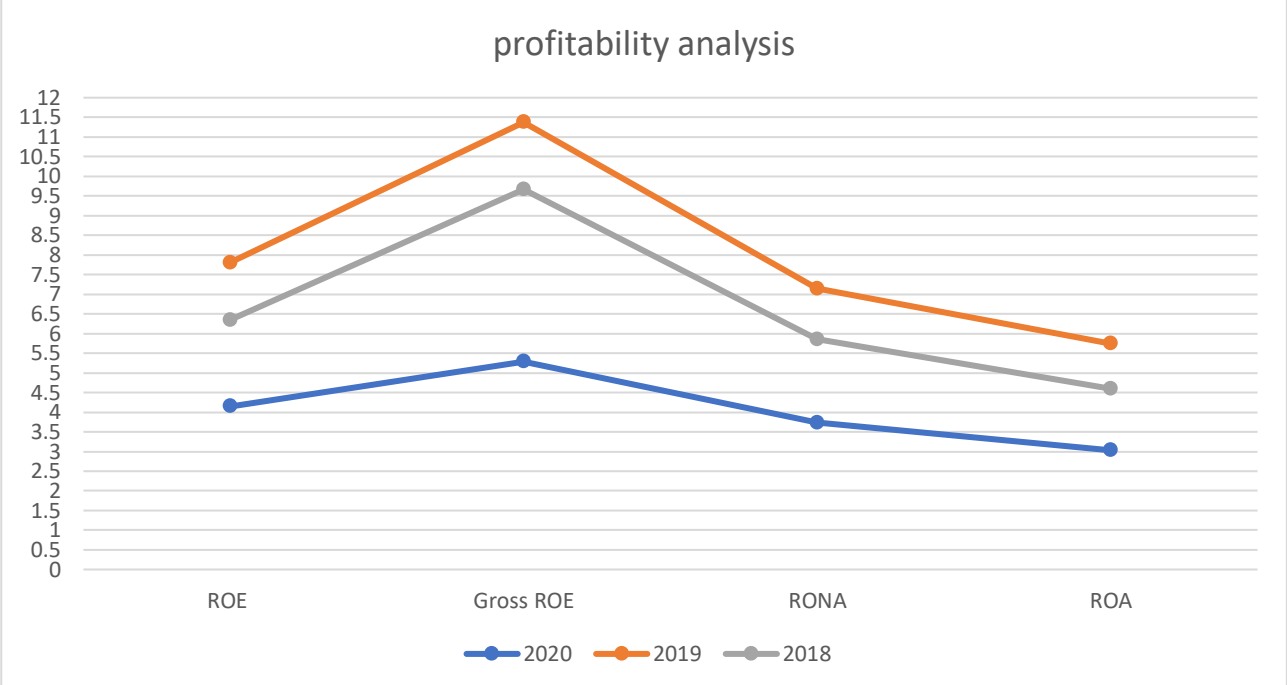
The last index of our analysis is the ROA = (operating income / total assets) * 100. It is an index that answers the question, how much profit has been generated thanks to

the exploitation of its resources and assets? We know that for Menarini the operating income = 174,319 and total assets = 5,750,980.

Therefore, we will have that ROA (2020) = (174,319/ 5,750,980) * 100= 3.

Although the result is positive, it is not a result that deviates particularly from the interest rate provided by the banks. Furthermore, when compared to other companies in the industry, the ROA can be considered low.

	2020	2019	2018
profitability analysis			
ROE	4,15267901	7,8020488	6,34756423
Gross ROE	5,28457163	11,371875	9,66560062
RONA	3,7358784	7,1415967	5,85550597
ROA	3,03111817	5,7443544	4,59742417



2.13 WACC Menarini

Menarini's cost of capital is obtained thanks to WACC formula, it is :

WACC = Ke x (E/(D+E)) + Kd (1-t) x (D/(D+E)).

The first value that should be calculated is Ke and it is Ke= E(Ri) = Rf + bi [E(RM) - Rf]. Rf =risk free and we take as a reference the 10-year interest rate of German bunds = -0,05% (sole 24h, mercati, website). It is important to highlight how it was the pandemic year.

(E(RM) – Rf) = risk premium, in order to calculate Menarini's risk premium it is indicative to take into account an average risk premium, during the year 2020, of all the countries where Menarini operates. The average risk premium related to Menarini, based on the average of all the countries where it operates is 6,4% (Damodaran, risk premium, website).

The only remained value from the CAPM formula that must be calculated is Beta, it is not known because Menarini is not listed. For that reason, it is needed to average of the unlevered beta of the similar companies in the same pharmaceutical industry is. Unlevered beta of the industry: 1,01 (Damodaran website); the unlevered beta must be multiplied for Menarini's financial component that is given from, the balance sheet . The formula is 1+(D/E)*(1-t) = 1,04. Menarini's beta is consequently = 1,04*1,01 =1,05.

E(Ri) = -0,05% + 1,05*(0,064) = 0,062 or 6,2 %. It is possible now to pass to the cost of debt. Kd = 0,04 (Orbis website). Now, that all the components are known, it is possible to calculate WACC.

In fact, WACC = 0,062*(4,197 / (4,197+201)) + 0,04*(1-0,24)*(201/(201+4,197)) = *6,1 %* (all the numbers that refers to E/(D+E) and D/(D+E) must be multiplied for 1 000 000).

Moreover, it is possible to highlight how the formula's part, related to the cost of equity, is the most relevant (5,9%). On the other hand, the part related to the cost of debt has a less impact, not more 0,02%.

CHAPTER 3

Comparative analysis: Novo Nordisk S/A and Menarini srl

The last chapter of this paper aims to comment and compare the results calculated in Chapter 2 and to answer the research question initially posed.

It will be seen how, even though the two companies analyzed operate in the same industry, there are several differences in the results obtained.

In the first part of the chapter, we will focus on two spreads in particular:

(RONA(1-t) - WACC) and (net ROE - ke), in order to understand who is generating value and who is destroying it.

In the second part, all the analyses performed will be compared, highlighting the strengths and weaknesses of one compared to the other and understanding the possible causes of what was calculated.

Finally, the last part of the chapter relates to the research question initially explained.

In a first paragraph we will discuss the causes for which Menarini srl has a significantly lower performance than Novo Nordisk S/A.

In a second paragraph, on the other hand, it will be explained that very often an apparent superiority in terms of liquidity and capital strength is not actually a risk from the insolvency point of view.

3.1 Novo Nordisk S/A and Menarini srl: (RONA*(1-t) – WACC) Is shareholders value generated or destroyed?

In Chapter 2, the RONA and the WACC were calculated, the first aims at judging how the company's assets are being utilized by the company, the latter aims at understanding what the company's cost of capital is and consequently the minimum return the shareholders expect to get from the management.

If we compare RONA*(1-t) and WACC, we can understand on a financial level whether the company is generating or destroying value.

Analyzing this spread for Novo Nordisk it emerges that:

RONA(1-t) in 2020 = 6,956,220/ (13,060,122 + 10,863,873-11,600,798) = 56 %.

WACC (2020) = 6.6 %.

RONA(1-t) - WACC= 0.56- 0.069 = 0.491.

Analyzing the spread for Menarini it emerges that:

RONA(1-t) in 2020 = 174.319/ (1,625,367 + 3, 040,711) = 3.73%.

WACC (2020) = 6.1 %.

RONA(1-t) - WACC = 0.0373- 0.062 = -0.0247.

Once the RONA(1-t) is higher than the WACC, the company is creating value as it is investing in assets that are value-creating. On the other hand, when the RONA (1-t) is lower than the WACC, the company is destroying the value, as the assets that are invested in are lower than the cost of fundings of the project (Damilano, M., Miglietta, N., Battisti, E., & Creta, F, 2018).

For the two companies analyzed, it is evident that the spread in Novo Nordisk is well above 0 and therefore the company is generating value unlike Menarini where the spread is negative.

Menarini, because of the investments made in assets, should generate more value than it did. In fact, it appears that from the low value of RONA the return on assets is low. The WACC on the other hand is like that of Novo Nordisk, very much shifted to the equity side but not high.

3.2 Novo Nordisk A/S and Menarini srl:

(NET ROE– Ke).

Are both the risk and equity remunerated?

The comparison between NET ROE and KE on the one hand emphasizes how equity performance is positioned with respect to a parameter, indicating the minimum value of satisfactory profitability (ke) and that on the other hand provides a yardstick for judging the wealth created for venture capital contributors, indicated by the spread between NET ROE and KE (Varaiya, N., Kerin, R A., & Weeks, D, 1987).

If the spread is positive, both risk and equity capital have been remunerated if, on the other hand, the spread is negative, even if NET ROE is positive and consequently the cost of equity has been remunerated, no risk capital has been remunerated.

The spread (NET ROE - Cost of equity) is a further confirmation of what was said earlier with the spread between RONA*(1-t) - WACC. In this case, if NET ROE is higher than Ke the company is producing value if it is lower the company is destroying value.

Analyzing the spread of the two companies:

In Menarini we have that Net ROE = 4.15% while Ke = 6.2%.

The spread is therefore negative.

NET ROE - Cost of equity = -2.05. the company is destroying value.

In Novo Nordisk the scenario is different, Net ROE = 67% while Ke = 7.2%.

The spread is therefore more than positive.

NET ROE - Cost of equity= 67%- 7.2 % = 59.8%.

This difference between the spreads confirms once again how the situations are opposite to each other and while Novo Nordisk is creating high value Menarini is destroying it.

3.3 Comparative financial analysis: Novo Nordisk A/S and Menarini srl. Who risk the most?

The first step in our comparative analysis is which of the two companies is less risky in terms of capital strength and liquidity strength, to do this we must compare the financial analysis based on ratios of the two companies seen in Chapter 2, even if, how it will be explained later, is not always indicative.

3.3.1 Capital strength:

Novo Nordisk high risk (apparently) vs Menarini 0 risk

We have repeatedly emphasized throughout the paper the hypothetical importance of being capital strong, as this allows one not to face the risk of insolvency. In order to calculate this, we analyzed several ratios, taken from the balance sheet, in Chapter 2.

Let us now compare them and comment on the results.

The first index analyzed for Novo Nordisk and Menarini is fixed asset to equity capital ratio.

From 2019 to 2021 Novo Nordisk, relative to this ratio, obtained the following values: 0.872; 0.8; 0.650.

From 2018 to 2020 Menarini, in relation to this ratio, obtained the following results: 3.88; 3.78; 2.58.

The first point to highlight is how the trend decreases over time, both for the Danish and the Italian company, this means that over the three years there has been either a decrease in equity or an increase in fixed assets or jointly both.

The second ratio analyzed is fixed asset to equity capital and medium-long term debt ratio.

The following values were obtained for Novo Nordisk from 2019 to 2021: 1.05; 0.94; 0.87. Again, the trend for the values tends to decrease over time.

From 2018 to 2020 for Menarini, the following values were obtained: 5.77;5.82;3.62. In this situation, however, there is a clear difference between the values obtained in the first two years and the value obtained in 2020.

Finally, the last ratio that was calculated is the debt equity ratio.

For Novo Nordisk the values from 2019 to 2021 were: 2.18; 2.28 and 2.74 while for Menarini :1.38;1.35;1.37.

We can now turn to the commentary and comparison between the two companies.
As far as the Danish company is concerned, the apparent results are not positive and the situation in the future cannot get any worse, on the contrary, it should improve.
Particular attention should be paid to the fixed asset to equity capital and medium-long term debt ratio. Except for 2019, this is below 1 in both 2020 and 2021 (although in 2020 it is only 0.06 below 1), whereas fixed asset to equity capital ratio is fair in all three years. From this it can be deduced that, since the only variable that is not present within the fixed asset to equity capital ratio compared to fixed asset to equity capital and medium-long term debt ratio is the balance sheet item consolidated liabilities, this value is so high and consequently leads to a decrease in the ratio because within this item, there are all the provisions for litigation from a legal point of view. This shows that the danger of an insolvency risk is not present since these are not liabilities to banks but simple provisions that actually improve the company's prudence.
Even the debt ratio confirms what has been said, in fact this value is apparently in all three years greater than 2 and would be a sign of high risk but this value is not particularly significant since it does not take into account only loans from banks, but all liability items.
A completely different situation is that of Menarini, the company's risk is in fact = 0. As it is shown by the calculations, it is clear that both the fixed asset to equity capital ratio and the fixed asset to equity capital and medium-long term debt ratio are well above the value of 1, in all three years considered. This confidence is probably also excessive since the situation would have been excellent even with lower values. Further confirmation is provided by the debt ratio, which is below the threshold of 0.5.
Comparing the two companies, it is therefore clear that the Italian company is very prudent in terms of capital strength, while the Danish company should work harder in this respect, especially on the fixed asset to equity capital and medium-long term debt ratio, trying to reduce the value of consolidated liabilities.

3.3.2 liquidity strength:

Novo Nordisk high risk (apparently) vs Menarini 0 risk

The analysis of capital liquidity is important to understand whether the company will be able to satisfy its creditors in the short term. The values obtained were taken from the balance sheet.

The results obtained for the two companies can now be compared and commented on.

The first index calculated was the current ratio:

From 2019 to 2021 Novo Nordisk obtained the following results: 1.05; 0.93; 0.86.

It is immediately noticeable how the results decreased over time and the only barely sufficient result was obtained in the first year under analysis.

From 2018 to 2020 Menarini obtained the following results: 3.78; 4.11; 3.8 .

The second index calculated was the quick ratio:

From 2019 to 2021 Novo Nordisk obtained the following results: 0.76; 0.67;0.66.

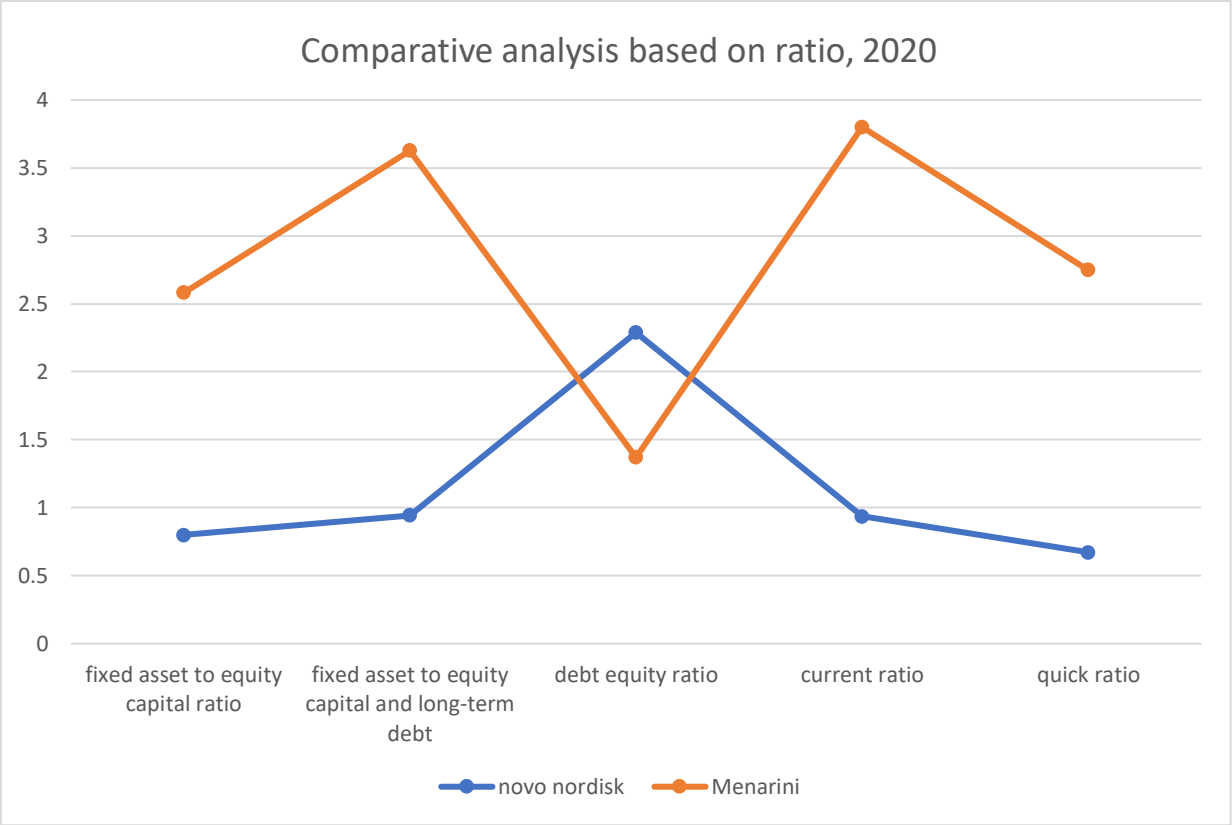
From 2018 to 2020 Menarini obtained the following results: 2.75; 3.21; 2.75.

Based on Novo Nordisk's current ratio, as the value is less than 1, at least apparently in 2021 and 2020 there is a low risk that the company will not be able to meet payments in the short term, while in 2019 it is just sufficient with the value of 1.05. However, it should be emphasized that the consolidated liabilities are not bank debts to be paid but provisions.

The apparent liquidity problem is confirmed by the quick ratio, in fact the value that allows the company to be 100% secure is greater than 1 and in all three years the result is less than one. The results show that the same value (current liabilities) is present at the dominator in both ratios. Could this be the reason why the ratios are low? Certainly, it could be one of the reasons and should be monitored accordingly.

For Menarini the situation is completely opposite, in fact the values of the current and quick ratio are both above the value of 1 in all three years.

Here, too, the Italian company is much more prudent than the Danish one.



As it is also shown by the graphic, Menarini has achieved (apparently) always higher results in terms of strength and liquidity analysis. The only value that for Menarini is lower is related to the debt ratio but this value more is lower better is.

However, as it is already said above, the debt ratio does not count only debts to bank or financial institutes, but also other liabilities that are not considered risky.

3.4 Financial analysis: Novo Nordisk A/S and Menarini srl income statement analysis compared

We can now move on to the analysis of the various income statement items.

3.4.1 Cost of goods sold: the first main difference

The first step to be considered is the analysis of the gross profit.

It can be understood what the profit of the company is without considering costs or items in the balance sheet other than revenues from sales and costs due to production.

A completely different trend in the last three years can be seen between Novo Nordisk and Menarini.

Gross profit = net sales - costs of goods sold.

For Novo Nordisk, in 2021, the result was = 18.038 billion, in 2020 = 15.15 billion and in 2019 = 14.57 billion.

In proportion to production revenues, which are around 21 to 20 billion, in all three years, the result is extremely positive due to very high sales revenues and, above all, due to very high production costs. Over the 2021-2019 trend the cost of goods sold = 3.475billion; 2.993 billion; 2.98 billion.

In proportion to revenues the costs are extremely low.

At Menarini the situation is quite different, the gross profit from 2018 to 2020 is in fact respectively = 2.6 billion; 2.6 billion; 2.8 billion, in proportion to production revenues of around 4.5 billion. Obviously, it is quite clear that Menarini incurs numerous production costs, which can be traced back to, for example, significantly more expensive raw materials; it would therefore be advisable for Menarini to try to reduce its production purchase costs, which are particularly high.

3.4.2 EBITDA: significant impact of the research and development costs in both companies

One can see the impact that research and development expenses have in both companies. These high expenses have a significant impact on the value of EBITDA, in Novo Nordisk for example there is an impact of 2.5 billion. However, although these high expenses are unavoidable because they are part of the growth of the business, it is not possible to aim to reduce these expenses, otherwise, in the long run, there could be numerous sales-related losses.

In addition to research and development expenses, there are also other costs, so the overall EBITDA result of both companies can be analyzed.

In novo Nordisk during the period from 2019 to 2021, the result is 8,809,537; 9,884,938; 9,856,277. The usefulness of calculating EBITDA allows us to understand how efficient Novo Nordisk's management is without considering revenues, income or financial expenses that are not directly related to the core business. A comparison with the Gross Profit, calculated above, shows that another very high-cost item is personnel costs, however, one must also consider the very high total number of employees.

Novo Nordisk's EBITDA can undoubtedly be considered positive.

In Menarini, the value of EBITDA from 2018 to 2020 is respectively:

507,913; 531,027; 685,216.

First of all, it can be seen that the trend is increasing, it means that there has been a better management of all the costs in between gross profit and EBITDA. Furthermore, as the case with Novo Nordisk, the costs here are mainly attributable to research and development and personnel costs.

Although, in proportion to sales, Novo Nordisk's EBITDA is significantly higher than that of Menarini, the costs that make Menarini's EBITDA lower are linked to the production phase, as has already been observed in the calculation of gross profit.

3.4.3 From EBITDA to EBIT: a law difference in Novo Nordisk vs a substantial difference in Menarini.

If losses and depreciation are subtracted from the calculated EBITDA, the result is the EBIT. It is therefore good to question what impact depreciation and losses have on EBIT.

In Novo Nordisk the situation is as follows: The balance sheet for 2021 shows that depreciation and amortization is -668.475 million and depreciation and losses = 249.802 million, total amount: 918.277 million. The difference between EBITDA and EBIT: 9,856,277- 918,277= 8,937,999 billion. The difference is rather small, which shows that machinery depreciation does not particularly affect the company's balance sheet and neither do capital losses. A similar scenario occurs in 2020, where the difference between EBITDA and EBIT is 9,884,938 - 8,935,221 = 949,717 million. Even better the same difference occurs in 2019 where it is 8,709,537 - 7,861,562 = 847,975 million. In this three-year path, there is a change from EBITDA to EBIT of only 9%.

In Menarini the scenario is different.

As the reclassified balance sheet shows, there are losses of 60,453 million and depreciation of 290,025 million. Adding 60,453 and 290,025 million gives a total of 350,478 million. The difference between EBITDA and EBIT in 2020 is: . 685,216 - 350,478 = 334,738 million, a high drop of almost 51%.

Better scenarios were in 2019 and 2018, where EBIT was 392,218 and 361,888 respectively, in these two cases the decreases were 26% (2019) and 28% (2018).

This is a completely different circumstance from that of Novo Nordisk, where depreciation and amortization have less impact on EBIT.

Going deeper, we also point out that in Menarini, in 2020, between depreciation and amortization, the real problem was depreciation, the value that was 290,025. However, even though this was the last year analyzed in the path, better scenarios were present in 2020 and 2019.

Even at this stage, there was better stewardship on the part of Novo Nordisk's management, e.g. by purchasing better machinery with lower depreciation expenses at the beginning.

3.4.4 EBT: better financial management in Novo Nordisk compared to Menarini

Through the EBT analysis, it is possible to understand how well the company's financial management is.

In the case of Novo Nordisk, there is a positive balance of 60 million in 2021, which is why the EBT result is higher than the EBITDA result. The same was not the case in 2020, where there was a net financial management balance of -164,422, in fact the EBT was 8,770,800 billion. However, even if the balance is negative in 2020, the decrease from EBIT to EBT is minimal, just 1%.

The worst situation is in 2019, where there is a 7% decrease from EBIT to EBT.

In Menarini, the balance of financial management in 2020 is negative, in fact

EBT (2020) = 334,738 - 112,605 = 222,133 million, a decrease of almost 30%.

Better scenarios are present in 2019 and 2018. In 2019 the balance is positive by 28 million while in 2018 it is negative (there is a 7% decrease) but not as much as in 2020.

3.4.5 Net profit: two completely different results

It has already been mentioned several times how Novo Nordisk is a bigger company than Menarini, in fact the revenues for the Danish company are around 20 billion and for the Italian one around 5. Nevertheless, although not starting from a similar situation one might expect the same proportion in terms of profits, but this is not the case.

The net profit of the two companies during their respective last three years analyzed is in fact completely different.

In Novo Nordisk from 2019 to 2021, the profits were: 7.2 billion; 8.7 billion; 9 billion.

While in menarini from 2018 to 2020: 219, 595 million; 288, 974 million; 174, 319 million.

3.5 Income lavers analysis: inconstant scenarios throw the years in both companies

Income lavers analysis allows us to understand the sensitivity of a company's operating income to changes in sales.

So, the question is: how much do companies' risk if sales fall?

In both companies, it should be pointed out from the outset that no firm conclusions can be drawn, because there is no linearity of results over time. While there was a linear trend over the years about the equity soundness risk, the equity liquidity risk and also within the income statement itself, the same cannot be said for the income lavers analysis.

However, in all the years analyzed, it was never apparent that a change in sales led to large changes in profit.

3.5.1 Operating leverage: never high in both companies

In 2021, an operating leverage of 0.01 was recorded for Novo Nordisk. This value does not represent a perfect value.

This value does not represent a perfect balance, as operating profit is not particularly sensitive to changes in sales.

In 2020 the scenario is different and more balanced; the operating leverage is 1.08. This value shows a perfect balance. This value shows a perfect balance, in fact for every single unit of goods sold, the operating profit will grow 1.08 times. It also shows a balanced independence of fixed costs, neither too independent nor too low.

The reason why operating leverage is lower in 2021 than in 2020 is that the difference between sales in the two years is greater than the difference in EBIT, which means that even if there was a growth in sales, EBIT did not change as much as it should have.

In 2020 the scenario is different, in that case, in fact, from 2019 to 2020 the EBIT has varied more than the sales did, however it does not show a risky situation because the value is 1.48 and not more than 2.

In Menarini there was an even greater variation between 2019-2020 and the previous year.

The result of the operating leverage (2020) = -0.14/ 0.11 = -1.31. This is a negative value, due to the fact that the profit in 2020 is lower than in 2019 while the EBIT in 2020 is higher than in 2019; as is well known, a low degree of operating leverage means that the operating profit, for a single added unit sold, decreases by 1.31 times.

The 2019 scenario is different, where the value is around 0.6, in which case the operating profit increases by 0.6 times.

Although as mentioned above it is difficult to find a certain linearity in the degree of operating leverage, it can be said that in Novo Nordisk operating income is more influenced by sales than in Menarini.

In Menarini in fact from 2019 to 2020 the value is even negative, and in the previous period it is in any case lower than the unit level, which means that operating income does not grow at the same pace as sales.

In Novo Nordisk, on the other hand, although in the period 2020-2021 the result is close to zero, in the preceding period 2019-2020 the growth of profit as one unit sold increases is = 1.08.

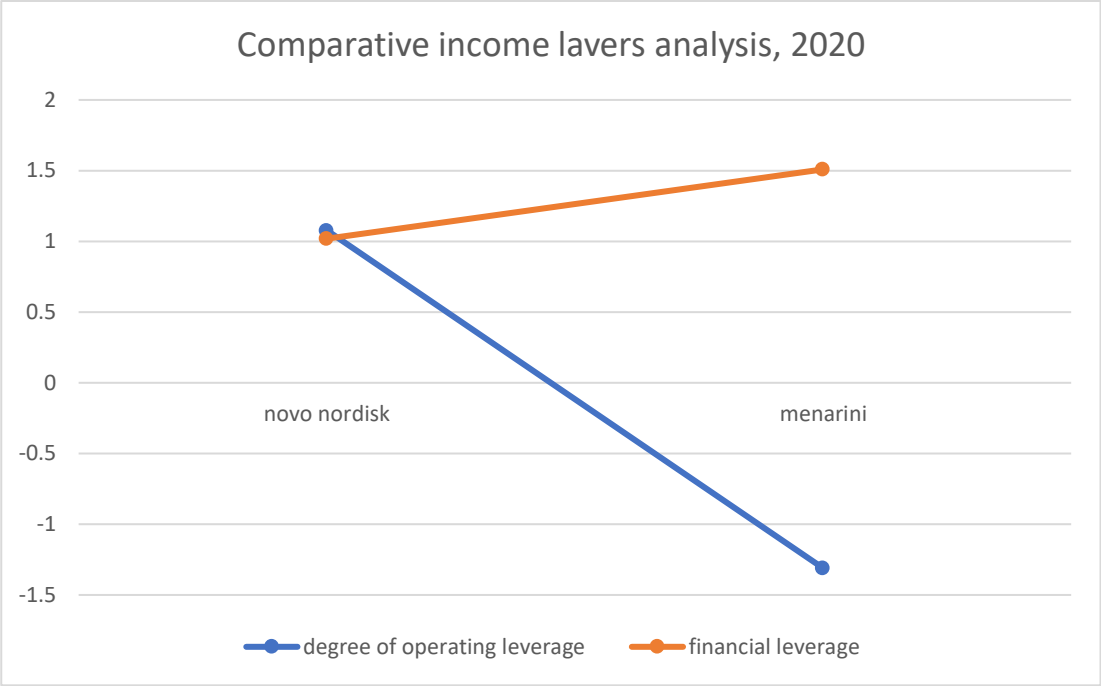
3.5.2 Leverage ratio: a constraint on the cost of debt in both companies

To check the impact of interest on EBT, leverage can be calculated.

In Novo Nordisk DFL in 2021 = 8,937,999 / 9,004,451 = 0.99. The value is less than 1 because financial management was positive, so the denominator has a higher value.

The DFL in 2020 was 1.01; this is explained by the fact that financial management was negative, so the value is higher than 1. The numerator has a higher value, so EBIT is lower than EBT. A low DFL value indicates low volatility and therefore also low risk as it happens in Novo Nordisk.

In Menarini the result of the degree of operating leverage is 1,5 %. This means that for every 1% change in EBIT or operating income, EPS would change by 1,5 %. The value of more than 1 is since the balance of financial management is clearly negative, for this reason, a unit increase of a non-financial component would increase the profit more than proportionally.



From the graphic is shown how the degree of operating leverage is negative in Menarini since EBIT decreased from 2019 to 2020 even if sales grew while in Novo Nordisk is just up the value of 1 so there is a more proportionated growth of the EBIT at each single increase of unit sold.

The degree of financial leverage is not high in both scenarios, it means a great restraint of debt cost.

3.6 Comparative Profitability analysis: performances completely different.

The chapter was introduced by pointing out that from the performances in terms of profit, Novo Nordisk is clearly superior.

In the analysis of profitability, it is even more important to compare the indices found for each company in comparison, ROE, RONA and ROA in fact assume greater significance when compared between two or more companies in the sector.

3.6.1 ROE: two different scenarios

ROE measures the ratio of profit to capital contributed by stakeholders, i.e. it measures how much the capital contributed by stakeholders has yielded.

Let us look at the value of ROE in Novo Nordisk by also analyzing the items that make it up to see the value of each of them.

It is known that profit is 7,278,699 and equity = 10,782,479. The net ROE is 0.675*100 = 67, well above zero, which shows that the company's management has been very positive. If one wants to calculate ROE without taxation, one can calculate gross ROE = 83.51.

The high ROE is also confirmed by previous years, as ROE (2020) = 66.5, gross ROE (2020) = 83.9 and ROE (2019) = 67.6 and gross ROE (2019)is = 84.3. In both cases we can therefore see that the ROE is higher.

In Menarini the scenario is different.

Net profit = 174,319 and shareholders' equity = 4,197,748. Based on these figures, the ROE (2020) = 0.04% or 4. Gross ROE is inevitably higher, in fact EBT = 221.833 and the result is 5% or 5. In 2019 ROE is 7.8 and gross ROE = 11.3 and in 2019 ROE is 6.3 and gross ROE is 9.6.

The trend over the last three years of each of the two companies shows that Novo Nordisk generates a net higher return on equity than Menarini. In 2020, for example, Novo Nordisk's ROE is 66.5 while Menarini's is 4. A criticism is that the ROE value itself can be influenced (in a positive way) by high debt capital, and from the ratio-based analysis above, at first glance the Danish company uses more debt capital than the Italian company.

However, even though liabilities influence the ROE value, there is no high debt capital, and it can be confirmed that the Danish company has better profitability.

3.6.2 RONA and ROA confirming Novo Nordisk's better profitability

RONA and ROA confirm what has already been made explicit by ROE. In fact, the results achieved by Novo Nordisk compared to Menarini are clearly superior in these two respects.

Thanks to RONA, it is possible to understand how fixed assets were utilized by the company. RONA = Net profit / (fixed assets + NWC). In novo Nordisk, in 2021, net profit is 7,278,699, fixed assets are 16,599,555 and NWC, i.e. the difference between current assets and current liabilities, is (13,045,632 - 15,167,348) = 2,121,716.

2, 121, 716.

Thus, RONA = 7,278,699/ (16,599,555 - 2,121,716) = 0.50*100= 50.

An even better result was obtained in 2020, in fact RONA = 56.

How should these results be interpreted?

Firstly, a high net income in the numerator greatly influences the final result, then in the denominator even if fixed assets are particularly high the NWC is negative in both years due to the fact that current liabilities are higher than current assets. This is a very good result achieved by Novo Nordisk, especially when compared to Menarini's lower NWC. In Menarini, the RONA is lower in 2020, but what are the components that do not allow it to be high? First of all, net profit is not so high, it is 174,319, fixed assets are not particularly high, 1,625,367 and finally there is the NWC which is a positive and high value (not negative as in Menarini) of 3,040,711 billion.

In the denominator there will be a higher value of 4,666,078 and therefore RONA (2020) = 3.73.

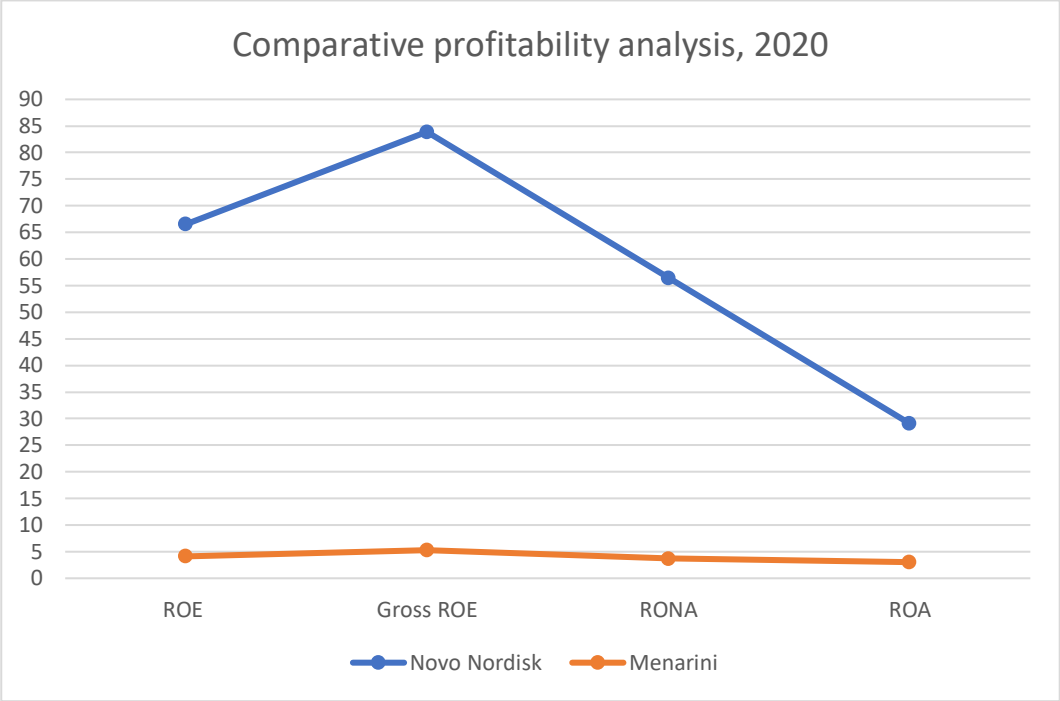
The last index in our profitability analysis is the ROA, which helps companies understand their ability to make profits through the exploitation of their assets or resources.

The formula to calculate ROA is (operating income/total assets) * 100.

In Novo Nordisk, in 2021, operating income is 7,278,699 while total assets are 29,645,188, so the result was 24.5 or 24%; an even better result was achieved in 2020 where ROA was 29 or 29%, which is extremely higher than the interest rate provided by banks. The ratio is particularly high even considering total assets of almost 30 billion.

Menarini's scenario is also different here, the operating income is 174,319 and the total assets are 5,750,980. Therefore, ROA (2020) = (174,319/ 5,750,980) * 100 = 3.

Comparing the two ratios it emerges, another time, the significant difference that net income makes to the result. Comparing in fact the two scenarios, is normal to have an higher percentage around 5/6 times more, due to the fact that the company is bigger, so it's the difference in the net income that makes ROA's spread between the two companies that relevant.



3.7 What are the causes behind Novo Nordisk's improved performance?

At the beginning of the paper, the research question was made explicit, and it was pointed out that the aim of the financial analysis of two companies operating in two different countries is to highlight the causes that contribute to the better performance of one company over another.

It emerged from our analysis (of a three-year trend to avoid exceptions that might be inherent in a single period) and from the RONA(1-T) - WACC and net ROE – WACC spreads how Novo Nordisk is generating value, while Menarini is destroying it.

The income statement analysis of both companies showed at a first level how the gross profit of one was significantly higher than the gross profit of the other because of, for example, raw material costs and consumption are very high, 1.7 billion for sales of less than 5 billion. Proceeding with the analysis of the financial statements, it also emerged that the EBITDA of the Danish company was significantly higher than that of Menarini. For Menarini, in fact, the number of personnel is very high in relation to sales (more than 17,000 people work there); there are also high costs relating to services such as transport costs or consultancy or energy costs; finally, there are research and development costs which, although necessary, greatly influence the value of EBITDA.

Finally, also analyzing the difference between EBITDA and EBIT, depreciation and amortization weigh much more heavily on Menarini's ebit, reducing it by 50% compared to Novo Nordisk's; most probably, therefore, the machinery used by the Italian company is subject to a shorter life.

There is therefore a consistent better management by Novo Nordisk during the various stages of the business and the improved results are also reflected in all profitability ratios.

3.8 Can Novo Nordisk's apparent risk of insolvency be considered true?

The second part of the research question relates to the question of whether all the ratios that have been calculated relating to capital strength or liquidity can be considered true and reliable or not.

On the face of it, Novo Nordisk's scenario over the years can be considered not very prudent because of the calculated ratios.

However, although the ratios are useful for analyzing the proportion of total debt to equity, they are not useful for analyzing the proportion of debt from third parties (such as banks) to equity.

For example, Novo Nordisk, which on the surface is very risky according to the debt equity ratio, if one then goes to analyze the WACC one can see that the proportion of debt from outside the company is less than 1/10 to equity.

For this reason, the Danish company is not risky, and the risk-based ratios analyzed in Chapter Two are not suitable for providing information on financing from outside the company alone.

Why, then, are the company's liabilities so high in proportion to equity? The answer lies in the fact that within the pharmaceutical sector, due to the business activity that Menarini carries out, there are very high provisions for provisions because of hypothetical but real disputes that the company might have concerned, for example, patents.

It is therefore important to analyze all indices together, even if they have different analysis objectives, and not separately from each other.

Conclusions

The objective of the paper was to analyze two companies operating within the pharmaceutical industry in order to understand why the performance of the Danish company Novo Nordisk is superior to the Italian company Menarini. Furthermore, the second part of the research question was related to the fact that ratios based on the company's debt are often not very indicative of the company's degree of insolvency.

With regard to the first point, the comparison of the two companies in 2020 revealed important differences in the results of the Danish company compared to the Italian company, which in turn made it possible to draw important conclusions on company management. In particular, the relative importance of the cost of raw materials and the production process emerged. Thanks to the gross profit, it was possible to understand the high costs incurred by Menarini in contrast to the low costs incurred by Novo Nordisk in proportion to sales. The second step of the income statement analysis was related to the calculation of EBITDA. This measure confirmed what has been said previously about Menarini's business management, also in this situation the Italian company incurred high service costs such as, for example, transport costs or personnel costs. In particular, with regard to the data on personnel costs thanks to the Orbis website, it emerged that there were 17 thousand employees, a very high number (proportionate to sales) when compared to the 47 thousand employees (proportionate to sales) of Novo Nordisk.

Finally, the last step that highlighted the causes of Novo Nordisk's better performance compared to Menarini is with the calculation of EBIT. Thanks to this measure, it emerged how depreciation and losses decrease the value of EBITDA by more than 50%, this cause being linked, for example, to machinery that does not have a long service life.

After the analysis of the income statement, an income lavers analysis was carried out to provide an idea of how profit varies based on the change in sales or what the financial impact is. It emerged from this analysis that the risk in both companies is low, so that an error, e.g. in the calculation of sales planning, would not lead to negative consequences.

Novo Nordisk's improved performance over the years was then confirmed by the profitability analysis, comparing elements of the balance sheet and income statement analysis.

Finally, in Chapter 3, the above was further confirmed by calculating the spread (RONA(1-T) - WACC) and the spread (net ROE- Ke).

While in Novo Nordisk, in fact, the company generates value and remunerates the equity risk, this is not the case in Menarini where in both cases the spreads are negative.

The calculation of the WACC was also useful to analyze the weight and cost of debt from external financiers in order to answer the second part of the research question.

In fact, the second part of the research question focused on how reliable indices measuring capital strength and liquidity analysis were.

The calculation of these indices in the second chapter showed that while Menarini has low risks in all respects, Novo Nordisk is apparently risky. All the ratios (debt equity ratio, fixed assets to equity ratio, fixed assets to long-term debt equity ratio, quick ratio and current ratio) in the trend of the three years analyzed almost always underlined risky values. On the surface, there might be a risk of insolvency, e.g. not being able to pay the banks for the loans received. However, an analysis of the WACC and the detailed profit and loss account shows that the actual debts to lenders are a very small portion of financing compared to equity.

In fact, both companies finance themselves mostly through equity, so the financial risk of meeting payments is very low.

Although Novo Nordisk therefore appeared risky on the surface, this risk is not actually there, and the reason for high capital strength and liquidity analysis ratios is related to balance sheet items such as current liabilities that influence the calculation. In fact, in the case of the pharmaceutical company within these liabilities are, for example, all provisions for possible legal expenses for patents.

The objective of this paper was therefore to analyze two companies that operate in the same industry but have quite different performances, as a result of various reasons that have been stated

Lastly, it also emerged that ratios on capital strength and liquidity are often not efficient and useful for verifying the risk of insolvency.

List of references

Aivazian, V. A., Ge, Y., & Qiu, J. (2005). The impact of leverage on firm investment: Canadian evidence. *Journal of corporate finance*, *11*(1-2), 277-291.

Archer, S. H., & Faerber, L. G. (1966). Firm size and the cost of externally secured equity capital. *The Journal of Finance*, *21*(1), 69-83.

Aydemir, A. C., Gallmeyer, M., & Hollifield, B. (2007). Financial leverage and the leverage effect-a market and firm analysis. *Tepper School of Business*, 142.

Berk, J., & DeMarzo, P. (2017). Corporate Finance, Fourth edition.(pp.62-63, 521-523).

Berry, S. G., Betterton, C. E., & Karagiannidis, I. (2014). Understanding weighted average cost of capital: a pedagogical application. *Journal of Financial Education*, 115-136.

Berzakova, V., Bartosova, V., & Kicova, E. (2015). Modification of EVA in value based management. *Procedia Economics and Finance*, *26*, 317-324.

Bragg, S. M. (2012). *Business ratios and formulas: a comprehensive guide* (Vol. 577). John Wiley & Sons, (100-108)

Cagle, C. S., CGMA, C., & Campbell, S. N. (1980). Analyzing Liquidity. *Management*, *9*(1), 44-48.

Campbell, J.Y., J. Hilscher, and J. Szilagyi, 2008, "In Search of Distress Risk," *Journal of Finance*63, 2899-2939.

Damilano, M., Miglietta, N., Battisti, E., & Creta, F. (2018). Value creation and competitive advantage: empirical evidence from dividend champions of the S&P 500.

Damodaran, A. (2007). Return on capital (ROC), return on invested capital (ROIC) and return on equity (ROE): Measurement and implications. *Return on Invested Capital (ROIC) and Return on Equity (ROE): Measurement and Implications (July 2007)*.

Di Lazzaro, F, Musco, G. (2015). Analisi aziendale. Metodi e strumenti (pp. 1-344). Giappichelli.

Dran Jr, J. J. (1991). A Different Perspective on Operating Leverage. *Journal of Economics & Finance*, *15*(1).

Dugan, M. T., & Shriver, K. A. (1989). The effects of estimation period, industry, and proxy on the calculation of the degree of operating leverage. *Financial Review*, *24*(1), 109-122.

Dugan, M. T., & Shriver, K. A. (1992). An empirical comparison of alternative methods for the estimation of the degree of operating leverage. *Financial Review*, *27*(2), 309-321.

Edwards, J. B. (2016). Modern gross profit analysis. *Journal of Corporate Accounting & Finance*, *27*(4), 45-55.

Edwards, J., Kay, J., & Mayer, C. (1987). The economic analysis of accounting profitability.

Forbes. (2014). *Operating Leverage: Dangerous Too.*https://www.forbes.com/newsletters/the-berman-value-folio/2014/09/02/operating-leverage-dangerous-too/?sh=273ebf1526e4

Forbes Advisor (2021). *Understanding Return On Investments (ROI).*https://www.forbes.com/advisor/investing/roi-return-on-investment/

Gahlon, J. M., & Gentry, J. A. (1982). On the relationship between systematic risk and the degrees of operating and financial leverage. *Financial Management*, 15-23.

Grant, J., & Parker, L. (2002). EBITDA. *Research in Accounting Regulation*, *15*, 205-212.

Glover, K. J., & Hambusch, G. (2014). The trade-off theory revisited: On the effect of operating leverage. *International Journal of Managerial Finance*.

Goldstein, R., Ju, N., & Leland, H. (2001). An EBIT-based model of dynamic capital structure. *The Journal of Business*, *74*(4), 483-512.

Gompers, P., & Lerner, J. (2003). Equity financing. In *Handbook of entrepreneurship research* (pp. 267-298). Springer, Boston, MA.

Gonçalves, T., Gaio, C., & Robles, F. (2018). The impact of Working Capital Management on firm profitability in different economic cycles: Evidence from the United Kingdom. *Economics and Business Letters*, *7*(2), 70-75.

Harris, M., & Raviv, A. (1991). The theory of capital structure. *the Journal of Finance*, *46*(1), 297-355.

Holden, C. W., Jacobsen, S. E., & Subrahmanyam, A. (2014). The empirical analysis of liquidity. *Foundations and Trends in Finance*, *8*, 263-365. (69)

Huffman, L. (1983). Operating leverage, financial leverage, and equity risk. *Journal of banking & finance*, *7*(2), 197-212.

Joshi, M. (2015, September). Divergence between Operating Profit and EBIT. In *Joshi, MC (2015). Divergence between Operating Profit and EBIT. UGC Sponsored State Level Seminar on New Horizons in Accounting, Commerce and Banking* (pp. 61-64).

Kim, E. H. (1978). A mean-variance theory of optimal capital structure and corporate debt capacity. *The journal of Finance*, *33*(1), 45-63.

Knauer, T., & Wöhrmann, A. (2013). Working capital management and firm profitability. *Journal of Management Control*, *24*(1), 77-87.

Laitila, M. (2011). Financial statement adjustments in credit rating analysis: evidence from IFRS and US GAAP companies.

Lemke, K. W. (1970). The evaluation of liquidity: an analytical study. *Journal of Accounting Research*, 47-77.

Levenson, N. (2011). Academic ROI: What does the most good. *Educational Leadership*, *69*(4), 34-39.

Lord, R. A. (1995). Interpreting and measuring operating leverage. *Issues in Accounting Education*, *10*(2), 317.

Luehrman, T. A. (1997). Using APV: A better tool for valuing operations. *Harvard business review*, *75*(3), 145-145.

Nissim, D. (2019). EBITDA, EBITA, or EBIT?. *Columbia Business School Research Paper*, (17-71).

Novy-Marx, R. (2011). Operating leverage. *Review of Finance*, *15*(1), 103-134.

Parry, S. B. (1996). Measuring training's ROI. *Training & Development*, *50*(5), 72-78.

Robison, L. J., & Barry, P. J. (2020). Accrual income statements and present value models. *Agricultural Finance Review*.

Serwinowski, M. A., & Jessica, M. (2010, April). The ROI of social responsibility: Driving sustainability in the oil & gas sector. In *SPE International Conference on Health, Safety and Environment in Oil and Gas Exploration and Production*. OnePetro.

Skinner, D. J. (1999). How well does net income measure firm performance? A discussion of two studies. *Journal of Accounting and Economics*, *26*(1-3), 105-111.

Suresh, P., & Basu, P. K. (2008). Improving pharmaceutical product development and manufacturing: impact on cost of drug development and cost of goods sold of pharmaceuticals. *Journal of Pharmaceutical Innovation*, *3*(3), 175-187.

Tesauro, F. (2007). *Imposta sul reddito delle società (IRES)*. Zanichelli, Bologna.

Varaiya, N., Kerin, R. A., & Weeks, D. (1987). The relationship between growth, profitability, and firm value. *Strategic Management Journal*, *8*(5), 487-497.

Sitography

Comparably. 2022. *Novo Nordisk Mission, Vision & Values.* https://www.comparably.com/companies/novo-nordisk/mission)

Copenhagen Capacity. 2022. *Taxation in Denmark.* https://www.copcap.com/set-up-a-business/taxation

Damodaran website. 2022. https://pages.stern.nyu.edu/~adamodar/

Drug Descovery and Development. 2022. *Pharma 50: The 50 largest pharmaceutical companies in the world.* https://www.drugdiscoverytrends.com/pharma-50-the-50-largest-pharmaceutical-companies-in-the-world/

European Federation of Pharmaceutical Industries and Associations (EFPIA). 2021. *The Pharmaceutical Industry in Figures.* https://www.efpia.eu/media/602709/the-pharmaceutical-industry-in-figures-2021.pdf

Menarini Group. 2022. *About us.* https://www.menarini.com/en-us/about-us

Menarini Group. 2022. *Our Values.* https://www.menarini.com/en-us/our-values

Menarini Group. 2022. *Partnering.* https://www.menarini.com/en-us/partnering

Menarini Group.2022. *Pharmaceuticals.* https://www.menarini.it/en-us/pharmaceuticals)

Menarini Group. 2022. Sustainability. https://www.menarini.com/en-us/about-us/sustainability)

Menarini Group. 2022. *Innovation and Research.* https://www.menarini.com/en-us/innovation-research

Menarini Group. 2022. *Resposnsibility.* https://www.menarini.com/en-us/responsibility/fighting-for-the-environment-a-precious-asset/article-detail/the-menarini-forest)

Novo Nordisk. 2021. *Novo Nordisk Annual Report 2020.* https://www.novonordisk.com/content/dam/nncorp/global/en/investors/irmaterial/annual_report/2021/Novo-Nordisk-Annual-Report-2020.pdf

Novo Nordisk. 2022. *Novo Nordisk Annual Report 2021.* https://www.novonordisk.com/content/dam/nncorp/global/en/investors/irmaterial/annual_report/2022/novo-nordisk-annual-report-2021.pdf)

Novo Nordisk. 2022. *R & D pipeline.* https://www.novonordisk.com/science-and-technology/r-d-pipeline.html

Novo Nordisk. 2022. *Who we are.* https://www.novonordisk.com/about/who-we-are.html

Orbis. 2022. *Menarini.* https://orbis.bvdinfo.com/version-202262/Orbis/Companies/Login?returnUrl=%2Fversion-202262%2FOrbis%2FCompanies

Orbis. 2022. *Novo Nordisk.* https://orbis.bvdinfo.com/version-202262/Orbis/Companies/Login?returnUrl=%2Fversion-202262%2FOrbis%2FCompanies

Statista. 2022. *Revenue of Italian Pharmaceutical Company Menarini from 1964 to 2020.* https://www.statista.com/statistics/790002/turnover-of-the-pharmaceutical-company-menarini/

Xplaind. 2022. *EBITDA. https://xplaind.com/321861/ebitda*

Resumé of the thesis

What is the paper about?

A financial analysis has the aim to understand what the results of the company has been for one or more years. The results can be related to the performances such as profitability terms or the financial risk of the company.

The financial analysis can be also useful to compare results from different companies, to understand what the reasons behind the better results of one company are rather than the other one.

The *research question* of this paper on one hand aims to give an answer to the problem mentioned above, throw a comparative analysis based on ratios, on the income statement analysis, on the income lavers analysis and on the profitability analysis of two companies that operate in the pharmaceutical industry but are originally from two different countries: Italy and Denmark, respectively: Menarini srl (Italy) and Novo Nordisk A/S (Denmark).

On the other hand, the *research question* of the paper has also the goal to explain how the strength and liquidity analysis based on ratios, that apparently can evaluate a company as "risky", are usually not indicative.

In this case study, in fact, it will be seen how the Danish company Novo Nordisk, that is apparently risky, is definitively safe. Related to the last point, it will be consequently explained how specific items as for example current liabilities, that usually refers to the debt, are related to other items that don't influence the company's risk.

In order to find an answer to our question, is needed to proceed throw 2 steps.

This first step (related to the companies' analysis) will answer just in part to our research question; it's aim is to analyse the two companies separately thanks to the financial measures related to the income statement analysis and the balance sheet.

The second step of our research refers to a comparison between the two companies, just at that point of the paper it will come out all the differences between the two companies.

Moreover, thanks to the income statement analysis ant the wacc analysis it will be also answered to the second part of the research question related to the company's risk.

Chapter 1

The first chapter aims to give a theoretical imprint to what will be applied in practice later.

In turn, it is divided into five paragraphs, each of which has the role of providing essential theoretical and technical notions regarding our study and what will be analysed later.

1.1

The first paragraph is related to the financial ratios analysis, the main goal of the paragraph is to underline the measures that are used to maintain an established situation. It is focused on the relationship between monetary income and expenditure, the main questions are: How are the fixed assets financed? Is the company able to cover its debts? Both these two questions have the risk as the central point, it can't be too high and there must be a prudent managing of it. In order to do that, it must be given an explanation about capital strength and liquidity strength ratios as : *Fixed asset to equity capital ratio; Fixed asset to equity capital and medium-long term debt ratio; Debt-equity ratio = total liabilities/equity ; current ratio = current assets/current liabilities; Quick ratio = total liquidity/current liabilities*.

1.2

The second paragraph is inherent to the management areas analysis, there are three different management areas, each one related to different elements. The first one is the operating area, in this situation, income and costs are directly connected to the classical operations that the company does (production and sales). The second one is the extra-operating area, into this area there are all the assets that don't contribute to the business development. In order to give a better representation of the areas all the steps of the income statement will be analysed.

1.3

The third paragraph is about the analysis of the revenue levers. In this chapter many formulas will be explained, in order to highlight the reaction that will be caused after the variation of some elements as for example the profit or the contribution margin.

1.4

The fourth paragraph is focused on the profitability analysis, main ratios and financial leverages will be take into consideration. What's the goal in this context.

To figure out important issues for the stakeholders, as for example how much profitable is the equity founding or how much profitable is the investment done by the company.

1.5

The fifth paragraph aims to explain the Wacc formula. How to calculate it and what is its function.

1.6

The last paragraph of the first chapter, is related to the tax situation of the two countries, both the systems will be examined, highlighting the impact that this variable has on the companies.

Chapter 2

The aim of the second chapter is to put into practice all the notions at theoretical level that have been explained in the previous chapter. In order to do this, two companies will be analyzed: Novo Nordisk S/A and Menarini srl.

The analysis will be developed following the chronological order also present in the first chapter: (1.1) financial analysis based on ratios, (1.2) income statement analysis, (1.3) income lavers analysis, (1.4) profitability analysis, while particular attention will not be paid to taxation, which, however, is an integral part of the financial statement analysis.

Analysis based on ratios - Novo Nordisk

The analysis based on ratios of Novo Nordisk apparently underlines a risk related to the capital strength and liquidity strength of the company.

The table below shows all the results related to the ratios calculated thanks to the data, on the orbis website, related to the last three years available.

	2021	2020	2019
strenght analysis			
fixed asset to equity capital ratio	0,650	0,800	0,912
fixed asset to equity capital and long-term debt	0,872	0,944	1,055
debt equity ratio	2,749	2,289	2,181
liquidity analysis			
current ratio	0,860	0,936	1,059
quick ratio	0,663	0,673	0,760

Income statement analysis - Novo Nordisk

Novo Nordisk income statement analysis highlights excellent results achieved in the last three years, starting from the gross profit analysis to the net income.

If we take into account the year 2020 (the same that will be used in the 3 chapter for the comparison with Menarini) the results that were achieved from the income statement analysis, starting from 20 billions of sales, are the following

Gross profit = 15, 5 billion; EBITDA = 9,884,938 billion; Ebit = 8,937,999 billion; EBT = 8,7770,800 billion; net profit = 6,956,220 billion.

As mentioned above all these results are confirmed from the same analysis done for 2021 and 2019.

Income lavers analysis – Novo Nordisk

Thanks to the income statement analyzed above, it is possible to move on to the income lavers analysis, considering the two main levers: operating leverage and financial leverage.

The table below shows all the results related to the income lavers analysis, thanks to the data on the orbis website, related to the last three years available.

	2021	2020	2019
income lavers analysis			
degree of operating leverage	0,01369898	1,0784151	// //
financial leverage	0,99262009	1,0187464	1,08094252

As it is shown by table, the situations is definitely equilibrated and it doesn't highlight any risk.

Profitability analysis – Novo Nordisk

The profitability analysis of Novo Nordisk confirms the excellent results achieved by the Danish company through the last years. It is confirmed thanks to all the ratios calculated in the table below.

	2021	2020	2019
profitability analysis			
ROE	67,5048753	66,542438	67,6314785
Gross ROE	83,5100258	83,900511	84,3036434
RONA	50,2747613	56,448177	58,4595282
ROA	24,5527166	29,076331	31,0089797

Wacc Novo Nordisk

In order to understand the cost that Novo Nortdisk has to obtain to raise financial resources from shareholders and third parties, it is necessary to calculate the WACC.

WACC = Ke x (E/(D+E)) + Kd (1-t) x (D/(D+E)).

The result, thanks to all the data taken from " Damodaran website", is = 6.6%.

The equity part of the formula has a higher relevance instead of the debt part. In fact, the two different parts of the formula are respectively 6,2% (cost of equity), 0,4% (cost of debt).

Analysis based on ratios - Menarini

Menarini's insolvency risk is extremely low, it is highlighted by the table below.

	2020	2019	2018
strenght analysis			
fixed asset to equity capital ratio	2,58	3,7	3,8
fixed asset to equity capital and long-term debt	3,62	5,8	5,7
debt equity ratio	0,37	0,35	0,38
liquidity analysis			
current ratio	3,80	4,1	3,784
quick ratio	2,755	3,21	2,99

Income statement Analysis – Menarini

In Menarini, because the net sales revenues in 2020 are 4,6 billion, there could have been achieved better results.

The income statement analysis, thanks to the data available on the orbis website is the following:

Gross profit (2020) = 2,8 billion; EBITDA (2020) = 685.216 million; EBIT (2020) = 334, 738 million; EBT (2020) = 222, 133 million. EBT (2020) = 222.133.

Income lavers analysis – Menarini

The diagram below reflects all the results achieved by the income lavers analysis.

As it is shown in the passage from 2019 to 2020, there has been a decrease in terms of profit even if the sales growth, it is the reason why the ratio is negative.

For all the other years the scenario was not risky.

	2020	2019	2018
income lavers analysis			
degree of operating leverage	-1,3	0,6	// //
financial leverage	1,50	0,93	1,08

Profitability Analysis – Menarini

The profitability analysis results, highlighted in the table below, show not negative values. However, even if they are not negative, they should be compared with one or more similar companies in the same industry and to the WACC (to figure out if company generates value or not). It will be than done in the last chapter.

	2020	2019	2018
profitability analysis			
ROE	4,15267901	7,8020488	6,34756423
Gross ROE	5,28457163	11,371875	9,66560062
RONA	3,7358784	7,1415967	5,85550597
ROA	3,03111817	5,7443544	4,59742417

WACC - Novo Nordisk

In order to understand the cost that Novo Nortdisk has to obtain to raise financial resources from shareholders and third parties, it is necessary to calculate the WACC.

WACC = Ke x (E/D+E) + Kd (1-t) x (D/(D+E)).

The final result, thanks to the data achieved from "Damodaran website", is *6,1 %.*

The cost of equity is the most relevant (5,9%). On the other hand, the part related to the cost of debt has a less impact, not more 0,02%.

CHAPTER 3

The last chapter of this paper aims to comment and compare the results calculated in Chapter 2 and to answer the research question initially posed.

It will be seen how, even though the two companies analyzed operate in the same industry, there are several differences in the results obtained.

In the first part of the chapter, we will focus on two spreads in particular:

(RONA (1-T) - WACC) and (net roe - ke), in order to understand who is generating value and who is destroying it.

In the second part, all the analyses performed will be compared, highlighting the strengths and weaknesses of one compared to the other and understanding the possible causes of what was calculated.

Finally, the last part of the chapter relates to the research question initially explained.

In a first paragraph it will be discussed the causes for which Menarini srl has a significantly lower performance than Novo Nordisk S/A.

In a second paragraph, on the other hand, it will be explained that very often an apparent superiority in terms of liquidity and capital strength is not actually a risk from the insolvency point of view.

CHAPTER 3 : Part 1

Novo Nordisk S/A and Menarini srl: (Rona(1-T) – WACC) and (NET ROE– Ke). Is shareholders value generated or destroyed ?*

Analyzing the first spread for Novo Nordisk it emerges that:

RONA(1-t) in 2020 = 6,956,220/ (13,060,122 + 10,863,873-11,600,798) = 56 %.

WACC (2020) = 6.6 %.

Rona(1-t) - WACC= 0.56- 0.066 = 49%.

Analyzing the first spread for Menarini it emerges that:

RONA(1-t) in 2020 = 174.319/ (1,625,367 + 3, 040,711) = 3.73%.

WACC (2020) = 6.1 %.

Rona(1-t) - WACC = 0.0373- 0.062 = -2,4%.

Once the RONA (1-T) is higher than the WACC, the company is creating value as it is investing in assets that are value-creating. On the other hand, when the RONA (1-T) is lower than the WACC, the company is destroying the value, as the assets that are invested in are lower than the cost of fundings of the project

Analyzing the second spread of the two companies:

In Menarini we have that Net ROE = 4.15% while Ke = 6.2%.

The spread is therefore negative.

NET ROE - Cost of equity = -2.05%. the company is destroying value.

In Novo Nordisk the scenario is different, Net ROE = 67% while Ke = 7.2%.

The spread is therefore more than positive.

NET ROE - Cost of equity= 67%- 7.2 % = 59.8%.

This difference between the spreads confirms once again how the situations are opposite to each other and while Novo Nordisk is creating high value Menarini is destroying it.

CHAPTER 3 :Part 2

By comparing the results obtained by Menarini and Novo Nordisk in the year 2020, certain aspects can be briefly stated, which were also confirmed by the 3-year trend in the second chapter.

About the analyses of capital strength and liquidity, analyses that therefore refer to risk, it emerged that as a result of the indices analyzed, Menarini's situation is clearly less risky.

However, going on to analyze more specifically the items in the balance sheet, it emerges that although on the surface this risk is present, in reality it is not, since many items that are part of the liabilities do not have to be considered in the insolvency risk.

On the other hand, about the balance sheet analysis, confirmed by the profitability analysis, it emerged that the Danish company is clearly superior in terms of performance in all respects. Starting from the gross profit where raw material costs in

proportion to revenues were much higher for Menarini, passing to the ebitda and ebit where, for example, high costs of salaries, or depreciation were noted, higher in the Italian company than in the Danish one.

Finally, doing the income lavers analysis it was highlighted that there are no stable results over time from both companies, but nevertheless these results do not show any risks. In relation to the last analysis performed, it should also be noted that in Menarini as opposed to Novo Nordisk, although sales grew from 2019 to 2020, there was a lower profit, this indicates a lower degree of operating leverage.

CHAPTER 3: Part 3

What are the causes behind Novo Nordisk's improved performance?

At the beginning of the paper, the research question was made explicit, and it was pointed out that the aim of the financial analysis of two companies operating in two different countries is to highlight the causes that contribute to the better performance of one company over another.

It emerged from our analysis (of a three-year trend to avoid exceptions that might be inherent in a single period) and from the rona(1-t) - wacc and net roe - wacc spreads how Novo Nordisk is generating value, while Menarini is destroying it.

The income statement analysis of both companies showed at a first level how the gross profit of one was significantly higher than the gross profit of the other because of, for example, raw material costs and consumption are very high, 1.7 billion for sales of less than 5 billion. Proceeding with the analysis of the financial statements, it also emerged that the ebitda of the Danish company was significantly higher than that of Menarini. For Menarini, in fact, the number of salary costs are very high in relation to sales (more than 17,000 people work there); there are also high costs relating to services such as transport costs or consultancy or energy costs; finally, there are research and development costs which, although necessary, influence in a negative way the value of ebitda.

Finally, also analyzing the difference between ebitda and ebit, depreciation and amortization weigh were much more heavily on Menarini's ebit, reducing it by 50% compared to Novo Nordisk's; most probably, therefore, the machinery used by the Italian company is subject to a shorter life.

There is therefore a consistent better management by Novo Nordisk during the various stages of the business and the improved results are also reflected in all profitability ratios.

Can Novo Nordisk's apparent risk of insolvency be considered true?

The second part of the research question relates to the question of whether all the ratios that have been calculated relating to capital strength or liquidity can be considered true and reliable or not.

On the face of it, Novo Nordisk's scenario over the years can be considered not very prudent because of the calculated ratios.

However, although the ratios are useful for analyzing the proportion of total debt to equity, they are not useful for analyzing the proportion of debt from third parties (such as banks) to equity.

For example, Novo Nordisk, which on the surface is very risky according to the debt equity ratio, if one then goes to analyze the WACC one can see that the proportion of debt from outside the company is less than 1/10 to equity.

For this reason, the Danish company is not risky, and the risk-based ratios analyzed in Chapter Two are not suitable for providing information on financing from outside the company alone.

Why, then, are the company's liabilities so high in proportion to equity? The answer lies in the fact that within the pharmaceutical sector, due to the business activity that Menarini carries out, there are very high provisions because of hypothetical but real disputes that the company might have concerned, for example, patents.

It is therefore important to analyze all indices together, even if they have different analysis objectives, and not separately from each other.

What has been learned from the paper?

The aim of the paper was to analyze two companies operating within the area of pharmaceutical industry. Firstly, to understand, why the performance of the Danish company Novo Nordisk was superior compared to the Italian company Menarini. The second part of the research question was related to those ratios based on the company's debt are often not that indicative of the company's degree of insolvency.

Related to the first point, the comparison of the two companies in 2020 showed important differences in the results of Novo Nordisk compared to Menarini. which in

turn made it possible to draw important conclusions on both of the companies management. In particular, the relative importance of the cost of raw materials and the production process emerged. Thanks to the gross profit, it was possible to understand the high costs incurred by Menarini Group in contrast to the low costs that incurred by Novo Nordisk in proportion of sales. The second step of the income statement analysis was related to the calculation of EBITDA. This measure confirmed what has been said previously about Menarini's business management, also in this situation the Italian company incurred high service costs such as transport costs or personnel costs. Regards to the data on personnel costs from the Orbis website, it emerged that there were 17 thousand employees, which is a very high number (proportionate to sales) when compared to the 47 thousand employees (proportionate to sales) of Novo Nordisk.

Finally, the last step that highlighted the causes of Novo Nordisk's better performance compared to Menarini is with the calculation of EBIT. Thanks to this measure, it emerged how depreciations and losses decrease the value of EBITDA by more than 50%, this cause being linked to machinery, that falls short of service life.

After the analysis of the income statement, an income lavers analysis was carried out to provide an idea of how profit varies based on the change in sales or what the financial impact is. It emerged from this analysis that the risk in both companies is low, so that an error, e.g. in the calculation of sales planning, would not lead to negative consequences.

The fact that Novo Nordisk improved performance over the years was confirmed by the profitability analysis, comparing elements of the balance sheet and income statement analysis.

Finally, in Chapter 3, the above was further confirmed by calculating the spread of (RONA(1-T) - WACC) and the spread of (net ROE- Ke).

While in Novo Nordisk, in fact, the company generates value and remunerates the equity risk, this is not the case in Menarini, where in both cases the spreads are negative.

The calculations of the WACC were useful to analyze the weight and cost of debt from external financiers in order to answer the second part of the research question.

In fact, the second part of the research question focused on how reliable indices measuring capital strength and liquidity analysis were.

The calculation of these indices in the second chapter showed that, while Menarini has low risks in all respects, Novo Nordisk is the opposite and therefore to be considered risky. All the ratios: debt equity ratio, fixed assets to equity ratio, fixed assets to long-term debt equity ratio, quick ratio and current ratio, in the trend of the three years analyzed, almost always emphasized risky values. On the surface, there might be a risk of insolvency, e.g. not being able to pay the banks for the loans received. However, an analysis of the WACC and the detailed profit and loss account shows that, there are only few actual depts to lenders and it makes up only a miniature portion of financing compared to equity.

In fact, both companies finance themselves principally through equity, so the financial risk of meeting payments is very low.

Although Novo Nordisk appeared relatively risky on the surface, this risk is not actually there, and the reason for high capital strength and liquidity analysis ratios are related to balance sheet items such as current liabilities, that influence several calculations. In the case of the pharmaceutical companies, liabilities are for instance all provisions for possible legal expenses for patents.

The objective of this paper was therefore to analyze two companies that operate in the same industry, yet from different countries as well as have quite different performances, because of various reasons, that have been stated before.

Lastly, it emerged that ratios on capital strength and liquidity are often not efficient and useful for verifying the risk of insolvency.