

Louvain School of Management

# Equity Valuation

Tessenderlo Group

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## **Acknowledgments**

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## Introduction

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Every asset has a price. Every security has a price. Every stock has a price. But are these prices good estimates of the true value of their underlying product? Public securities are traded on financial markets, which basically refer to any marketplace where the trading of said securities occurs. Financial markets are vital to the smooth operation of capitalist economies. However, the question of whether markets are efficient is very important. When a market is said to be efficient, it means that the market price provides the best estimate value and all information are already incorporated into market prices. An inefficient market, however, does not incorporate all information. The market price may deviate from the true value, but the process of valuation is to estimate its reasonable value. The investor then gets high returns by spotting under- and overvalued firms, and invests in them hoping the market will correct itself. With this being said, it is clear that some markets will always be more efficient than others. In general, the capacity of a market to correct inefficiencies quickly depends mainly on the ease of trading, the transaction costs, and the vigilance of profit-seeking investors in the market. (Damodaran, 2012). The easier it is to trade, the lower the transaction costs and the more investors are vigilant in a certain market, the faster this market should correct its inefficiencies.

The objective of my thesis is not to prove whether markets are efficient, but rather to estimate the true value of a company and compare it with its market price to find out if the stock is under- or overvalued. There are many quantitative tools and methods an analyst can use, but the inputs leave room for subjectivity, which means the target price is the result of my own research and assumptions. In my thesis, I determine the value of Tessengerlo Group, an industrial conglomerate that mainly produces fertilizers, gelatin and plastic pipe systems. They currently employ about 4,600 people at more than one hundred locations around the world. The group has a consolidated revenue of 1.7 billion EUR in 2019, is listed on Euronext Brussels and is part of the Next 150 and BEL Mid indices.

The first part of this document briefly reviews the literature. I discuss the role of an equity analyst, the fundamental and technical analysis, and the different methods of valuation. For Tessengerlo, I mainly focused on the discounted cash flow and relative valuation.

The second part presents the company in depth. The different segments are explained in this section. In order to estimate the situation of Tessengerlo Group in the coming 3 years (FY2020 – FY2022), I analyzed the historical past 5 years (2015 – 2019). To be as complete as possible, I also included an analysis of the strengths, weaknesses, opportunities and threats (SWOT) of the company.

After that, I forecast the future revenues, EBITDA, D&A and EBIT of each segment. These estimations are based on the historical trends of the company, the evolution of its key drivers and my own assumptions. Each segment is different and requires a unique analysis, with its own key performance indicators.

Then, I provide a target price that is a combination of both discounted cash flow and relative valuations, weighted with a certain percentage. I believe these are the best valuation methods to estimate Tessengerlo Group's stock price. Many elements from the forecasts and the valuation methods were discussed with analysts covering the company. This allowed me to challenge my assumptions and give them a solid ground.

Finally, I add a sensitivity analysis for both valuation methods in order to encompass more scenarios and provide a price range rather than a single target price. In the discounted cash flow valuation, I confronted the discount rate and the terminal value. In the relative valuation, I modified the EV/EBITDA multiples for each segment.

After a deep analysis of Tessengerlo Group, I am now able to provide a BUY recommendation with a target price of 40.46 EUR, a 54.13% upside compared to the company's market price of 26.25 EUR on July 10, 2020.

I hope the quality of my analysis and my writing abilities will bring valuable insights to the reader, and make this document enjoyable to read.

## Part 1: Literature Review

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### Financial Analysis

Financial analysis refers to the assessment of a company's performance and its viability, stability and profitability. It is performed by professionals, called analysts, who conduct researches on companies based on the financial statements and many other sources of information. Analysts gather and process information to make investment decisions but what information is gathered and how it is processed depend on the analyst and the objective of his analysis. (CFAInstitute, 2020).

### Technical and fundamental analysis

There are two basic analytical models investors rely upon when the objective is to determine what stock to buy and at what price: the technical and fundamental analysis.

Technical analysis is defined as a method to evaluate investments and identify trading opportunities based on trends, patterns of price movements, trading signals and various other analytical charting tools. It aims to forecast the future price of a security through historical data such a price and volume. It was first introduced in the late 1800s by Charles Dow and the Dow Theory, and evolved in modern days to include hundreds of patterns and signals developed through years of research. (Murphy, 1999).

The start of modern financial analysis can be traced back when Benjamin Graham and David Dodd published "Security Analysis" in 1934. The main idea of the book is that the market price of securities such as stocks and bonds is faulty and irrational, based on investors' emotions and speculation. According to Graham, an intelligent investor should research the intrinsic value of a company, protect the principal and then search for an acceptable return instead of first searching high return and after, analyzing the associated risk. (Dodd & Graham, 1998). In contrast with technical analysis, fundamental analysis is a method to determine the intrinsic value of a security by assessing relevant economic and financial factors. In this approach, the analyst studies anything that can affect the value of this security, from macroeconomic factors such as the state of the economy to microeconomic factors like the capabilities of the management team. When looking for a security to invest in, an analyst examines, in a top-down

approach, the economic environment, identifies attractive sectors and analyzes securities within the already identified attractive sectors. In a bottom-up approach, an analyst starts with a specific company and its fundamentals rather than the sector it is operating in. This approach assumes a company can remain attractive even within a mildly performing industry. (CFAINstitute, 2020). The end goal is to compare the calculated intrinsic value of the security to the current market price to understand whether it is under- or overpriced.

In this thesis, the fundamental analysis is preferred to find out the value of Tessengerlo Group. The different equity valuation models used to estimate the intrinsic value of a security are introduced later.

### Buy- and Sell- Side Analysts

Within the myriad of analysts, we usually distinguish the buy-side and sell-side analysts.

The buy-side is the side of the financial market that invests large amount of money in securities and includes investment managers, pension funds, mutual funds, trust and hedge funds. Buy-side analysts provide recommendations solely for the benefit of their company.

On the other side of the financial market, the sell-side analysts have more of an advisory role. They typically work for investment banks, brokerage firms, and advisory firms or other firms that facilitate the selling of securities on behalf of their clients, in order to evaluate companies and perform analysis to place recommendations on securities such as “Buy”, “Hold” and “Sell”.

### Valuation Approaches

In this section are briefly explained the main models accepted among analysts to estimate the value of an asset. While the discounted cash flow and relative valuation are the two mostly used approaches in financial markets, there are different ways to calculate them, and it may also be worth to think of alternatives. Some approaches are better fit to evaluate certain types of asset, while it may not even be possible to use certain models for a specific asset. For instance, a dividend discount model is only possible for firms that actually deliver dividends. The problem in valuation is not that there are not enough models to value an asset, it is that there are too

many. (Damodaran, 2012). Choosing the right approach is definitely key for an analyst to provide a sound estimate.

### Discounted Cash Flow Valuation

The heart of modern valuation is that the price paid for any asset should reflect the cash flows it is expected to generate. Discounted Cash Flow (DCF) valuation views the intrinsic value of an asset as the present value of its future expected cash flows. When applied to the dividends of a share, the method is named Dividend Discount Model (DDM). Discounted cash flow models are widely used by analysts to value companies and can usually take two approaches:

1. The Free Cash Flow to the Firm (FCFF) approach estimates the value of the firm as the present value of the future FCFF discounted at the weighted average cost of capital. By definition, the FCFF are the cash flows available to all the investors.
2. The Free Cash Flow to Equity (FCFE) approach estimates the value of equity as the present value of the future FCFE discounted at the required rate of return on equity. By definition, the FCFE are the cash flows available to common shareholders.

Common equity can then be valued directly by using the FCFE or indirectly by using the FCFF, which estimates the value of the enterprise and subtracts the value of non-common-stock capital - usually debts - to arrive at an estimate of the value of equity.

As the cash flows are not readily available data, it requires a clear understanding of the financial statements and the ability to use and interpret information. To forecast FCFF and FCFE, analysts can build an array of models of different complexity, with the most common approach to forecast sales, with profitability margins and reinvestment needs.

The Discounted Cash Flow (DCF) method used to value the intrinsic value of a share is relatively simple, intuitive, thorough and works well for companies with predictable cash flows. However, it depends heavily on the assumptions that the analyst takes. Any small changes in growth estimates, cost of capital and terminal growth rate can result in wildly different outcomes.

When it comes to choosing the right approach, the FCF method is favored in the case where there is no capital structure constraint, used for most types of firms while the FCFE method works best for complex capital structures, typically for banks or finance projects.

## Relative Valuation

In relative valuation, the value of an asset is based on how other similar assets are currently priced on the market. To perform a relative valuation, an analyst needs to find similar assets and compare their multiples to eventually judge whether the analyzed asset is under- or overvalued.

There are two categories of relative valuation multiples:

1. Enterprise value multiples estimate the value of the company as a whole. The most common multiples from this category are EV/EBIT, EV/EBITDA and less frequently EV/Sales. EV/EBITDA, seen as the closest proxy to cash flows, is often chosen over EV/EBIT but the latter can be better when factors such as capital expenditures and depreciation are key drivers for companies and are therefore important to consider.
2. Equity value multiples estimate directly the value of a share and is most commonly represented by price-to-earnings (P/E) ratio, price-earnings to growth (PEG) ratio, price-to-book (P/B) ratio and price-to-sales ratio.

Relative valuation usually requires less information than discounted cash flow, making it easier to use and widely accepted among analysts. Generally speaking, relative valuation is more likely to reflect market perceptions and trends than discounted cash flow valuation. (Damodaran, 2010). Therefore, relative valuation is a good complementary to discount cash flow valuation as it can find weak spots in the analysis and fix them.

## Alternatives

The discounted cash flow and relative valuation methods are the most common when it comes to finding the value of a company. In a scientific survey (Pinto, Robinson & Stowe, 2015) on the equity valuation practices, CFA Institute members with equity analysis job responsibilities were asked to identify which of the major approaches to evaluating equity securities he or she used. It appeared that an overwhelming proportion of respondents (92.8%) reported using market multiples in valuation. Coming in second and third, 78.8% of respondents use discounted cash flow method while 61.4% use asset-based approaches. Although widely known in the literature, the option approach is only used by a low 5% of respondents.

Asset-based approach argues that you can value the assets of a company and aggregate them to find the firm value. Even within the asset-based approach, there are variations. First, the cost approach looks at what it would cost to re-build the entire business. This approach considers the cost of a company equals its value and removes any value creation and cash flow forecasts. Secondly, the liquidation value approach estimates the total sales of the assets owned by a firm. Finally, it is possible to use accounting book value to measure the value of the assets, adjusted when necessary.

Contingent claim valuation, or option approach, estimates the value of an asset as this asset has the characteristics of an option, using an option pricing model.

Precedent transactions analysis is another form of relative valuation where the company being analyzed is compared with business that have recently been sold or acquired in the same industry. This approach considers other factors such as the take-over premium and can be useful for M&A transactions.

Since the objective of this section is not to provide a thorough presentation of all approaches to valuation, but an overview of the tools available for an analyst, the list of methods stops here. As said previously, choosing the right approach and making good assumptions are the most important factors to deliver a sound analysis of a company.

## Part 2: Company Presentation

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### Description of Activities

Tessengerlo Group is a diversified industrial group that operates on four segments: (1) Agro, (2) Bio-Valorization, (3) Industrial Solutions and (4) Energy through its T-Power combined cycle gas turbine. Officially created in 1919, Tessenderlo Group has evolved from a chemical company to a more diversified group that focuses on the four segments described. The company currently employs about 4,600 people at more than one hundred locations around the world. Leading in most of its markets, Tessenderlo Group mainly serves customers in agriculture, food industry, construction, health and consumer goods end market. The group has a consolidated revenue of 1.7 billion EUR in 2019, is listed on Euronext Brussels and is part of the Next 150 and BEL Mid indices.

Its vision is to ensure that life on our planet will thrive by helping to create a world that makes the most of its resources. More specifically, it means growing more food than ever before, using water more efficiently, addressing the world's shortage of natural resources and creating value from by-products (i.e. products that are made as a result of making another product).

Tessengerlo Group is known for its limited transparency. The group operates in niche markets and thrive to maintain its competitive advantage. What we know, however, is the objective of the company to drive sustainable top-line growth and improve its margins.

As the reader can understand, Tessenderlo Group is unique and operates on different segments and multiple markets, making the valuation of this group a tedious task. However, as Aswath Damodaran (2012) states in his book *Investment Valuation*: “The more difficult the analysis, the more useful is its valuation.”

The four operating segments are defined by Tessenderlo Group as the following<sup>1</sup>:

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<sup>1</sup> Annex 3 – Activities Breakdown

## 1. Agro

This segment accounts for 44% of the REBITDA<sup>2</sup> of the group (Tessengerlo Group, 2020), and is therefore, the most important in terms of earnings for the group. It comprises all activities related to the production, trading and marketing of crop nutrients (liquid crop fertilizers and potassium sulfate fertilizes) and crop protection products. This agriculture segment is itself divided into two substrategic categories: (1) **CropVitality™/Tessengerlo Kerley International** and (2) **NovaSource®**.

The first focuses on producing and trading liquid, soluble and solid fertilizers in order to support growers in achieving better, more efficient and more sustainable agriculture. The nutrients from fertilizers are key to the productivity and health of soils and crops.

The second targets niche crop protection products on a global scale for high value crops. NovaSource® products help farmers to increase and protect the quality and yield of their specialty food crops by saving them from, for instance, damaging weeds, insects and diseases.

## 2. Bio-Valorization

Tessengerlo Group is valorizing bio-residuals by processing animal by-products. Animal by-products mean materials of animal origin that people do not consume. It is typically supplied by the meat industry, butchers and retailers so that Messengerlo Group's bio-valorization division can process it to meet some needs in various downstream players. There are two distinct subdivisions: (1) **PB Leiner** and (2) **Akiolis**.

**PB Leiner** focuses on offering a range of high-quality gelatins and collagen peptides to answer a wide variety of needs in food (e.g. confectionery and dairy), health, pharma (e.g. capsules) and technical applications (e.g. film and photography paper). In most cases, gelatin is only added in small quantity, but is needed for its superior characteristics. It mainly comes from pigskin, beef hide, pig bone and beef bone.

The other part of bio-valorization, **Akiolis**, specializes in transforming these animal by-products into high-value proteins and fats used in markets such as pet food and animal nutrition, aqua feed, lipochemistry, fertilization, gelatins, cements plants and energy sectors.

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<sup>2</sup> Recurring EBITDA, or REBITDA in this document, refers to the adjusted EBITDA provided by the company.

### 3. Industrial Solutions

This segment provides plastic pipe systems, chemicals for water treatment, high-value solutions for gas and mining industries and solutions to dispose of and reuse wastewaters in oil and gas activities.

The industrial solutions segment is divided as the following:

- **DYKA Group** provides piping solutions for utilities, agricultural, building and civil engineering markets, offering pre-assembled piping kits, project consultancy services, engineering support for ventilation solutions, etc.
- **Performance Chemicals** provides municipal and industrial markets with coagulants and other chemicals for treatment of wastewater and purification of drinking water. There are four production sites (1 in France, 2 in Belgium and 1 in Switzerland), serving the largest metropolitan areas in Western Europe, such as Paris, Amsterdam, Geneva and Brussels.
- **Mining & Industrial (M&I)** provides sulfur-based solutions enabling many efficiencies in metals separation and higher returns on investment in the mining industry.
- **MPR Services** provides high-value solvents at refinery and gas processing locations.
- **Environmentally Clean Systems (ECS)** offers solutions to dispose of and reuse wastewaters in oil and gas activities.

This division is even more fragmented than the others, but keeps water treatment, piping systems and process chemical services as core markets.

#### 4. T-Power

The last segment differs from the others. T-Power is a combined cycle gas turbine (CCGT), possessing a 425MW capacity and located in Tessenenderlo, Belgium. A combined cycle gas turbine (CCGT) uses a gas and steam turbine together to produce electricity, and is seen as a complementary solution to renewable energy since (1) its energy efficiency is relatively high and production of greenhouse gases are low (Vandani, Joda & Boozarjomehry, 2016) and (2) it can operate with a lot of flexibility to meet the changes in energy demand from consumers, while not being weather dependent, unlike most renewable energy sources (Ruchti, Olia, Franitza & Ehram, 2011).

In 2018, Tessenenderlo group acquired 100% of the shares of T-Power nv. Since then, a tolling agreement was concluded with RWE Group until 2026 for the full capacity of the plant and its commercial operations, with an optional 5-year extension thereafter. (T-Power, 2018). This means the RWE group is the owner of the input (natural gas) and the output (electricity) while T-power is owner of the plant and charges a tolling fee. This fee is independent of the electricity price and the capacity utilization of the plant. Besides, it was expected that about a third of the electricity would go to the chemical group. (Project Finance Magazine, 2009).

Historically, the central was founded in 2005 as a joint venture between Tessenenderlo Group, Siemens Project Ventures, and Advanced Power. The construction started in 2008 and operations began 3 years later. The agreement was reached with a consortium of 10 banks. On December 31, 2019, the outstanding loan amounts to 167.3 million EUR. (T-Power, 2020).

## Historical Financial Overview

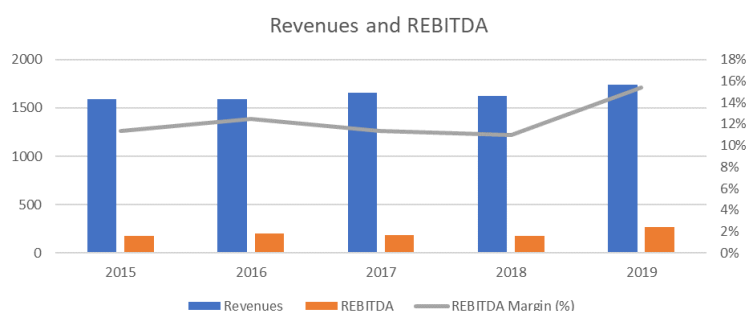
The information used in this financial analysis are based on the three financial statement reports (income statement, statement of cash flows and balance sheet). In order to estimate the situation of Tessengerlo Group in the coming 3 years (FY2020 – FY2022), I first analyzed the historical past 5 years (2015 – 2019)<sup>3</sup>. Obviously, the historical trends serve as a basis to estimate its future evolution and will be adjusted with my assumptions that are explained further in this document based on new sources of information.

Tab 1 Key Historical Financials (€M)	2015	2016	2017	2018	2019
Revenues	1589	1590	1657	1621	1743
REBITDA	180	198	188	178	268
REBIT	104	124	116	99	135
Net profit	82	98	26	92	98
Cash Flow from Operating Activities	138	109	184	108	220
Cash Flow from Investing Activities	-75	-95	-80	-124	-100
Cash Flow from Financing Activities	-89	-25	-15	-18	-130
Net change in cash & cash equivalent	-27	-11	76	-31	-10
Total assets	1304	1359	1412	1838	1911
Total liabilities	787	754	774	1103	1090
Total equity	517	605	638	735	822

Source: Antoine Cloquet estimates, company data

## Revenues & Profitability

In the last 5 years, the revenues of Tessengerlo Group have risen from 1,589 million EUR to 1,743 million EUR in 2019, growing at a CAGR of 2.34%. The REBITDA has come from 180 million EUR to 268 million EUR,



growing at a CAGR of 10.37%, far greater than the revenues growth and showing a focus from the management team to improve the company's operational efficiencies. This is mostly explained by many investments to open new factories and/or to improve already existing factories, as well as a focus on higher value products and accretive acquisitions, such as the acquisition of T-Power. The REBITDA margin ranged between 11% and 15%, with an

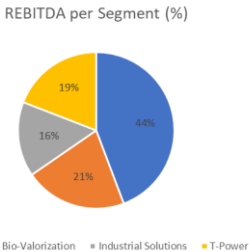
<sup>3</sup> Annex 1 - Financials

impressive increase in 2019. As the group has different segments and therefore, different reasons that explained the changes in revenues and growth, I go more into detail for each segment in part 3 - forecasted growth - of this document.

Tab 2 Performance ratios	2015	2016	2017	2018	2019
Revenues growth	10.8%	0.1%	4.2%	-2.2%	7.5%
REBITDA growth	33.0%	9.8%	-5.2%	-5.3%	50.6%
REBIT growth	56.1%	18.9%	-6.3%	-15.3%	37.0%
Net Profit growth	55.1%	19.9%	-73.6%	255.2%	6.1%
REBITDA margin	11.4%	12.5%	11.3%	11.0%	15.4%
REBIT margin	6.6%	7.8%	7.0%	6.1%	7.7%
Reported net margin	5.2%	6.2%	1.6%	5.7%	5.6%
ROE	15.9%	16.2%	4.1%	12.5%	11.9%
ROA	6.3%	7.2%	1.8%	5.0%	5.1%

Source: Antoine Cloquet estimates, company data

As stated earlier, Tessenderlo Group is defined as a diversified industrial group that focuses on four different segments: (1) Agro, (2) Bio-Valorization, (3) Industrial Solutions and more recently (4) T-Power, a power plant.



Graph 2 | Source: Antoine Cloquet, company data

The Agro segment comes first both in terms of revenues and REBITDA, with respectively 602.8 and 118.5 million EUR in 2019. It currently accounts for 44% of Tessenderlo Group’s total REBITDA. The Bio-Valorization and Industrial Solutions segments also have high revenues but lower REBITDA. With revenues of 543.1 million EUR and an REBITDA of 56.6 million EUR, the Bio-Valorization accounts for 21% of the group’s REBITDA. The Industrial Solutions segment’s revenues amount to 526 million EUR with an REBITDA of 41.4 million EUR, accounting for 16% of the group’s REBITDA. Finally, the new T-Power segment only makes 71.1 million EUR in revenues but still 51.2 million EUR in REBITDA. Its tremendous margin, explained by the fact that its revenues are coming from a tolling agreement, puts this segment at 19% of the total REBITDA.

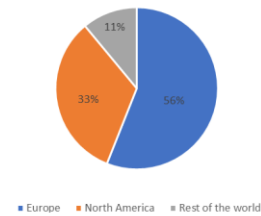
## Summary of Segments



Graph 3 | Source: Antoine Cloquet, company data

The group is operating on a global scale, with a focus on Europe and North America. In 2019, 56% of the revenues came from Europe, 33% from North America and 11% from the rest of the world, with about 4% from South America and 4% from Asia.

Geographic Revenues Distribution (%)



Graph 4 | Source: Antoine Cloquet, company data

The products and services are often sold in the same geographic areas as they are produced. The Agro segment has 15 productions plants and more than 100 terminals in the USA, while only 3 plants and 20 terminals through Europe and Mexico. The Bio-Valorization segment has 15 plants in Europe (mainly France), 1 in China and 3 in the Americas (US, Argentina, Brazil). The Industrial Solutions segment has 12 plants in Europe and 3 in USA. Finally, T-Power is located in Tessengerlo, Belgium.

Therefore, the group is exposed to a FX effect that can affect the results. However, I am not considering this effect in my forecasts as it is difficult to predict and depends on the hedge taken by the company. This decision was also confirmed by Christophe Beghin – Kempen analyst covering Tessengerlo Group – who told me that I could ignore this effect in my forecasts.

## Liquidity & Leverage

Overall, Tessengerlo Group has a solid financial strength.

I estimated<sup>4</sup> the quick ratio at 1.3x in 2019, meaning the company can instantly get rid of its current liabilities. The current ratio was estimated at 2.3x. Usually, a current ratio above 1.5x is considered as healthy. The interest coverage ratio, measuring how many times a company can cover its current interest payment with its available earnings, amounts to 12.0x, proving once again the group's healthy short-term liquidity ratios.

Luc Tack, the group's CEO, is not a fan of leverage<sup>5</sup>. The leverage ratio in 2019 amounts to 57%. However, it was calculated using the total liabilities of 1,087.7 million EUR, including 132.3 million EUR in provisions, 76.0 million EUR in deferred tax liabilities, and 245.3 million EUR in trade and other payables, among many others. When I estimate the debt ratio, using the total debt reported by Tessengerlo Group, including current and non-current loans and borrowings, the ratio is much lower, at 26.3%. It is also worth noting that Tessengerlo Group invested 328 million EUR for the acquisition of T-Power, with approximately 190 million EUR of net financial debt taken over in 2018. The payback ability ratio, calculated by dividing the REBITDA by the total liabilities, equals 25% in 2019, which is still considered as healthy. Therefore, the group has solid long-term solvency ratios.

Tab 3 Financial strength	2015	2016	2017	2018	2019
Quick Ratio (x)	1.4	1.7	1.7	1.5	1.3
Current Ratio (x)	2.5	3.0	2.7	2.5	2.3
Interest Coverage Ratio (x)	9.5	17.5	16.9	9.6	12.0
Leverage Ratio (%)	60.4%	55.5%	54.8%	60.0%	57.0%
Debt Ratio (%)	21.1%	18.8%	18.0%	27.9%	26.3%
Payback Ability Ratio (%)	23%	26%	24%	16%	25%

Source: Antoine Cloquet estimates, company data

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<sup>4</sup> Annex 2 – Ratios and Metrics

<sup>5</sup> Often stated in equity reports, and personally discussed with Stijn Demeester, ING analyst covering Tessengerlo Group

## SWOT Analysis

Tab 4 SWOT Analysis

<b>Strengths</b>	<b>Weaknesses</b>
Strong company management	Exposure to raw material prices
Market leader in many markets	Dependent on weather conditions
T-Power stability	
<b>Opportunities</b>	<b>Threats</b>
High-value niche markets	Foreign currency exposure
Structural market growth	Earnings volatility

Source: Antoine Cloquet

### Strengths

#### – **Strong company management**

Luc Tack (CEO) and Mr. Haspesslagh (CFO/COO) have already proven their strong management capabilities at Picanol. Mr. Tack became CEO and major shareholder of Picanol in 2009 and since then, the stock has increased by 50 times. They are especially known to increase operational efficiencies and for their capital allocation. (Beghin, 2018). This was once again proven by their latest acquisition of T-Power, a highly accretive deal.

Besides, Mr. Tack is known to keep a low leverage ratio. Tessenderlo Group has a solid financial strength, both in terms of short-term liquidity and long-term solvency. In 2019, the quick ratio was at 1.3x, the current ratio at 2.3x, and the debt ratio at 26.3%. The company low leverage position allows them to invest in potential new opportunities quite easily, the same way they were able to acquire 100% of the shares of T-Power.

#### – **Market leader in many markets**

Tessenderlo Group is a market leader in most of its niche markets. Crop Vitality is the USA market leader in production of sulfur-based liquid fertilizers. Tessenderlo Kerley International is the fourth largest fertilizing business outside the USA. PB Leiner, the bio-valorization segment in charge of gelatin and collagen peptide, is one of the top three players in the world in its sector.

– **T-Power stability**

It is agreed among all analysts that the acquisition of T-Power is highly accretive. Evenly important, the tolling agreement concluded at least until 2026 is bringing stable revenues for the group since this fee is independent of the electricity price and the capacity utilization of the plant. The power plant is expected to bring 71.1 million EUR in revenues with an EBITDA of 51.2 million EUR each year.

#### Weaknesses

– **Exposure to raw material prices**

The availability and prices of raw materials are key elements for Tessenderlo's margins. In the 2019 annual report, the company states that they are particularly sensitive to: ammonia, potassium chloride and sulfur for the production of fertilizers (Agro), PVC for the production of plastic piping systems (Industrial Solutions), and pig and beef bones and hides for the gelatin production (Bio-Valorization). The evolution of these raw material prices and availability is often taken into consideration to estimate the forecasted margins of each segment.

– **Dependent on weather conditions**

The Agro and Industrial Solutions segment are particularly impacted by exceptional environmental conditions such as heat waves, flooding or natural disasters. For instance, 2019 was marked by adverse weather conditions in USA and is mainly responsible for the decrease of revenues within the Agro segment. Even if it is not a recurrent element, it is important to note that revenues can be dependent on weather conditions.

#### Opportunities

– **High-value niche markets**

Since 2010, the company defined a new strategy. They got rid of some overcompetitive commodity businesses and rather focused on certain niches where Tessenderlo Group has both the experience and expertise to provide high-quality products<sup>6</sup>. In the future, I expect the group to keep this strategy with a continuous expansion in the product portfolio and application

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<sup>6</sup> Annex 10 – Company History

offerings in the Agro segment and a better product-mix portfolio with higher value products in the Bio-Valorization segment, that will have a positive impact on the margins.

– **Structural market growth**

The most important long-term drivers of each segment are in fine a growing population and an increased demand for modern and sustainable products and services, which represent tremendous growth opportunities for Tessengerlo Group. The Agro, Bio-Valorization and Industrial Solutions segments are exposed to structural growth. First, the Agro segment is backed by a growing demand for fertilizers and crop protection products for modern and sustainable agriculture. Secondly, the Bio-Valorization horizon is defined by the market growth of collagen peptide and gelatin, explained by a growing middle-class population, the increased consumption of medication in the developing world and a greater health and nutrition awareness in all markets. Finally, the Industrial Solutions outlook is positive thanks to an industry need for sustainable purification of process water, scarcity of natural resources and an increase awareness of environmental footprint, with for instance, energy neutral buildings.

#### Threats

– **Foreign currency exposure**

With activities widely spread geographically, Tessengerlo is exposed to fluctuations in exchange rates that can possibly lead to profit or loss in currency transactions. The primary foreign currencies exposed are the USD, GBP (British pound) and CNY (Chinese Yuan). According to ING analysts, 40% of the group's EBITDA in 2018 was exposed to the USD. This exposure is not represented in the forecasts for reasons already explained, but remains nonetheless as a threat for the company.

– **Earnings volatility**

Tessengerlo Group is a market leader in many niche markets, which offer structural but cyclical growth. Recent events show that growth is not linear and that revenues, as well as EBITDA, can be volatile. Many key drivers that can potentially affect the earnings of each segment are discussed in detail further in the document.

## Other risks

### – **Large majority stakeholders**

CEO Luc Tack owns around 45% of the shares, which could not be in the best interest of the minority shareholders<sup>7</sup>.

### – **Low market liquidity**

Market liquidity risk expresses how easily a security can be bought or sold in the market and converted into cash. In an email exchanged with Stijn Demeester, he mentioned that the company is “not exactly the most liquid stock and therefore there is little interest from the institutional side”. From an investor perspective, I believe it is something to keep in mind.

### – **COVID-19 Impact**

So far, all plants are still operational because the government considers the group’s activities as essential. My estimations for FY2020 and the pandemic’s impact are explained in detail in each segment’s forecasted growth, in part 3 of this document. The Industrial Solutions segment should be suffering the most due to its dependency on the construction sector, put on hold during the pandemic. The Agro and Bio-Valorization should be less impacted, while I do not expect T-Power to be impacted at all. ING analysts<sup>8</sup> stated in their report (2020) that they have “difficulties identifying a worst-case scenario where Tessenderlo would be stressed in terms of balance sheet”.

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<sup>7</sup> Annex 11 – Shareholding Structure & Annex 12 – Corporate Management

<sup>8</sup> Annex 9 – ING COVID-19 Recession Scenario

## Part 3: Forecasted Growth

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### Agro

In 2019, Agro revenues decreased by -1.0% when excluding the foreign exchange effect<sup>9</sup>. That year was marked by adverse weather in North America, increased import tariffs and low agricultural commodity prices. (Tessengerlo Group, 2020). In 2018, Agro revenues increased only by +1.1% due to lower volumes within Tessenderlo Kerley International that were partly compensated by the other Agro activities. (Tessengerlo Group, 2019). In 2017, Agro revenues increased by +6.1% driven by the positive volume evolution in SOP Plant Nutrition. Simply put, the Agro revenues remained relatively stable in the last three years. (Tessengerlo Group, 2018). In the past 5 years, the historical revenues growth averages -0.78%.

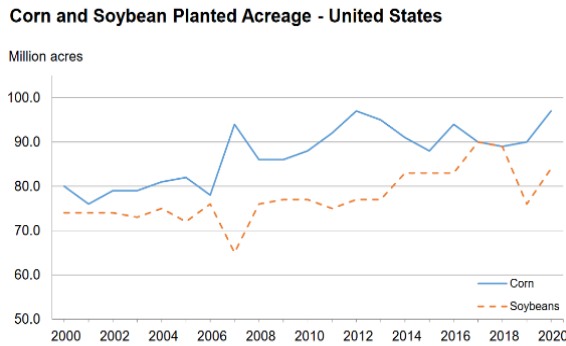
I expect FY2020 revenues to decrease by -5.0%, impacted by lower fertilizer prices and lower demand in China, but still slightly offset by an increased plantation acreage in the USA and a stable agricultural market in the EU. However, ING equity analysts model the Agro segment to decrease by -10% for FY2020 in its recession scenario<sup>10</sup>. Consequently, I settled on a revenue decrease of -7.5% for the segment.

Based on the current situation, Tessenderlo Group announced that COVID-19 will have no material impact on the financial results of the group and as such anticipates that the REBITDA for the full financial year 2020 will be higher compared to 2019. (Tessengerlo Group, 2020). However, the World Bank's Fertilizer Price Index dropped 4.5% in the first quarter of 2020 due to the COVID-19 outbreak in China, which severely hampered production and disrupted supply chains. (World Bank, 2020). Despite signs of resilience of the EU agri-food sector, the COVID-19 pandemic caused an economic slowdown likely to impact food demand in high-value products, but with minor effect on the overall EU staple food consumption. European stocks are high and harvest prospects are correct, with no major weather disruptions along the season. (Europa, April 2020). In the United States, surveyed producers intend to plant an estimated 8% increase in acres of corn in 2020, and 10% more acres in soybean planted compared to last year. All wheat and all cotton planted acreages are expected to remain stable. (USDA, 2020).

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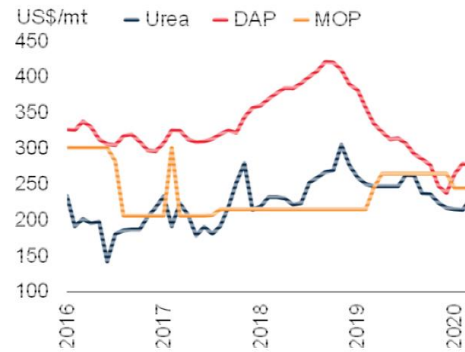
<sup>9</sup> All following earning numbers will be excluding the foreign exchange effect, as it better reflects the operations of the company.

<sup>10</sup> Annex 9 – ING COVID-19 Recession Scenario



Graph 5 | Source: USDA, 2020

### A. Fertilizer prices



Graph 6 | Source: World Bank, 2020

For the following years, FY2021 and FY2022, I expect revenues to increase by +5% YoY, on the back of a growing demand for fertilizers and crop protection products for modern and sustainable agriculture, an untapped market in Europe and a continuous expansion in the product portfolio and application offerings.

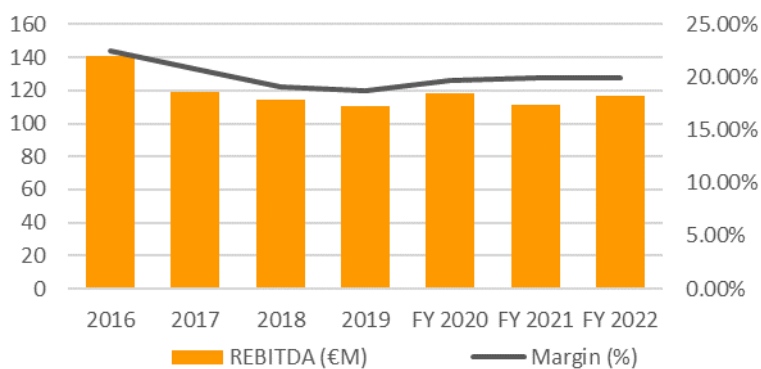
The average REBITDA margin over the last 4 years (from 2016 to 2019) stayed at 20%. I expect the Agro segment to stay at this level, assuming (1) EUR/USD to remain constant around 1.13, (2) unescalating trade dispute between the USA and China and (3) the absence of major shutdown of plants due to the pandemic. First, the EUR/USD estimation (Eamonn Sheridan, 2020) for the following years average 1.10, although it is difficult to estimate. Second, no plant was closed so far because of the COVID-19 and none should be in the foreseeable future. Finally, the United States and China reached an agreement that addresses many long-standing agricultural barriers to China's market and expands U.S. agricultural exports over the next two years. (Farm Policy News, January 15, 2020).

Tab 5 Agro estimates (€M)

	2019	FY 2020	FY 2021	FY 2022
<b>Revenues</b>	<b>602.8</b>	<b>557.6</b>	<b>585.5</b>	<b>614.7</b>
Growth (%)	2.20	-7.50	5.00	5.00
<b>REBITDA</b>	<b>118.5</b>	<b>111.5</b>	<b>117.1</b>	<b>122.9</b>
Margin (%)	19.66	20.00	20.00	20.00
Growth (%)	7.53	-5.89	5.00	5.00
<b>D&amp;A</b>	<b>30.1</b>	<b>30.0</b>	<b>30.0</b>	<b>30.0</b>
As % of revenues	5.0	5.4	5.1	4.9
<b>REBIT</b>	<b>88.4</b>	<b>81.5</b>	<b>87.1</b>	<b>92.9</b>
Margin (%)	14.66	14.62	14.88	15.12
Growth (%)	2.43	-7.79	6.84	6.72

Source: Forecasts Antoine Cloquet

Fig 1 Agro REBITDA



Source: Forecasts Antoine Cloquet

## Bio-Valorization

In 2019, the bio-valorization revenues increased by +7.5%, and its REBITDA increased by 18.3 million EUR, a +66.5% increase compared to the prior year. Although Akiolis was impacted by lower volumes, PB Leiner showed positive results on the back of higher volumes, a better product mix and lower raw material prices. (Tessengerlo Group, 2020). In 2018, revenues of the segment decreased by -2.3%, mainly because of lower fat prices as well as lower overall volumes, except for an increase in collagen peptides volumes. The REBITDA that year decreased by -3.4%, negatively impacted by an inventory write-off of -0.1 million, while a reversal of inventory write-offs was recognized for +3.2 million EUR in 2017. (Tessengerlo Group, 2019). In 2017, revenues of the segment increased by +6.1%, explained by higher volumes mainly in gelatin. Its REBITDA decreased by -8.0%, negatively impacted by increased raw materials prices, despite a +3.2 million inventory write-off reversal and operational improvements. (Tessengerlo Group, 2018). In the past 5 years, the historical revenues growth averages +2.14%.

For FY2020, I expect revenues to decrease by -5.0% because of the impact of COVID19 and lower fat prices. In the same ING equity research update<sup>11</sup>, analysts model the Bio-Valorization segment to decrease by -10.0% for FY2020 in its recession scenario. Therefore, I also settled on a decrease of -7.5%.

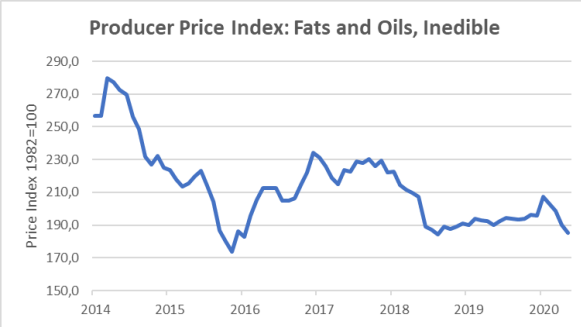
Although all factories are still running as the government sees Tessengerlo Group vital for the economy, we can still expect the economic slowdown to slightly decrease volumes. The world bank (2020) has estimated in its baseline scenario a -5.2% contraction in global GDP in 2020. Since most of the bio-valorization segment products such as fat, protein, gelatin and collagen peptide are used in the food, health and pharma industry, the decrease should not be too significant because of the necessity of those end applications and the increased awareness of health and wellness in these pandemic times.

For FY2021 and FY2022, I expect revenues to increase by +4.0%, on the back of a growing gelatin and collagen peptide market size, slightly offset by stable fat sales due to continued pressure on fat and oil prices.

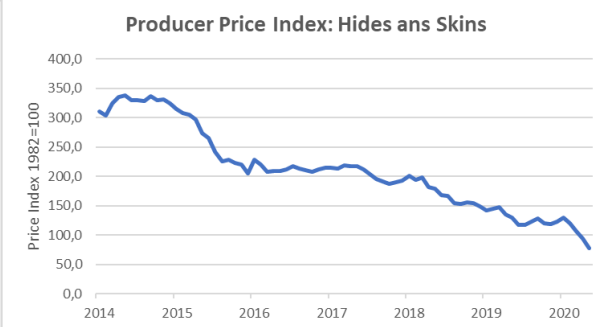
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<sup>11</sup> Annex 9 – ING COVID-19 Recession Scenario

In the long-term, the global collagen peptide and gelatin market is expected to reach 6,729 million USD by 2025, growing at a CAGR of 7.8%. (AlliedMarketResearch, 2018). Although collagen peptides and gelatin are not exactly the same, both originate from collagen and are proteins made from amino acids, sourcing from livestock animals. The market is dominated by the gelatin segment, thanks to its high applications in the food and beverage industry, medicine and cosmetics. This expected growth is explained by a rising demand in medical and cosmetic applications and an increase in concerns regarding health among the global population with more demand for dietary supplements and healthy and protein rich diets. (AlliedMarketResearch, 2018). Other studies expect the collagen peptide market to grow in the following years at CAGR between 5.8% CAGR (MarketsAndMarkets, 2020) up to 11.1% (GlobalNewsWire, 2020). As PB Leiner, the bio-valorization segment in charge of gelatin and collagen peptide, is one of the top three players in the world in its sector, I assumed an +8.0% growth in the coming years, in the mid-range of all three reports expectations. Tessengerlo Group (2020) itself states that the long-term outlook for the gelatin and collagen markets is positive thanks to (1) the growing middle-class population, (2) the increased consumption of medication in the developing world, and (3) greater health and nutrition awareness in all markets.



Graph 7 | Source: U.S. Bureau of Labor Statistics, 2020



Graph 8 | Source: U.S. Bureau of Labor Statistics, 2020

The average REBITDA margin over the last 4 years (from 2016 to 2019) has been quite low, averaging 6.0% with a great increase in 2019 at 10.42%. I expect the bio-valorization segment to move to a 9.0% REBITDA margin in FY2020, 10% in FY2021 and 12% in FY2022, assuming (1) the effects of the pandemic will soon wear off and results from investments will be realized in 2022 (2) a better product-mix portfolio with higher value products and (3) a stable supply and demand of raw materials.

In the past few years, the company showed interest in upgrading their bio-valorization plants, as well as investing in innovative new processes for higher value products such as processes for feather and blood meals starting in Javené and Rion (France), originally planned before mid-2020 and future extension in production capacities at Violleau. (Tessengerlo Group, 2020). No information was provided regarding the effect of the pandemic on those projects.

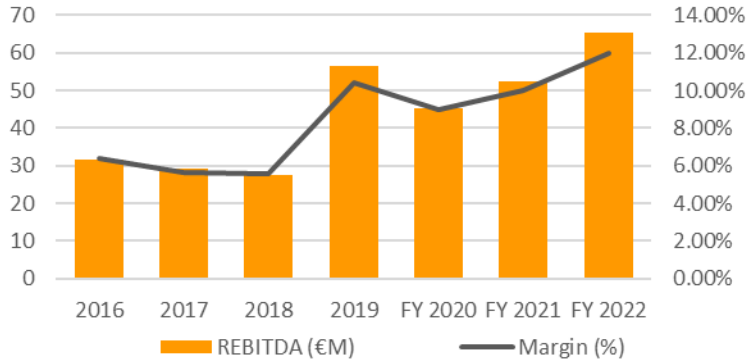
Fluctuations in the raw materials (pigskin, beef hide and beef bones) availability and prices also have a major impact on the bio-valorization EBITDA margin. It is key for Tessengerlo Group to secure sufficient raw materials volumes. In 2019, the beef hide gelatin’s market was restored after years of pressure on the margin, the market condition for pigskin gelatin and bone gelatin remained under pressure. (Tessengerlo Group, 2020). At the moment, hides and skins prices are decreasing, which is positive for the segment margins. However, global volumes are declining, especially in Europe with tendencies to consume less meat. For instance, pig slaughter in EU27 decreased by -1.4% in 2019 compared to prior year. (Eurostat, 2020).

Tab 6 Bio-Valorization estimates (€M)

	2019	FY 2020	FY 2021	FY 2022
<b>Revenues</b>	<b>543.1</b>	<b>502.4</b>	<b>522.5</b>	<b>543.4</b>
Growth (%)	9.30	-7.50	4.00	4.00
<b>REBITDA</b>	<b>56.6</b>	<b>45.2</b>	<b>52.2</b>	<b>65.2</b>
Margin (%)	10.42	9.00	10.00	12.00
Growth (%)	105.8	-20.1	15.6	24.8
<b>D&amp;A</b>	<b>33.9</b>	<b>34.0</b>	<b>34.0</b>	<b>34.0</b>
As % of revenues	6.24	6.77	6.51	6.26
<b>REBIT</b>	<b>22.7</b>	<b>11.2</b>	<b>18.2</b>	<b>31.2</b>
Margin (%)	4.18	2.23	3.49	5.74
Growth (%)	74.15	-46.60	56.46	64.43

Source: Forecasts Antoine Cloquet

Fig 2 Bio-Valorization REBITDA



Source: Forecasts Antoine Cloquet

## Industrial Solutions

In 2019, Industrial Solutions revenues increased by +1.2% thanks to DYKA Group, which benefited from favorable market circumstances and the REBITDA grew by +18.1% thanks to the same piping solutions subcategory that increased production efficiency as a result of investments previously made, although offset by technical issues in Loos (France) in the first semester. (Tessengerlo Group, 2020). In 2018, Industrial Solutions revenues increased by +3.7% through good results in all subsegments but the REBITDA decreased by -17.8% because of start-up costs for new branches in DYKA group, start-up expenses for the NaOH production in Loos (new membrane electrolysis plant in France), as well as technical issues at the production plant in Loos. (Tessengerlo Group, 2019). In 2017, Industrial Solutions revenues increased by +5.1% thanks to positive activities in DYKA Group and M&I but the REBITDA decreased by -10.9% because of high PVC prices and adverse market conditions in the sulfur and KOH markets, impacting the Performance Chemicals. That year was also marked by start-up costs for the new electrolysis in Loos (France). (Tessengerlo Group, 2018). In the past 5 years, the historical revenues growth averages +2.95%.

For FY2020, I expect revenues to decrease by -15% mainly because of the significant impact of the COVID-19 that put the construction sector on hold for the first semester of 2020. Using the same approach as with the other segment, I weighted my estimation with the ING recession scenario that forecasts the Industrial Solutions' sales to decrease by -20.0%<sup>12</sup>. This way, I settled on a revenue decrease of -17.5% for FY2020.

I expect the biggest impact of the COVID-19 on the Industrial Solutions segment, especially on the DYKA Group and M&I, given their exposure to construction activities. March and April have been particularly hit by the containment measures. The construction index of production, that approximates the evolution of the volume of production within the sector, fell by 23.7 between February and April in the EU27. (Eurostat, 2020). This is the biggest decrease ever recorded over two consecutive months for European construction. In April 2020, the construction production fell by -11.7% compared to March 2020, and by -24.6% compared to April 2019. (Eurostat, 2020). When it comes to the other subcategories (i.e. Performance Chemicals, MPR Services and ECS), I believe the sales will remain stable due to their necessity,

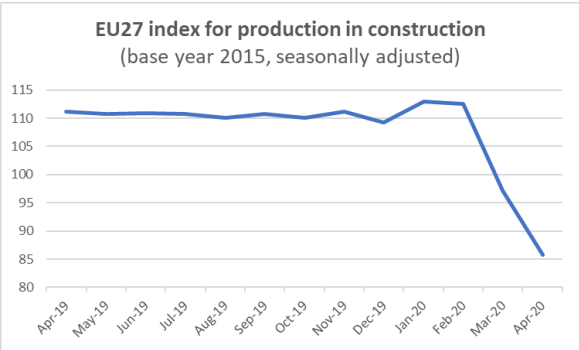
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<sup>12</sup> Annex 9 – ING COVID-19 Recession Scenario

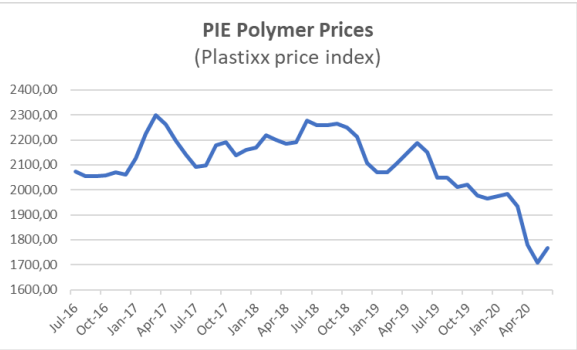
servicing large metropolitan areas that need the water treatment chemicals and fulfilling already made contracts for chemicals in the oil and gas industries.

For FY2021 and FY2022, I expect revenues to increase by +7.5% and +5% respectively driven by (1) a catch-up within the construction sector in the coming years after the confinement measures, (2) increased piping activities in the south of France thanks to the new REHAU Tube production plant and (3) stable chemicals sales for wastewaters. The long-term outlook remains positive on the back of an industry need for sustainable purification of process water, scarcity of natural resources and an increase awareness of environmental footprint, with for instance, energy neutral buildings.

In December 2019, Tessenderlo Group announced their desire to acquire the production plant of REHAUT Tube in France from the German REHAU Group. (Tessenderlo Group, 2019). The plant specializes in the manufacturing of sewer, soil & waste, storm water management and telecom pipes. Tessenderlo Group will take over the real estate, production assets and keep the 75 employees in sales and operations. The acquisition was originally expected to be completed by May 2020. The financials were not disclosed but the transaction is said to have no direct impact on the results of the company (Tessenderlo Group, 2019). The rationale behind this acquisition was to further strengthen the position of DYKA on the French market, in order to realize growth and improve service to the market in the South of France, according to Gabriël Spruijt (2020), Executive Vice President of DYKA Group.



Graph 9 | Source: Eurostat, 2020



Graph 10 | Source: Plastics Information Europe, 2020

The REBITDA margin over the last 5 years (from 2015 to 2019) ranged from around 5% to 9.5%, mainly driven by PVC raw materials prices that have been putting pressure on the DYKA

Group margins. I expect the REBITDA margins at 7% for FY2020, positively impacted by lower PVC prices but still dragged down by start-up costs for the REHAU Tube new plant. For FY2021 and FY2022, I estimate the margins to be at 10%, with (1) improved operations efficiencies as a result of investments previously made and (2) stabilized PVC prices.

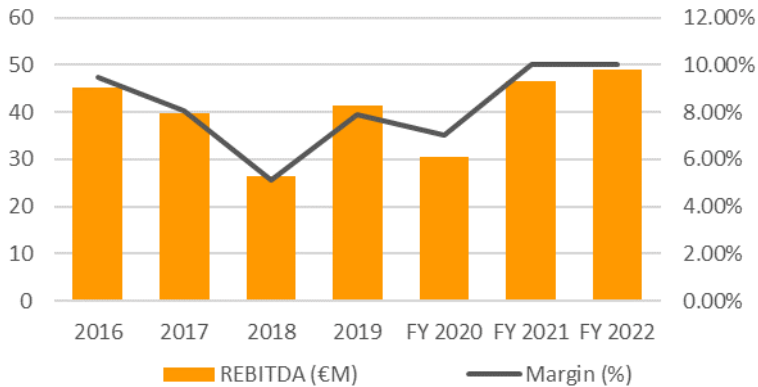
As shown on graph 13, the Plastixx index, which reflects the price movements of main plastic polymers dropped in early 2020. (Plasteurope, 2020). The Plastixx index fell by -17% in April 2020 compared to April 2019. (Plasteurope, 2020).

Tab 7 Industrial solutions estimates (€M)

	2019	FY 2020	FY 2021	FY 2022
<b>Revenues</b>	<b>526.0</b>	<b>434.0</b>	<b>466.5</b>	<b>489.8</b>
Growth (%)	2.04	-17.50	7.50	5.00
<b>REBITDA</b>	<b>41.4</b>	<b>30.4</b>	<b>46.6</b>	<b>49.0</b>
Margin (%)	7.87	7.00	10.00	10.00
Growth (%)	56.23	-26.63	53.57	5.00
<b>D&amp;A</b>	<b>29.5</b>	<b>30.0</b>	<b>30.0</b>	<b>30.0</b>
As % of revenues	5.61	6.91	6.43	6.12
<b>REBIT</b>	<b>11.9</b>	<b>0.4</b>	<b>16.6</b>	<b>19.0</b>
Margin (%)	2.26	0.09	3.57	3.88
Growth (%)	112.50	-96.84	4322.21	14.01

Source: Forecasts Antoine Cloquet

Fig 3 Industrial Solutions REBITDA



Source: Forecasts Antoine Cloquet

## T-Power

As explained earlier, a tolling agreement was signed with RWE Group until 2026 for the full capacity of the plant with an optional 5-year extension. As a result of this agreement, T-Power generated 71.1 million EUR in revenues and 51.2 million EUR in REBITDA in 2019. This fee is independent of the electricity price and the capacity utilization of the plant. The future earnings of T-Power are therefore extremely stable and in line with previous results. As proof, T-Power realized in 2017 a turnover of 69 million EUR and a REBITDA of 52 million EUR<sup>13</sup>. For those reasons, I assume that (1) future revenues will remain at 71.1 million EUR, (2) future REBITDA will remain at 51.2 million EUR and (3) Depreciation & Amortization will stay at 39.2 million EUR since the group is calculating them on a straight-line basis over the estimated useful lives of each part of an item of property, plant and equipment.

Tab 8 T-Power estimates (€M)

	2019	FY 2020	FY 2021	FY 2022
<b>Revenues</b>	<b>71.1</b>	<b>71.1</b>	<b>71.1</b>	<b>71.1</b>
<b>REBITDA</b>	<b>51.2</b>	<b>51.2</b>	<b>51.2</b>	<b>51.2</b>
Margin (%)	72.01	72.01	72.01	72.01
<b>D&amp;A</b>	<b>39.2</b>	<b>39.2</b>	<b>39.2</b>	<b>39.2</b>
As % of revenues	55.13	55.13	55.13	55.13
<b>REBIT</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>
Margin (%)	16.88	16.88	16.88	16.88

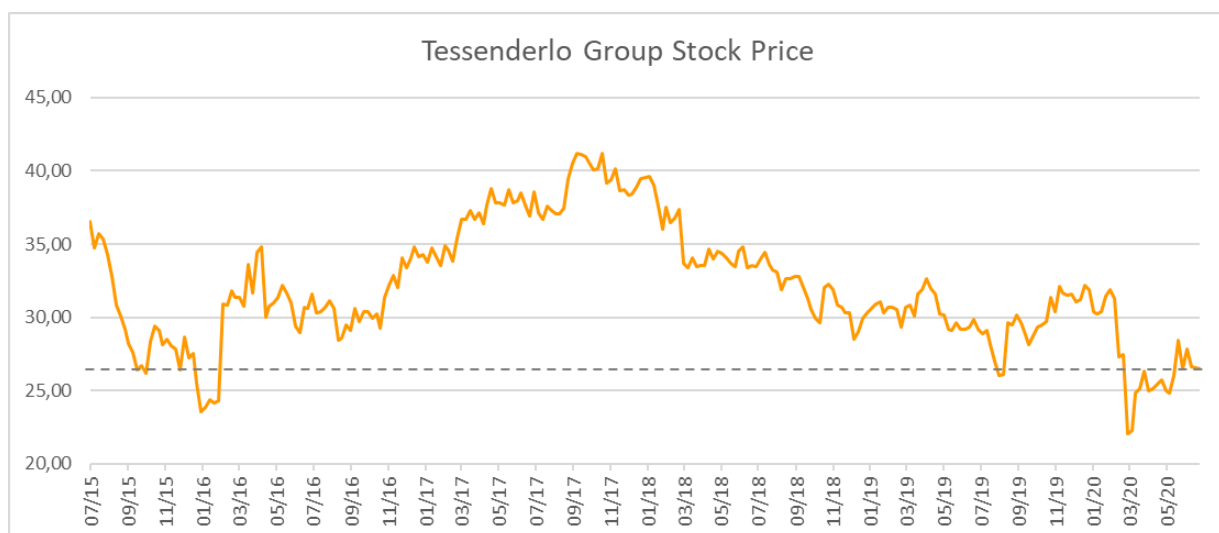
Source: Forecasts Antoine Cloquet

<sup>13</sup> Tessengerlo Group acquires T-Power NV: a gas-fired 425 MW power plant in Tessengerlo (Belgium) <https://www.tessengerlo.com/en/Documents/Results%20and%20presentations/PR%20Tessengerlo%20Group%20acquisition%20T-Power%20and%201Q18%20trading%20update%20English.pdf>

## Part 4: Valuation

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After analyzing Tessengerlo Group with different methods and assumptions, I hereby provide a BUY recommendation with a target price of 40.46 EUR, a 54.13% upside compared to the company's market price of 26.25 EUR on July 10, 2020. This target price is a combination of two different approaches, weighted with a certain percentage. In the discounted cash flow valuation, I estimated Tessengerlo Group's equity value per share at 47.12 EUR. In the relative valuation, I estimated the target price at 37.61 EUR per share. After discussions with Stijn Demeester – ING analyst covering Tessengerlo Group – I decided to put a 30% weight on the DCF valuation and 70% on the relative valuation. He does not advocate for DCF valuation for cyclical companies as this tends to overestimate the fair value of these kind of companies. Recent events show that growth is not linear and DCF models typically fail to grasp this cyclicity. Consequently, he told me to be careful not to give too much weight on this approach.



Graph 11 | Source: Yahoo Finance Data

When we take a look at the group's historical stock price, we observe that it was already traded at similar level back in early 2018. Therefore, a target price of 40.46 EUR does not seem excessive. Another striking fact is the huge drop in early 2020 due to the spread of COVID-19. Assuming the pandemic will not have a long-lasting impact on the company, this could represent an excellent entry point to invest in the company.

## Discounted Cash Flow Valuation

To attempt to figure out the intrinsic value of Tessengerlo Group, I estimated its future cash flows, that I discounted to the present value using the Weighted Average Cost of Capital.

Tab 9 Discounted Cash Flow	FY2020	FY2021	FY2022	Terminal Value
EBIT	105 107 575	133 989 745	155 133 984	
Less: Cash Taxes	23 460 011	29 906 511	34 625 905	
Plus: D&A	133 200 000	133 200 000	133 200 000	
Less: Capex	94 580 000	94 580 000	94 580 000	
Less: Changes in NWC	21 564 493	22 673 997	23 686 721	
<b>Unlevered FCF</b>	<b>98 703 071</b>	<b>120 029 237</b>	<b>135 441 357</b>	<b>2 359 289 309</b>
Discount Factor	1.00	0.93	0.87	0.87
<b>PV Unlevered FCF</b>	<b>98 703 071</b>	<b>111 948 363</b>	<b>117 818 287</b>	<b>2 052 308 314</b>

Source: Antoine Cloquet estimates

To find the enterprise value, I calculated the sum of all present value unlevered free cash flows. From there, I subtracted the net debt of the company, to find the present equity value of 2.03 billion EUR. With 43,154,979 outstanding shares, I estimate Tessengerlo Group's equity value per share at 47.12 EUR.

Tab 10 Intrinsic Value	
Enterprise Value	2 380 778 035
Less: Net Debt	347 500 000
<b>Equity Value</b>	<b>2 033 278 035</b>
Equity Value/Share	47.12

Source: Antoine Cloquet estimates

## Weighted Average Cost of Capital

Since I am calculating the free cash flows that will be paid to both debt and equity holders, I should use the firm's Weighted Average Cost of Capital (WACC), which is the average cost of capital the firm must pay to all of its investors. It can also be interpreted as the average risk of all of the firm's investments. (Berk & DeMarzo, 2017). I estimated the WACC at 7.10%. To measure this rate, I calculated (1) the cost of equity at 9.13%, (2) the after-tax cost of debt at 2.30% and (3) the gearing ratio at 29.72%.

Tab 11 Cost of Capital Assumptions		
Debt as % of Total Capital	29.72%	
<b>After Tax Cost of Debt</b>	<b>2.30%</b>	
Risk-free rate	2.50%	
Market risk premium	5.68%	
Small-Cap risk premium	2.56%	
Beta	0.80	
Equity as % of Total Capital	70.28%	
<b>Cost of equity</b>	<b>9.13%</b>	
<b>Debt (in €M)</b>		
Total loans and borrowings	502	
Long Term Debt	154.5	
<b>Net Debt</b>	<b>347.5</b>	
<b>Equity Value (in €M)</b>	<b>822</b>	
WACC		
Weight	Cost	
Debt	29.72%	2.30%
Equity	70.28%	9.13%
<b>WACC</b>		<b>7.10%</b>

Source: Antoine Cloquet estimates

However, after discussions with Christophe Beghin – Kempen analyst covering Tessenderlo Group – my WACC estimation seems on the low side. Therefore, I decided to put a 25% weight on his estimation of 7.57% for the whole group, to finally use 7.22% as discount rate in my discounted cash flow valuation.

### 1. The cost of equity

According to my estimations and following my assumptions, the cost of equity equals 9.13%. In order to calculate the cost of equity of the Tessenderlo Group, I used the Capital Asset Pricing Model (CAPM).

To determine the **risk-free rate**, the majority of large firms and financial analysts use the yield of long-term (10 to 30 years) bonds. (Berk & DeMarzo, 2017). At this date, the 30-Year Eurozone Bond yield is at 0.76%. (Eurostat, 2020). Nonetheless, this yield recently hit an all-time low due to the extreme measures taken by the European Central Bank to reinject massive amounts of money in the economy to alleviate the COVID-19 financial crisis. Therefore, I used the 2.50% current normalized risk-free rate provided by Duff & Phelps (2020) – a renowned financial consultancy firm – to correct this distorted picture. This number is in line with pre-COVID 30-Year Eurozone Bond yields and provides a better long-term view.

For the **market risk premium**, I choose to use 5.68%, the implied equity risk premium provided by Damodaran on July 1, 2020. To confirm this assumption, I looked at other reports that seem to be in accordance with this number. For instance, Duff & Phelps (2020) estimates the current equity risk premium at 6.0% and KPMG (2019) recommends an equity market risk premium of 5.75%.

Following the Fama and French Three Factor Model that expands on the Capital Asset Pricing Model (CAPM) by adding size risk and value risk factors to the market risk factor, I decided to add a **small-cap risk premium** of 2.56%, estimated on June 2020. (Ken French, 2020). The main rationale behind this factor is that, in the long-term, small-cap companies such as Tessenderlo Group tend to see higher returns than large-cap companies.

Finally, I took a **beta** of 0.80, as the average of two different approaches. In my first approach, I found the levered beta of comparable companies<sup>14</sup> from each segment on Yahoo! Finance, then I unlevered all beta using their debt-to-equity ratio to get an average unlevered beta per segment. After that, I added the beta from each segment according to the revenue share of each segment of Tessengerlo Group to find a revenue-weighted average beta of the four segments. The final step is to re-lever this beta, using Tessengerlo Group debt-to-equity ratio. Using this method, I found a raw beta of 0.60 that I adjusted using the Bloomberg equation, giving an adjusted beta of 0.73<sup>15</sup>. My second approach was to estimate the beta based on the stock's historical sensitivity, looking at correlations and volatilities between Tessengerlo Group's weekly stock price and the weekly price of the S&P500 index over the past 5 years. When I compare the 5-years historical evolution of the Tessengerlo Group weekly stock price with the S&P 500, I get an adjusted beta of 0.88<sup>16</sup>. Another option is to use a Service Beta, provided by estimation services such as Merrill Lynch, Morningstar and Bloomberg. (Damodaran, 2012). To make sure I am in the right ballpark, the beta estimated by Yahoo! Finance, Morningstar, Bloomberg and Reuters all range between 0.66 and 0.91, in line with my assumption.

## 2. The cost of debt

The cost of debt measures the current cost to the firm of borrowing funds to finance projects.

A first approach is to calculate the historical cost of debt by determining the total amount of interest expenses, then dividing it by the total of its interest-bearing loans and borrowings. The interest expenses and interest-bearing loans and borrowings are mainly composed of bonds issued in 2015 with maturities of 7 years (the "2022 bonds") and 10 years (the "2025 bonds"), the loan of T-Power and the IFRS 16 Leases. The average after-tax cost of debt from 2015 to 2019 amounts to 2.16%<sup>17</sup>.

Another approach is to find the default spread of the company and add it to the riskless rate to get the pretax cost of debt. Since the group has no official credit rating, I estimated a synthetic rating based on the table<sup>18</sup> from the book "Investment Valuation" by Damodaran (2012), giving

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<sup>14</sup> The selection of comparable companies is explained later in the relative valuation method.

<sup>15</sup> Annex 4 – Revenue-weighted Beta

<sup>16</sup> Annex 5 – S&P 500 Beta

<sup>17</sup> Annex 6 – Historical Cost of Debt

<sup>18</sup> Annex 7 – Interest Coverage Ratios and Ratings

me a default spread of 0.65%. The default spread was calculated using Tessengerlo Group's interest coverage ratio of 10.87 and therefore given a AA rating. This is not surprising knowing Luc Tack's aversion to high leverage. With a risk-free rate of 2.50% and an effective tax rate of 22.32%, I get an after-tax cost of debt of 2.45% in this approach, in line with the historical average after-tax cost of debt.

Therefore, I decided to use an after-tax cost of debt of 2.30%, the average of both approaches.

### **3. Gearing ratio**

Using weights based on book value, I find a **29.7%** gearing ratio at the end of 2019. This ratio was calculated as the net financial debt divided by the sum of the net financial debt and equity attributable to equity holders of the company. The net financial debt used was provided by Tessengerlo Group (2020), considering only interest-bearing debt rather than all liabilities and capitalizing operating leases and treating them as debt, since they benefit from the same tax deductions.

#### Tax Rate

In the 2019 Tessengerlo Group annual report, the theoretical aggregated weighted tax rate amounted to 27.4%. However, the effective tax rates in 2019 was 16.3%. The difference is explained by adjustments on deferred taxes and tax expenses. Given the number of subsidiaries in the group with different theoretical tax rates, and the adjustments to be made to have the marginal or effective tax rate, I take the average effective tax rates from the previous five years (2015 – 2019) as a good proxy for the future tax rates. Under this assumption, the effective tax rate in the coming years amounts to 22.32%.

## Reinvestment Needs

When valuing a firm, the cash flows should be after taxes, before debt payments and after reinvestments needs. In this section, I estimate how Tessengerlo Group is reinvesting back for future growth in terms of (1) capital expenditures and (2) net working capital.

Estimating the capital expenditures is a difficult task because information about future investments are not easily accessible and because firms tend to invest in chunks, meaning that a large investment in one year can be followed by small investments in the following years. To solve those problems, I normalized it by averaging the capital expenditures over the past five years (2015 – 2019) and used that number for the coming years. This way, I consider the fact that investments vary from year to year and assume the capital expenditures policy will remain the same. By doing so, I expect the group to spend 94.58 million EUR in capital expenditures in FY2020, FY2021 and FY2022. In my CAPEX estimation, I include the accounting definition of capital expenditures, represented by internal investments (e.g. upgrades of plant infrastructure, new production lines, expansions of production capacity) but also external investments (or acquisitions) that for instance, include the capital payment of the T-Power acquisition. Tessengerlo Group long-term growth strategy is based on both organic and inorganic growth. Consequently, I believe considering both internal and external investments is a better reflection of the company's reinvestment needs to future growth.

Tab 12 CAPEX (€M)	2015	2016	2017	2018	2019
Accounting Capital Expenditures	61.10	94.00	90.30	83.30	104.30
External Acquisitions	13.60	0.50	-10.00	40.40	-4.60
CAPEX	74.70	94.50	80.30	123.70	99.70
<b>Average CAPEX</b>					<b>94.58</b>

Source: Company data, Antoine Cloquet estimates

For the net working capital, I used the trade working capital provided by the annual reports of the company, defined as the sum of inventories and trade receivables minus trade payables. To ensure that projections are not biased by an unusual base year, I took the past four years (2016 – 2019) trade working capital as a percentage of their respective revenues and use the average percentage with the expected future revenues to find the changes in net working capital in the coming years. With this method, I found an average change in trade working capital as

percentage of revenues of 1.38% and therefore, changes in net working capital of +22.43, +23.35 and 24.28 million EUR for respectively FY2020, FY2021 and FY2022<sup>19</sup>.

Terminal Value

The terminal value of the company is another key assumption to take in the discounted cash flow valuation. Many analysts estimate the terminal value either by (1) using a multiple of earnings in the final estimation year or by (2) assuming the cash flows of the firm will grow at a constant rate forever beyond a certain point. (Damodaran, 2012).

To calculate the terminal value of Tessengerlo Group, I took the average of those two approaches, both applied in the third forecasted year (FY2022). This way,

Tab 13 Terminal Value		
Perpetual Growth	1.65%	2 472 456 884
EV/EBITDA	7.8x	2 246 121 734
Average		2 359 289 309

Source: Antoine Cloquet estimates

the terminal value of the company amounts to 2.36 billion EUR. For the multiple approach, I used the mid-2020 12-month forward looking EV/EBITDA (7.79x) as the best proxy for FY2022, estimated in the following relative valuation method. For the perpetual growth approach, I used a stable growth rate of 1.65%, based on the GDP long-term forecast projections estimated by the OECD (2014). I believe the 37 members of the OECD match Tessengerlo Group’s geographic coverage and is therefore, an accurate assumption for the calculations. This hypothesis was discussed with Christophe Beghin, who recommended a terminal growth rate of 1.5%, relatively close to my own assumption.

Relative Valuation

To complete my analysis, I decided to add a relative valuation. The objective here is to value Tessengerlo Group based on how other similar companies are currently priced on the market. In this method, the two main elements are (1) to find similar firms and (2) to normalize earnings.

Finding similar firms for a group with different segments such as Tessengerlo Group is not as straightforward as with other companies. A first and easy approach would be to take the peers provided by the Bloomberg terminal for Tessengerlo Group as a whole. However, I believe the companies displayed did not have enough similarity in terms of products and services, which

<sup>19</sup> Annex 8 – Net Working Capital

is understandable given the complexity and variety of segments of Tessenderlo Group. To solve that issue, I selected peers specifically for each segments of the group that are similar in terms of activity, market capitalization and geographic coverage. This approach, called Sum-of-the-Parts valuation, was suggested by Stijn Demeester – ING analyst covering Tessenderlo Group – in its 2018 equity report. The selection of peers was partly inspired by this report, with some adjustments that, in my opinion, better reflect the competitive landscape.

The reason to normalize earnings is to compare companies on a relative basis. I chose to take the EV/EBITDA multiple because it excludes the company’s Capital Expenditures, Depreciation, and capital structure and therefore, gives a better result to compare companies.

Tab 14 Peer Multiples

	Market Cap (€M)	EV/EBITDA		P/E	
		FY 2020	FY 2021	FY 2020	FY 2021
<b>Agro</b>					
K+S	1 084	8.08	6.63	N/A	19.14
Mosaic	4 046	8.34	6.01	105.30	15.21
Nutrien	15 975	7.91	7.37	18.80	14.37
CF Industries	5 228	6.88	8.93	19.89	16.48
Yara International	8 512	6.45	5.63	11.31	9.52
ICL Group	3 498	5.90	6.16	16.06	11.11
Saudi Arabian Fertilizer	7 580	16.36	15.78	24.09	21.54
Compass Minerals	1 436	8.96	7.43	17.28	12.84
Sinofert	583	5.30	3.91	7.56	6.15
Bayer	63 062	7.52	7.64	9.29	8.27
American Vanguard	350	11.45	10.19	27.42	20.56
<b>Average</b>		<b>8.47</b>	<b>7.79</b>	<b>25.70</b>	<b>14.11</b>
<b>Bio-Valorization</b>					
Darling Ingredients	3 405	6.60	8.62	15.84	14.99
Nitta Gelatin	99	6.44	7.20	14.85	15.86
<b>Average</b>		<b>6.52</b>	<b>7.91</b>	<b>15.35</b>	<b>15.42</b>
<b>Industrial Solutions</b>					
Kemira	1 841	5.94	6.35	15.35	15.02
Uponor	859	6.84	7.94	16.58	16.70
Georg Fischer	3 237	9.58	9.98	49.17	19.92
Wienerberger	2 345	6.16	6.92	16.50	12.64
Orbia	2 870	5.71	6.24	25.01	12.40
<b>Average</b>		<b>6.85</b>	<b>7.49</b>	<b>24.52</b>	<b>15.34</b>

Data retrieved at 09/07/2020

Source: Bloomberg

In the relative valuation, I take the average of FY2020 and FY2021 in order to have a mid-2020 12-month forward looking target price of 37.61 EUR per share. I value the Agro segment at an 8.47x/7.79x EV/EBITDA for FY2020/FY2021, the Bio-Valorization segment at 6.52x/7.91x and the Industrial Solutions segment at 6.85x/7.49x. For T-power, I estimate its implied acquisition EV/EBITDA multiple at 8.0x. This number comes from the remaining 80% shares acquired in 2019 for 328 million EUR, with an EBITDA of 51.2 million EUR<sup>20</sup>. Overall, the average REBITDA between FY2020 and FY2021 amounts to 252.75 million EUR, for an enterprise value of 1,970.37 million EUR, implying that I value the group at 7.79x EV/EBITDA.

Tab 15 Sum-Of-The-Parts

	REBITDA (€M)		Multiple		EV (€M)
	FY 2020	FY 2021	FY 2020	FY 2021	Mid-2020 FY 2020
Agro	111.52	117.09	8.47	7.79	928.19
Bio-Valorization	45.21	52.25	6.52	7.91	353.99
Industrial Solutions	30.38	46.65	6.85	7.49	278.59
T-Power	51.20	51.20	8	8	409.60
<b>Tessengerlo Group EV</b>					<b>1 970.37</b>
Less: Net Debt					347.50
<b>Tessengerlo Group Equity Value</b>					<b>1 622.87</b>
# Outstanding shares (in millions)					43.15
<b>Equity value per share (€)</b>					<b>37.61</b>

Source: Antoine Cloquet estimates

<sup>20</sup> Tessenderlo Group acquires T-Power NV: a gas-fired 425 MW power plant in Tessenderlo (Belgium)  
<https://www.tessengerlo.com/en/Documents/Results%20and%20presentations/PR%20Tessengerlo%20Group%20acquisition%20T-Power%20and%201Q18%20trading%20update%20English.pdf>

## Part 5: Sensitivity Analysis

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In the previous section, the discounted cash flow and relative valuation methods, although very popular and used among analysts, required me to take critical assumptions that encapsulate a lot of information in a few key numbers. In this section, I determine how different values of those assumptions affect the target equity value per share I calculated in both approaches. The most valuable information about this sensitivity analysis is the range of values across different scenarios, that provides a measure of risk and gauges the potential losses by looking at the worst-case scenario outcome.

### Discounted Cash Flow Valuation

As there are many assumptions taken in the discounted cash flow valuation, the first element is to determine which factors the scenarios will be built around, which factors are the most likely to change and impact the target price. I decided to challenge (1) the discount rate and (2) the terminal value, including the perpetual growth rate and the EV/EBITDA ratio, because of their massive impact on the equity value.

The discount rate used in the valuation was 7.22%. Everybody will appreciate that calculating an appropriate WACC these days is difficult given interest rates at record lows. In a discussion with Stijn Demeester, he told me Tessenderlo Group used a WACC between 6.30% and 8.80% for their internal planning. Consequently, I used these two numbers respectively in my worst-case and best-case scenario.

The perpetual growth rate used in the discounted cash flow valuation was 1.65%. This growth rate was estimated by the OECD, forecasted until 2060 for all of its 37 members states. When I take the GDP growth estimated by the OECD for the whole world, the growth rate is 2%. (OECD, 2018). For my best-case scenario, I decided to use this 2% perpetual growth rate. For the worst-case scenario, I applied the same difference on the downside, giving a growth rate of 1.3%.

For the EV/EBITDA ratios, I chose to use 5.53x in the worst-case scenario and 9.89x in the best-case scenario. These ratios are based on the lowest and highest EV/EBITDA ratio observed among the selected peers in each segment, and then weighted by their EBITDA share for each

segment to find the ratio for the group. The calculation of those numbers is explained in more detail in the next subsection.

Consequently, the worst-case scenario, with a discount rate of 8.80%, a perpetual growth rate at 1.30% and the EV/EBITDA ratio at 5.53x, values the stock price at 32.95 EUR. This equity value exceeds the current stock price by 26%, even when applying the worst-case assumptions. In order to be more realistic in my approach, I decided to replace my growth forecasts for FY2021 and FY2022 by the perpetual growth rate of 1.30%. By doing so, the equity value per share amounts to 24.37 EUR, slightly below the current market price.

The best-case scenario, with a discount rate of 6.30%, a perpetual growth rate at 2.00% and the EV/EBITDA ratio at 9.89x, values the stock price at 61.81 EUR. This represents a target price upside of 135%, which I believe is a bit disconnected from reality knowing that the highest share price amounted to 45 EUR in 2007.

In a nutshell, both scenarios value the target price above the current market value, which is a strong indicator that this company is undervalued.

## Relative Valuation

In the sensitivity analysis for the relative valuation, the critical factor I analyzed is the EV/EBITDA multiple. Since I chose an EV/EBITDA for each segment based on their peers rather than an EV/EBITDA for the whole company, I kept the same approach here. For the worst- and best-case scenarios, I chose the lowest and highest EV/EBITDA ratio observed among the selected peers in each segment<sup>21</sup>.

For the worst-case scenario, I valued the Agro segment at 5.30x/3.91x EV/EBITDA for FY2020/FY2021, the Bio-Valorization segment at 6.44x/7.20x and the Industrial Solutions segment at 5.71x/6.24x. For T-power, as there is no peer, I re-estimated its ratio at 6.0x/6.0x, keeping about the same variation as with the other segments. In this case, the enterprise value amounts to 1,397.48 million EUR, for an equity value per share at 24.33 EUR and 5.53x as EV/EBITDA for the group. Even when I use lower ratios for the relative valuation, the target price of Tessenderlo's stock is only slightly below the current market price of 26.25 EUR on

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<sup>21</sup> Annex 13 – Relative Valuation Sensitivity Analysis

July 10, 2020. This confirms the attractiveness of the stock and comforts investors about downside risks.

For the best-case scenario, I valued the Agro segment at 11.45x/10.19x EV/EBITDA for FY2020/FY2021. For this segment, I eliminated Saudi Arabian Fertilizer's ratio because they far exceed the others, and therefore, would not reflect potential realistic scenario. The Bio-Valorization segment is valued at 6.60x/8.62x and the Industrial Solutions segment at 9.58x/9.98x. For T-power, I used the same difference as in the worst-case scenario but the other way around, valuing the power plant at 10.0x/10.0x EV/EBITDA. With these assumptions, the enterprise value amounts to 2,499.67 million EUR, for an equity value per share at 49.87 EUR and 9.89x as EV/EBITDA for the group. This represents a potential 48.87% upside compared to the current market price, and confirms my BUY recommendation.

## Conclusion

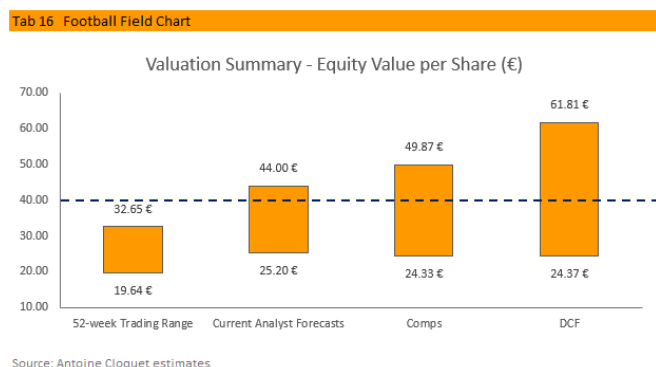
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The objective of this thesis was to value Tessengerlo Group's stock. This exercise was for me a great way to learn the tricky business of valuation from a hands-on experience. In the words of Aswath Damodaran, a postulate of sound investing is that an investor does not pay more for an asset than it's worth. Therefore, I attempted to find the intrinsic value of the stock and compare it with its market price to find out if the stock is under- or overvalued. Although I strongly believe in all the assumptions I took to perform my analysis, please remember that valuation is not an objective exercise and that even the best analysts bring biases in the process, with a likelihood of being wrong in their assessment.

The first part of this document gives a better understanding of the role of an equity analyst, the two main models investors rely upon when the objective is to determine what stock to buy and at what price, as well as the different methods of valuation. Another important point I want to highlight is that there are many ways to value an asset, but choosing the right approach is definitely key to provide a sound estimate.

After that, I estimated the equity value of Tessengerlo Group based on its historical trends, the evolution of its key drivers and my own assumptions. Many elements were discussed with analysts following the company, that I want to thank again for their precious insights. The target price is a combination of both discounted cash flow and relative valuations, weighted with a certain percentage. Finally, I decided to add a sensitivity analysis to encompass more scenarios and provide a price range rather than a single target price.

All things considered, I provide a BUY recommendation with a target price of 40.46 EUR, a 54.13% upside compared to the company's market price of 26.25 EUR on July 10, 2020. This target price is in line with other analysts' forecasts that currently range from 25.20 to 44.00 EUR.



My BUY recommendation is also presented as an equity research summary on the next page.

# Tessengerlo Group

Tessengerlo Group is a diversified industrial group that operates on four segments: (1) Agro, (2) Bio-Valorization, (3) Industrial Solutions and (4) Energy through its T-Power combined cycle gas turbine. I estimate a bullish FY2020 with €238m in EBITDA due to the COVID-19 economic slowdown. For FY2021 and FY2022, I forecast respectively €267m and €288m based on a catch-up of the economy, structural growth markets and improved operational efficiencies. Valuation screens attractive with a target price of €40.46 per share and FCF yields between 8.71% and 11.96% in the coming years. The negative share price performance can be explained by external non-recurring events such as COVID-19, adverse weather conditions or raw materials fluctuations, setting the share price at €26.25. I believe this represents an excellent entry point to invest in the company.

**Agro:** I expect the segment's revenues to decrease by 7.5% in FY2020, impacted by lower fertilizer prices and lower demand in China, but still slightly offset by an increased plantation acreage in the USA and a stable agricultural market in the EU. For the following years, FY2021 and FY2022, I expect revenues to increase by +5% YoY, on the back of a growing demand for fertilizers and crop protection products for modern and sustainable agriculture, an untapped market in Europe and a continuous expansion in the product portfolio and application offerings.

**Bio-Valorization:** I estimate the segment's revenues to decrease by 7.5% in FY2020 because of the impact of COVID19 and lower fat prices. For FY2021 and FY2022, I expect revenues to increase by +4.0%, on the back of a growing gelatin and collagen peptide market size, slightly offset by stable fat sales due to continued pressure on fat and oil prices.

**Industrial Solutions:** For FY2020, I expect revenues to decrease by 17.5% mainly because of the significant impact of the COVID-19 that put the construction sector on hold for the first semester of 2020. For FY2021 and FY2022, I expect revenues to increase by +7.5% and +5% driven by a catch-up within the construction sector, increased piping activities in the south of France thanks to the new REHAU Tube production plant and stable chemicals sales for wastewaters.

**T-Power:** I expect the power plant to generate 71.1 million EUR in revenues and 51.2 million EUR in REBITDA at least until 2026, as explained in the tolling agreement that should bring a stable fee over time.

## BUY recommendation

Price (10/06/2020)

€26.25

Target Price (12-mth)

€40.46

Forecast total return

54.13%

## Company data

Market Capitalization	€1,132.82m
52-week range	€19.64 – €32.65
Number of shares	43,154,979
Free float	56.87%
Avg daily volume	28,124
Dividend yield	0.0%

Source: Yahoo Finance

## Valuation methods

DCF	30%	€47.12
Comps	70%	€37.61
Target Price		€40.46

Source: Antoine Cloquet estimates

## Share Price Performance



Source: Yahoo Finance

Tab 17 Forecasts and ratios	2015	2016	2017	2018	2019	FY 2020	FY 2021	FY 2022
Revenues (€M)	1589	1590	1657	1621	1743	1565	1646	1719
REBITDA (€M)	180	198	188	178	268	238	267	288
REBIT (€M)	104	124	116	99	135	105	134	155
Net profit (€M)	82	98	26	92	98	78	100	117
EPS (€)	1.90	2.28	0.60	2.13	2.26	1.80	2.32	2.70
PER (x)	13.83	11.54	43.74	12.31	11.61	14.57	11.31	9.71
FCF Yield (%)	5.71%	4.03%	11.03%	5.00%	12.86%	8.71%	10.60%	11.96%

Source: Antoine Cloquet estimates, company data

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# Appendices

## Annex 1 – Financials

Income Statement (€M)	2015	2016	2017	2018	2019	FY 2020	FY 2021	FY 2022
Revenues	1589	1590	1657	1621	1743	1565	1646	1719
Cost of sales	-1208	-1196	-1251	-1236	-1306	1183	1244	1299
<b>Gross profit</b>	<b>381</b>	<b>394</b>	<b>406</b>	<b>385</b>	<b>437</b>	<b>382</b>	<b>402</b>	<b>420</b>
Operating expenses	-200	-196	-218	-208	-169	144	135	131
<b>REBITDA</b>	<b>180</b>	<b>198</b>	<b>188</b>	<b>178</b>	<b>268</b>	<b>238</b>	<b>267</b>	<b>288</b>
Depreciation, amortization and prov	-76	-74	-72	-79	-133	-133	-133	-133
Others	0	0	0	0	0	0	0	0
<b>REBIT</b>	<b>104</b>	<b>124</b>	<b>116</b>	<b>99</b>	<b>135</b>	<b>105</b>	<b>134</b>	<b>155</b>
Net interest	8	0	-71	3	-7	0	0	0
Associates	4	3	4	4	0	3	3	3
Other pre-tax items	-27	-6	-5	12	-12	-8	-8	-8
<b>Profit before tax</b>	<b>89</b>	<b>122</b>	<b>44</b>	<b>116</b>	<b>117</b>	<b>100</b>	<b>129</b>	<b>150</b>
Income tax expense	-7	-24	-18	-24	-19	22	29	34
<b>Net profit</b>	<b>82</b>	<b>98</b>	<b>26</b>	<b>92</b>	<b>98</b>	<b>78</b>	<b>100</b>	<b>117</b>

Source: Antoine Cloquet estimates, company data

Cash Flow (€M)	2015	2016	2017	2018	2019	FY 2020	FY 2021	FY 2022
<b>Operating activities</b>	<b>138</b>	<b>109</b>	<b>184</b>	<b>108</b>	<b>220</b>	<b>255</b>	<b>285</b>	<b>307</b>
Net profit	82	98	26	92	98	78	100	117
Depreciation & amortization	88	76	72	79	136	133	133	133
Change in working capital	-5	-58	30	-60	-7	22	23	24
Other non-cash items	-27	12	79	14	26	0	0	0
<b>Cash generated from operations</b>	<b>137</b>	<b>128</b>	<b>207</b>	<b>126</b>	<b>252</b>	<b>233</b>	<b>256</b>	<b>274</b>
Income tax (paid)/received	0	-20	-24	-22	-32	22	29	34
Dividends received	1.8	1.2	1.1	3.3	0.1	0	0	0
<b>Investing activities</b>	<b>-75</b>	<b>-95</b>	<b>-80</b>	<b>-124</b>	<b>-100</b>	<b>-95</b>	<b>-95</b>	<b>-95</b>
Purchase/Sale of long-term assets	-61	-94	-90	-83	-104	-87	-87	-87
Purchase/Sale of other businesses	-14	-1	10	-40	5	-8	-8	-8
Purchase/Sale of marketable secur	0	0	0	0	0	0	0	0
<b>Financing activities</b>	<b>-89</b>	<b>-25</b>	<b>-15</b>	<b>-18</b>	<b>-130</b>	<b>0</b>	<b>0</b>	<b>0</b>
Increase in equity	11.2	3.5	2.4	0.3	0.2	0	0	0
Increase in debt	61	-21	-2	-5	-98	0	0	0
Dividend Payment	0	0	0	0	0	0	0	0
Other financing cash flow	-161	-8	-16	-14	-32	0	0	0
Foreign Exchange Effects	-1.5	0.0	-12.8	2.9	0.4	0	0	0
<b>Net change in cash &amp; cash equivalen</b>	<b>-27</b>	<b>-11</b>	<b>76</b>	<b>-31</b>	<b>-10</b>	<b>160</b>	<b>190</b>	<b>212</b>

Source: Antoine Cloquet estimates, company data

Balance Sheet (€M)	2015	2016	2017	2018	2019	FY 2020	FY 2021	FY 2022
<b>Total assets</b>	<b>1304</b>	<b>1359</b>	<b>1412</b>	<b>1838</b>	<b>1911</b>	<b>2253</b>	<b>2654</b>	<b>3112</b>
Cash & equivalent	130	119	196	164	155	315	505	718
Other current assets	543	578	566	591	611	629	648	668
Tangible fixed assets	489	538	542	819	903	1066	1257	1484
Intangible fixed assets	95	81	64	225	197	197	197	197
Other non-current assets	46	43	44	39	46	46	46	46
<b>Total liabilities</b>	<b>787</b>	<b>754</b>	<b>774</b>	<b>1103</b>	<b>1090</b>	<b>1111</b>	<b>1134</b>	<b>1158</b>
Current liabilities	275	234	286	297	333	355	377	401
Other current liabilities	42	36	22	31	28	28	28	28
Non-current liabilities	426	437	431	694	650	650	650	650
Other non-current liabilities	44	47	36	81	78	78	78	78
<b>Total equity</b>	<b>517</b>	<b>605</b>	<b>638</b>	<b>735</b>	<b>822</b>	<b>1141</b>	<b>1520</b>	<b>1955</b>
<b>Total liabilities &amp; equity</b>	<b>1304</b>	<b>1359</b>	<b>1412</b>	<b>1838</b>	<b>1911</b>	<b>2253</b>	<b>2654</b>	<b>3112</b>

Source: Antoine Cloquet estimates, company data

#### Income statement:

- Revenues, REBITDA, REBITDA, D&A future estimations are detailed in part 3, forecasted growth.
- Gross profit is based on the historical average margin as a share (%) of the revenues
- The future net interest, being too difficult to estimate, is set at 0. The net interest in 2017 is explained by unrealized foreign exchange losses (from total income from investment in cash & cash equivalents) on USD, GBP and CNY intercompany loans and cash and cash equivalents, which are not hedged. The strengthening of the euro against the USD (+13.8%), GBP (+3.6%) and CNY (+6.6%) impacted this result. (Tessenderlo Group, 2018).
- Associates and other pre-tax items are based on historical average
- The income tax expenses come from the 22.32% tax rate, calculated in the tax rate section.

#### Cash Flow statement:

- Changes in working capital future estimations are calculated in reinvestment needs section.
- Other non-cash items are not estimated and are set at 0.
- Income tax (paid)/received equals the tax paid.
- Purchase/Sale of long-term assets and other businesses are calculated in reinvestment needs section.
- The company doesn't plan on distributing dividend at the moment or in the near future.
- The cash flows from financing activities are not estimated here and therefore, are set at 0.

#### Blanche Sheet:

- Cash and Cash Equivalents are summed with the net changes in Cash and Cash Equivalents.
- The other current assets and tangible fixed assets are increased by their historical average, respectively of 3% and 18%.
- The intangible fixed assets and other non-current assets are kept at the same level.
- The current liabilities are added by the changes in working capital.
- The other current liabilities are not changing.
- The non-current and other non-current liabilities are kept at the same level, as I assumed the long-term debt will not increase.
- The total equity is calculated as the difference between total assets and total liabilities.

## Annex 2 – Ratios and Metrics

Tab 2 Performance ratios	2015	2016	2017	2018	2019	FY 2020	FY 2021	FY 2022
Revenues growth	10.8%	0.1%	4.2%	-2.2%	7.5%	-10.2%	5.1%	4.5%
REBITDA growth	33.0%	9.8%	-5.2%	-5.3%	50.6%	-11.0%	12.1%	7.9%
REBIT growth	56.1%	18.9%	-6.3%	-15.3%	37.0%	-22.1%	27.5%	15.8%
Net Profit growth	55.1%	19.9%	-73.6%	255.2%	6.1%	-20.3%	28.9%	16.4%
REBITDA margin	11.4%	12.5%	11.3%	11.0%	15.4%	15.2%	16.2%	16.8%
REBIT margin	6.6%	7.8%	7.0%	6.1%	7.7%	6.7%	8.1%	9.0%
Reported net margin	5.2%	6.2%	1.6%	5.7%	5.6%	5.0%	6.1%	6.8%
ROE	15.9%	16.2%	4.1%	12.5%	11.9%	6.8%	6.6%	6.0%
ROA	6.3%	7.2%	1.8%	5.0%	5.1%	3.5%	3.8%	3.7%

Source: Antoine Cloquet estimates, company data

Tab 3 Financial strength	2015	2016	2017	2018	2019	FY 2020	FY 2021	FY 2022
Quick Ratio (x)	1.4	1.7	1.7	1.5	1.3	1.7	2.1	2.5
Current Ratio (x)	2.5	3.0	2.7	2.5	2.3	2.7	3.1	3.5
Interest Coverage Ratio (x)	9.5	17.5	16.9	9.6	12.0	9.4	12.0	13.9
Leverage Ratio (%)	60.4%	55.5%	54.8%	60.0%	57.0%	49.3%	42.7%	37.2%
Debt Ratio (%)	21.1%	18.8%	18.0%	27.9%	26.3%	22.3%	18.9%	16.1%
Payback Ability Ratio (%)	23%	26%	24%	16%	25%	21.4%	23.6%	24.9%

Source: Antoine Cloquet estimates, company data

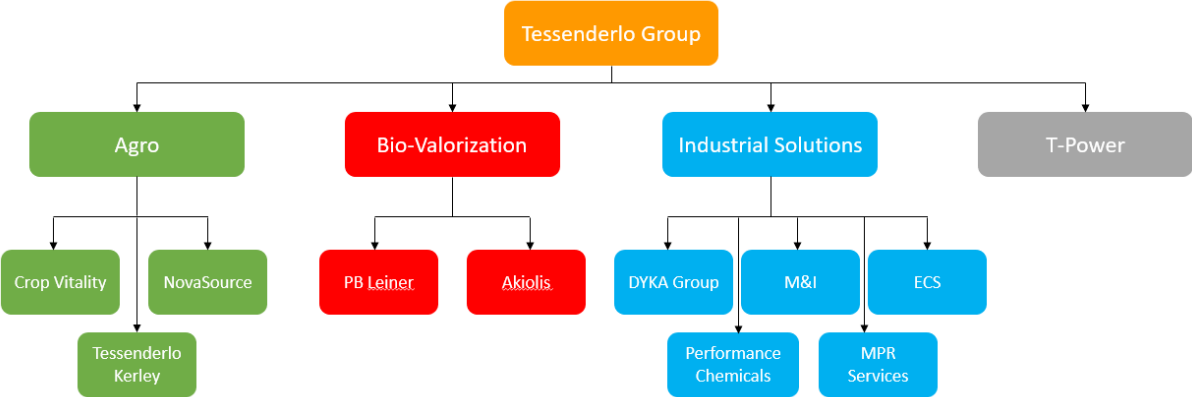
### Calculations:

- ROE is the net income divided by total equity.
- ROA is calculated by dividing the net income by total assets.
- The Quick Ratio is calculated by dividing the sum of cash & equivalents and accounts receivable, by the current liabilities.
- The Current Ratio is calculated by dividing the current assets by the current liabilities.
- The Interest Coverage Ratio is calculated by dividing the EBIT by the Interest Expenses. The Interest Expenses are estimated in annex 7 for 2015 - 2019, and for FY2020 – FY2022, I kept the same Interest Expenses as in 2019, at 11.2 million EUR.
- The Leverage Ratio is calculated as the total liabilities divided by the sum of total liabilities and shareholder equity.
- The Debt Ratio is calculated by dividing the total debt by the total assets. The net debt used is provided by Tessenderlo Group in its annual reports for 2015 - 2019. For FY2020 – FY2022, I subtracted the Net Debt by the changes in Cash & equivalents.
- The Payback Ability Ratio is calculated by dividing the reported REBITDA by the total liabilities.

	2015	2016	2017	2018	2019	FY 2020	FY 2021	FY 2022
Accounts receivable (€M)	253.2	268	286.5	286.6	286.9	286.9	286.9	286.9
Net Debt (€M)	145.3	136.6	58.7	348	347.5	187	-3	-216
Cash & equivalent	130.2	119.2	195.5	164.1	154.5	314.79	505.08	717.52
Total Debt (€M)	275.5	255.8	254.2	512.1	502	502	502	502

Source: Antoine Cloquet estimates, company data

Annex 3 – Activities Breakdown



Source: Antoine Cloquet

## Annex 4 – Revenue-weighted Beta

Comparable Companies	Levered Beta (5Y Monthly)	Total Debt / Equity	Tax Rate	Unlevered Beta
<b>Agro</b>				
K+S	1,24	0,80	21%	0,76
Mosaic	1,71	0,63	21%	1,14
Nutrien	0,65	0,66	21%	0,43
CF Industries	1,1	1,64	21%	0,48
Yara International	0,67	0,46	21%	0,49
ICL Group	0,49	0,75	21%	0,31
Saudi Arabian Fertilizer	0,41	0,02	21%	0,41
Compass Minerals	1,61	2,55	21%	0,53
Sinofert	0,63	NA	21%	NA
Bayer	1,3	0,85	21%	0,78
American Vanguard	1,01	0,52	21%	0,72
<b>Average</b>				<b>0,60</b>
<b>Bio-Valorization</b>				
Darling Ingredients	1,25	0,73	21%	0,79
Nitta Gelatin	0,45	0,51	21%	0,32
<b>Average</b>				<b>0,56</b>
<b>Industrial Solutions</b>				
Kemira	1,1	0,81	21%	0,67
Uponor	1,47	0,78	21%	0,91
Georg Fischer	NA	NA	21%	NA
Wienerberger	1,44	0,61	21%	0,97
Orbia	0,79	2,22	21%	0,29
<b>Average</b>				<b>0,71</b>
<b>T-Power</b>				<b>0,00</b>

Source: Data retrieved from Yahoo Finance, 2020

Segment	Revenues	Revenues Share
Agro	602,8	34,58%
Bio-Valorization	543,1	31,16%
Industrial Solutions	526	30,18%
T-Power	71,1	4,08%
<b>Total</b>	<b>1743</b>	<b>1</b>

Source: Company data

Revenue-weighted raw beta	0,60
<b>Revenue-weighted adjusted beta</b>	<b>0,73</b>

Source: Antoine Cloquet estimate

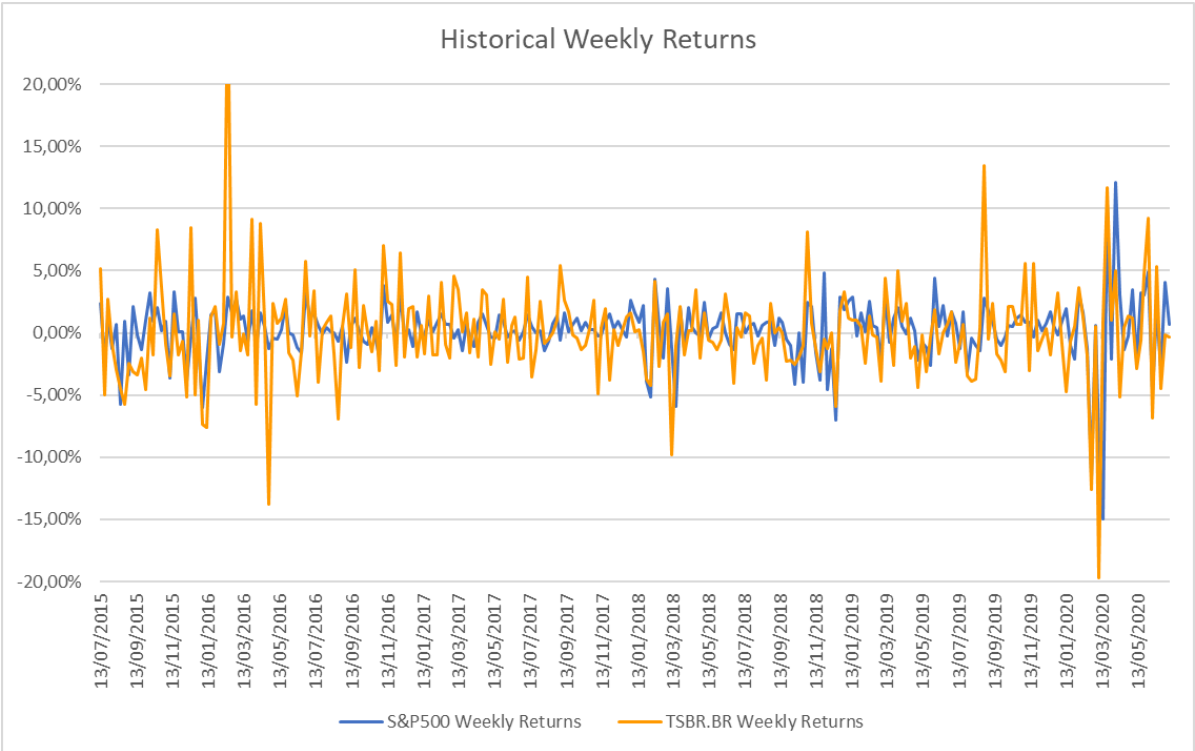
Annex 5 – S&P 500 Beta

To estimate Tessengerlo Group’s beta, I compared its 5-year weekly stock price against the 5-year weekly price of the S&P500 index, as I believe it is a good market indicator given the size and geographic coverage of the group.

I first downloaded, on Yahoo Finance, both weekly adjusted close prices from the past five years (13/07/2015 - 06/07/2020). Then, I calculated the weekly returns of the stock by dividing the adjusted closing price in each week by its previous adjusted closing price, minus 1. After, I computed the covariance between the two, and the variance of the S&P. By dividing the two, I find the raw beta of the company. Finally, I adjusted the raw beta using Bloomberg equation to find the adjusted beta of 0.88.

Covariance	0,000504
Variance	0,000615
Covariance / Variance	0,819864
<b>Adjusted beta</b>	<b>0,879309</b>

*Adjusted beta = (.67) \* Raw beta + (.33) \* 1.0*  
 Source: Yahoo Finance data



Source: Yahoo Finance Data

## Annex 6 – Historical Cost of Debt

(€M)	2015	2016	2017	2018	2019
Interest expense on loans and borrowings	11.00	7.10	6.90	10.30	11.20
Total loans and borrowings	275.00	255.80	254.00	512.00	501.90
<b>Pretax Cost of Debt</b>	<b>4.00%</b>	<b>2.78%</b>	<b>2.72%</b>	<b>2.01%</b>	<b>2.23%</b>
Effective Tax Rates	8.50%	19.90%	45.40%	21.50%	16.30%
<b>After-tax Cost of Debt</b>	<b>3.66%</b>	<b>2.22%</b>	<b>1.48%</b>	<b>1.58%</b>	<b>1.87%</b>
<b>Average Cost of debt</b>					<b>2.16%</b>

Source: Antoine Cloquet estimates, company data

## Annex 7 – Interest Coverage Ratios and Ratings

### Interest Coverage Ratios and Ratings: Low Market Cap Firms

Interest Coverage Ratio	Rating	Spread
More than 12.5	AAA	0.50%
9.5 to 12.5	AA	0.65%
7.5 to 9.5	A+	0.85%
6 to 7.5	A	1.00%
4.5 to 6	A-	1.10%
3.5 to 4.5	BBB	1.60%
3 to 3.5	BB	3.35%
2.5 to 3	B+	3.75%
2 to 2.5	B	5.00%
1.5 to 2	B-	5.25%
1.25 to 1.5	CCC	8.00%
0.8 to 1.25	CC	10.00%
0.5 to 0.8	C	12.00%
Less than 0.5	D	15.00%

Source for raw data: Capital IQ, BondsOnline.com

## Annex 8 – Net Working Capital

Changes in Net Working Capital as % of revenues	2016	2017	2018	2019
Revenues (€M)	1590.10	1657.30	1620.90	1742.90
Change in Trade Working Capital (€M)	60.70	-27.40	37.80	17.70
Changes in Trade Working Capital as % of revenues	3.82%	-1.65%	2.33%	1.02%
<b>Average (%)</b>				<b>1.38%</b>

Source: Company data, Antoine Cloquet estimates

Changes in Net Working Capital	FY2020	FY2021	FY2022
Revenues (€M)	1565.01	1645.53	1719.02
Changes in Trade Working Capital as % of revenues	1.38%	1.38%	1.38%
<b>Changes in Trade Working Capital (€M)</b>	<b>21.56</b>	<b>22.67</b>	<b>23.69</b>

Source: Company data, Antoine Cloquet estimates

## Annex 9 – ING COVID-19 Recession Scenario

Benelux thematic equity research April 2020

Maintained  
**Buy**

Price (2/04/20) €25.6

Maintained  
Target price (12m) €44  
Forecast total return 71.9%

Market cap €1,101.7m  
Bloomberg TESB BB

### Tessenderlo

#### Covid-19 scenario analysis & estimates

##### Latest update

In the recent FY19 earnings call, management provided an update on its operations post Covid-19. Most, if not all, of Tessenderlo's plants are still operational as governments see Tessenderlo's activities as vital to the economy, ie, protecting drinking water, continuity of meat value chain and fertilizer production. We expect the biggest impact in Industrial Products (15% of EBITDA), given its exposure to construction markets.

##### Estimates

In our recession scenario, we model 13% sales decline and 16% EBITDA decline. This is primarily driven by Industrial Solutions (-20% sales, -30% EBITDA), with Agro (-10% sales, -18% EBITDA) and Bio-Valorization (-10% sales, -22% EBITDA) less impacted. Since T-Power benefits from a long-term tolling agreement with RWE, its c.€50m EBITDA is guaranteed and acts as an earnings stabilizer.

#### Balance sheet & Liquidity risk

- **Covenants and liquidity:** We see limited covenant risk given the company's strong balance sheet. Tessenderlo's major upcoming maturities are 2022 and 2025.

##### Worst case scenario

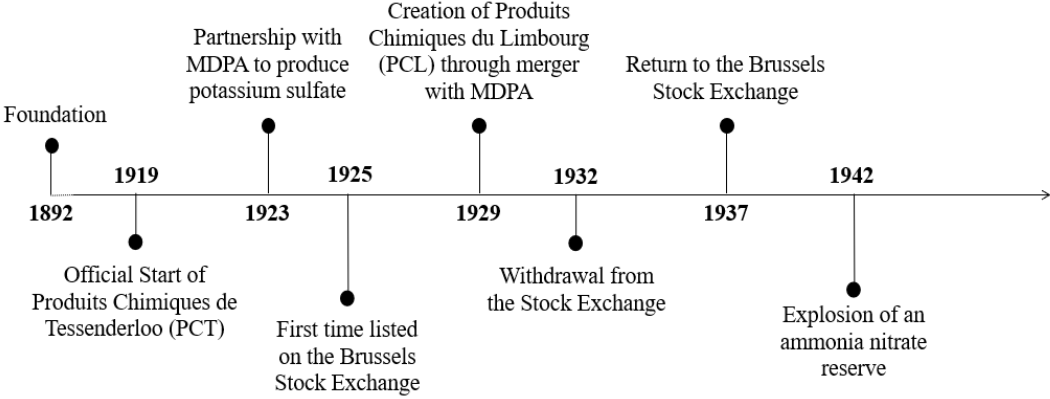
We have difficulties identifying a worst case scenario whereby Tessenderlo would be stressed in terms of balance sheet.

##### Valuation

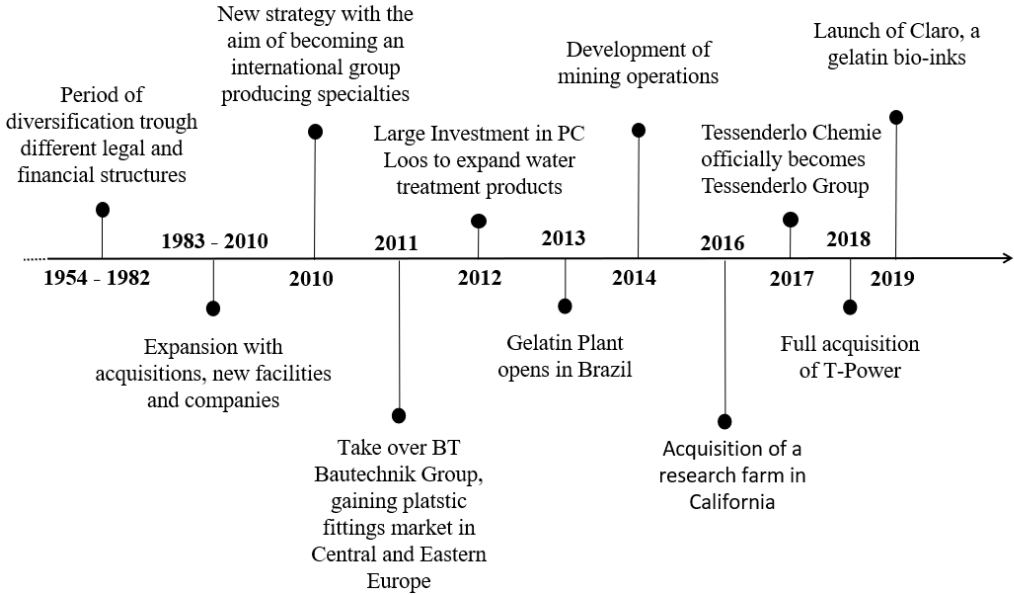
We value our recession scenario EBITDA at historical 7.4x EV/EBITDA. This implies a trough share price of €30. At 6x EV/EBITDA, the low of 2009, we see a trough of €20.4/share.

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Annex 10 - Company History



Source: Antoine Cloquet, data from 100yearstessenlerlo.com



Source: Antoine Cloquet, data from 100yearstessenlerlo.com

As one can easily understand, Tessenlerlo Group has a long history with joint ventures, acquisitions and diversification. However, the new strategy since 2010 is to become an international group producing specialties, focusing on certain niches where Tessenlerlo Group has both the experience and expertise to provide high-quality products.

## Annex 11 – Shareholding Structure

At December 31, 2019, the issued capital of Tessengerlo Group nv amounts to 216,231,862.15 EUR and is represented by 43,154,979 shares. All shares are entitling the shareholder to one vote per share and are admitted for listing and trading on Euronext Brussels (Tessengerlo Group, 2020).

Shareholder	Voting Rights	%
Verbrugge nv (controlled by Picanol nv)	32 366 144	56,89%
Symphony Mills nv	1 832 200	3,22%
Coltrane Asset Management, L.P.	2 163 000	3,80%
Janus Henderson Group plc	1 561 002	2,74%
Norges Bank	1 287 899	2,26%
Carmignac Gestion SA	903 687	1,59%
Dimensional Fund Advisors L.P.	891 022	1,57%
Valarc Master Fund, Ltd.	630 402	1,11%
Other	15 252 349	26,81%
<b>Total</b>	<b>56 887 705</b>	<b>100,00%</b>

Source: Annual Report 2019

It is worth noting that the shareholder with the most voting rights, Verbrugge nv is controlled by Picanol nv, which is itself controlled by Artela nv and Symphony Mills nv, that are controlled by the current Tessengerlo Group CEO, Luc Tack (Tessengerlo Group, 2018). Therefore, it is safe to say that Luc Tack has not only a great power as the CEO of the group, but also controls a large part of the shares. According to ING analysts, Luc Tack owns around 45% of the shares.

## Annex 12 – Corporate Management

Function	Name	Mandate until
Chairman	Stefaan Haspeslagh	May 2022
Executive director	Luc Tack	May 2023
Non-executive director	Karel Vinck	May 2023
Independent non-executive director	Philiium BVBA represented by its permanent representative Philippe Coens	May 2023
Independent non-executive director	Management Deprez BVBA (permanently represented by Ms. Veerle Deprez)	May 2021
Independent non-executive director	ANBA bvba (permanently represented by Ms. Anne-Marie Baeyaert)	May 2021

Source: Annual Report 2019

The board of directors meets about 10 times a year to discuss about the following main areas of discussions: the group's long-term strategy and budget, financial statements, proposals to shareholders' meeting, appointing of director and Chairman of the Board of Directors, remuneration policy, effectiveness of the risk management frameworks, various commercial agreements and investment files, and so on (Tessenderlo Group, 2020).

## Annex 13 – Relative Valuation Sensitivity Analysis

### Relative Valuation Worst-Case Scenario

	REBITDA (€M)		Multiple		EV (€M)
	FY 2020	FY 2021	FY 2020	FY 2021	Mid-2020 FY 2020
Agro	111.52	117.09	5.30	3.91	524.28
Bio-Valorization	45.21	52.25	6.44	7.20	333.62
Industrial Solutions	30.38	46.65	5.71	6.24	232.38
T-Power	51.20	51.20	6.00	6.00	307.20
<b>Tessengerlo Group EV</b>					<b>1 397.48</b>
Less: Net Debt					347.50
<b>Tessengerlo Group Equity Value</b>					<b>1 049.98</b>
# Outstanding shares (in millions)					43.15
<b>Equity value per share (€)</b>					<b>24.33</b>

Source: Antoine Cloquet estimates

### Relative Valuation Best-Case Scenario

	REBITDA (€M)		Multiple		EV (€M)
	FY 2020	FY 2021	FY 2020	FY 2021	Mid-2020 FY 2020
Agro	111.52	117.09	11.45	10.19	1235.03
Bio-Valorization	45.21	52.25	6.60	8.62	374.36
Industrial Solutions	30.38	46.65	9.58	9.98	378.28
T-Power	51.20	51.20	10.00	10.00	512.00
<b>Tessengerlo Group EV</b>					<b>2 499.67</b>
Less: Net Debt					347.50
<b>Tessengerlo Group Equity Value</b>					<b>2 152.17</b>
# Outstanding shares (in millions)					43.15
<b>Equity value per share (€)</b>					<b>49.87</b>

Source: Antoine Cloquet estimates

