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Maragro Group
Equity Valuation

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Abstract

Title: Maragro Group Equity Valuation

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The aim of this dissertation is to estimate the fair value of the equity of Maragro Group, an enterprise located in Romania and operating in the Farming segment. The valuation has been performed by taking into consideration the latest financial information available as well as predictions made by the management team regarding the 2017-2018 campaign. For these reasons, the value of the company shall be intended as of the 31.12.2017. Methods used for the valuation include the discounted Cash-flow methodology and more specifically the Adjusted Present Value approach, whereas multiples have been taken into consideration as to analyze the possible differences that characterize the Group as opposed to the companies representing the peer group.

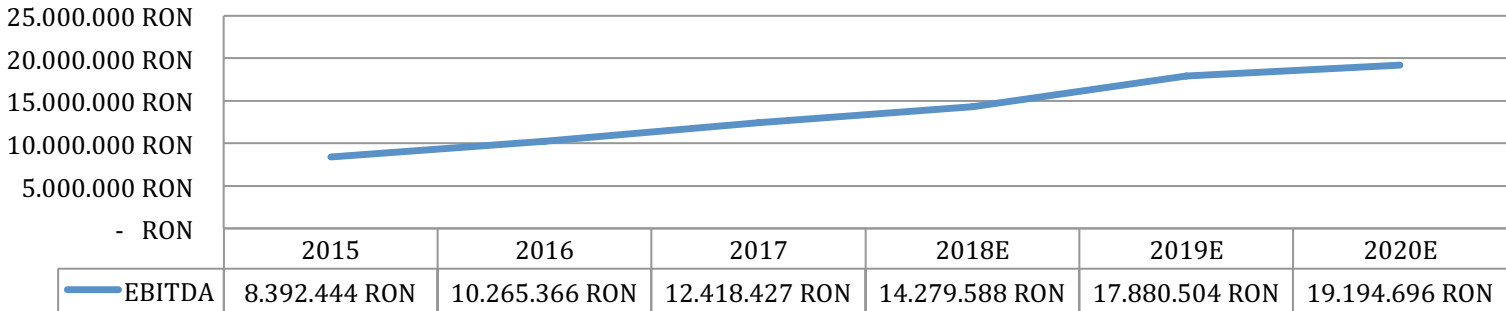
The outcome of this study is that Maragro Group shall be attributed a total enterprise value of 254.343.809 RON and an Equity value of 177.437.682 RON.

O objetivo desta dissertação é estimar o valor das ações do Grupo Marago, uma empresa localizada na Romênia que opera no setor agrícola. A avaliação foi realizada levando em consideração os últimos balanços financeiros assim como previsões realizadas pela equipe de gestão considerando os levantamentos de 2017-2018. Por essas razões, o valor da companhia será o estipulado em 31.12.2017. Os métodos usados para a avaliação incluem a metodologia do discounted Cash-flow e mais especificamente o valor presente ajustado, enquanto múltiplos fatores foram levados em consideração para analisar as possíveis diferenças que caracterizam o grupo como diferenciado dos demais. O resultado deste estudo é que ao Grupo Marago deverá ser atribuído o valor total de 254.343.809RON e com valor de ação de 177.437.682 RON.

Executive Summary

Since its foundation in 2008, Maragro Group has witnessed an exponential growth in Revenue and especially in terms of EBITDA. With the introduction of the oil mill facility in 2015 and its full completion in 2017, the company is able not only to produce high-quality raw materials, but also to transform them into finished and semi-finished goods. The latest expansions as well as the introduction of organic farming, increased exponentially the margins of the Group, which is expected to reach full capacity in 2019 when 701 additional hectares will become available for farming. In light of the changes in structure and profitability that are expected until 2020, the Group shall be attributed a total value of 254.343.809 RON and an Equity value of 177.437.682 RON.

Maragro Group



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1 Introduction

“What’s it worth?”

This sentence is not only the title of an article written by Professor Timothy A. Luehrman but is also a question that plenty of professionals face every time they have to evaluate whether or not to proceed with an investment on an asset.

When looking at the history of valuation methods, we can see how the focus of investors changed over time. According to (Rutterford, 2004), *The first equity valuation techniques used were dividend yield and book value, reflecting early investors’ perception of shares as quasi-bonds, differing only from bonds in the uncertainty of their maturity and of their dividend payments.* In the same research paper named “*from dividend yield to discounted cash flow: a history of UK and US equity valuation techniques*”. The author also states that it took the works of Smith (1925) and Fisher(1930) to get rid of this myth.

Nowadays barely a year goes by without a new model being launched (Young, Sullivan, Nokhasteh, & Holt, 1999) witnessing the fact that there is no model that fits perfectly to all firms. In the following sections, I am going to list up the most popular valuation methods as of today and will then explain which ones I chose to perform the equity valuation of the group. As we will see there are models that are more appropriate for a company with a stable capital structure composition while others might be more indicated for a young company that has not yet reached the steady state and that might be subject to changes in the debt to equity ratio. And moreover, there are again other models appropriated to value a company performing in the financial sector.

As stated by (Luehrman, 1997b) *whether the decision is to launch a new product, enter a strategic partnership, invest in R&D, or build a new facility, how a company estimates value is a critical determinant of how it allocates resources.* And the allocation of resources, in turn, is a key driver of a company’s overall performance.

For these reasons selecting the right valuation method is a complex task of fundamental importance for the correct valuation of any business as well as defining the assumptions needed to properly apply the selected model. It shall be remembered that a valuation is only as good as the assumptions underlying the method used.

2 Valuation methods

2.1 Market Multiples

These represent probably the most popular methods due to their ease of application. Starting from the assumption that an asset can be valued by means of the price of a similar asset that has been sold. This is usually done through a multiple that relates the value of the asset to a key parameter of the company.

According to (Fernandez, 2001) it is possible to identify three groups of multiples:

1. Multiples based on equity value
2. Multiples based on the company's value (Debt+Equity)
3. Growth-referenced multiples

In the following sections, I am going to list the most common used multiples per each group.

2.1.1 Multiples based on equity value

2.1.1.1 PER – Price-Earnings ratio

This multiple is the most popular one among those based on the company's capitalization. It relates the price per share to the actual earnings per share and can be represented as follows:

$$PER = \frac{\text{Share price}}{EPS}$$

Eq. 1

where

EPS = Earnings per share

2.1.1.2 P/CE – Price to Cash Earnings

$$P/CE = \frac{\text{Market capitalization}}{EBDA}$$

Eq. 2

where

EBDA = Earnings before depreciation and amortization

2.1.1.3 P/S – Price to sales

This multiple connects sales with share value only. *It is a multiple used often to evaluate companies performing in the internet and telecommunications sector as well as bus companies and pharmacies (Fernandez, 2001).*

$$P/S = \frac{\text{Share price}}{\text{Sales per share}}$$

Eq. 3

2.1.1.4 P/BV – Price to book value

This multiple and its alternatives are used mainly to value companies in the financing sector such as banks but also insurance and real estate companies.

$$P/BV = \frac{\text{Market capitalization}}{\text{BV of equity}}$$

Eq. 4

2.1.2 Multiples based on the company's value

2.1.2.1 EV/EBITDA – Enterprise value to EBITDA

It is the most used multiple used to evaluate the value of a company. As opposed to the multiples based on equity value, this multiple, as well as the others that can be found in this subgroup use the sum of the firms market capitalization and financial debt. As stated by (Fernandez, 2001) *the main limitation of this multiple is the fact that it ignores changes in working capital requirements as well as capital investments.*

$$EV/EBITDA = \frac{\text{Enterprise value}}{\text{Earnings before interest, tax, depreciation and amortization}}$$

Eq. 5

2.1.2.2 EV/Sales - Enterprise value to sales

$$EV/Sales = \frac{\text{Enterprise value}}{\text{Sales}}$$

Eq. 6

2.1.2.3 Enterprise value to unlevered free cash flow – EV/FCF

$$EV/FCF = \frac{\text{Enterprise value}}{\text{Free cash flow}}$$

Eq. 7

where

Free cash flow = Earnings before interest and after tax + depreciation + amortization – increased capital working requirements – capital expenditures

2.1.3 Relative multiples

These types of multiples are less used as they have to be contextualized. For the seek of completion I am going to list them anyway.

2.1.3.1 History-referenced multiple

$$\text{History – referenced multiple} = \frac{\text{multiple}}{\text{average of recent years}}$$

Eq. 8

This multiple is meant to compare the company's recent performance with its own historical mean. Nevertheless, *there are many limitations resulting from such an analysis as the historic multiples depend on exogenous factors, such as interest rates and stock market situation* (Fernandez, 2001). In the same research paper, Fernandez argues also that the revenue composition and even the core business might change for firms over time, decreasing drastically the utility of such an analysis.

2.1.3.2 Market-referenced multiple

$$\text{Market – referenced multiple} = \frac{\text{firm multiple}}{\text{market multiple}}$$

Eq. 9

2.1.3.3 Industry-referenced multiple

$$\text{Industry referenced multiple} = \frac{\text{firm multiple}}{\text{industry multiple}}$$

Eq. 10

An apparently much better analysis than the ones resulting from history-referenced multiples and market-referenced multiples. The limitations resulting from this method appear evident when the industry of interest is already subject to economic or market distortions. A good example is given by the financial bubble of 2008, whereas we can easily understand, the application of an industry-referenced multiple would have definitely led to a faulty valuation of firms performing in the housing industry.

In general, it has been proven that *multiples nearly always have broad dispersion, which is why valuations performed using multiples may be highly debatable.* (Fernandez,2001). It is often difficult to find an appropriate peer group as it is very unlikely to find a sister company in the market, that has already been evaluated. The concept of similarity in the business world is per se difficult to define limiting the objectivity of a valuation using multiples.

Nevertheless, it may be possible to rely on them at a later stage of the valuation, as a comparison between the firm that is being valued and the peer group might highlight differences among them which can be consequently further analysed.

2.2 Discounted-Cash-Flow methods

The Theory of Investment value is the title of a thesis published in 1938 by Williams in which he defines the investment value, or the intrinsic value of a firm to be *the present worth of future dividends, of practical importance to every investor because it is the critical value above which he cannot go on buying or holding, without adding risk* (Williams, 1938).

This concept is best proposed in the area of firm valuation by the Discounted-Cash-Flow methods.

Discounted Cash Flow Model (DCF)

$$EV = \sum_{t=1}^{t=n} \frac{E(CF_t)}{(1 + WACC)^t}$$

Eq. 11

where

$EV =$ Enterprise value

$E(CF_t) =$ Expected Cash Flows at time t

$WACC =$ Weighted average cost of capital

The DCF model values an enterprise by summing up all the future (expected) Cash-flows, discounted at the Weighted average cost of capital.

It is of major importance to understand the latter perfectly as a mistake in calculating the WACC can cause a relevant distortion in the valuation. (Fernandez, 2010) states in his paper *WACC: definition, misconceptions and errors, that it is neither a cost nor a required return: it is a weighted average of a cost and a required return*. In the same paper he proposes the following definition:

$$WACC_t = \frac{E_{t-1}Ke_t + D_{t-1}Kd_t(1 - T)}{E_{t-1} + D_{t-1}}$$

Eq. 12

where

$E_{t-1} = PV_t(Ke_t; ECF_t)$

$T =$ Effective tax rate

$D_{t-1} = PV_t(Kd_t; CFd_t)$

It shall be noted that from these definitions it appears how in order to calculate the value of the company we need to discount the expected free cash flows to the firms at the WACC while to obtain the WACC we need to have in mind the value of the company.

Among the major limitations attributed to the WACC based DCF model is that, especially when the capital structure of the analyzed company starts to become more complex in the explicit time period, the valuation tends to misestimate the value of the company. This because it fails to analyze separately the risks or the opportunities that might be associated, among others, with hedges, subsidies, exotic debt securities and expansion possibilities.

As stated by (Luehrman, 1997) *the more complicated a company's capital structure, tax position or fund-raising strategy, the more likely it is that mistakes will be made*.

2.2.1 Cost of Equity, Cost of debt and WACC

The second step of a valuation based on discounted Cash-Flows, after the expected Cash Flows have been estimated, is to find the appropriate rates at which the former will be discounted.

The cost of equity shall be intended as the required rate of return that investors require to bear the cost of the risk associated with an asset. Most commonly accepted definition is provided by the Capital Asset Pricing Model (CAPM):

$$Ke = rf + (rm - rf) \times \beta$$

Eq. 13

where

Ke = cost of equity

rf = risk-free rate

$rm-rf$ = market premium

β = idiosyncratic risk of the company

The cost of equity tends to increase as the leverage increases. This because a higher leverage leads to an increase in risk associated with the asset, thus the market premium ($rm-rf$) will be higher. Modigliani-Miller proposition II depicts this relationship with the following formula:

$$Ke = Ke_U + (Ke_U - Kd) \times \frac{D}{E}$$

Eq. 14

where

Ke = Cost of equity

Ke_U = Cost of equity of an unlevered firm

Kd = Cost of debt

$\frac{D}{E}$ = Leverage of the company

The idiosyncratic risk measured by the beta in equation (13) measures the directly associated with the specific asset, in our case the Maragro Group. We can expect this value to be low as compared to companies of the same size performing in other industries as *the degree to which a product's purchase is discretionary will affect the beta of the firm manufacturing the product* (Damodaran, 1999). As the group is situated in the agricultural sector we can expect this to have a positive impact on the riskiness of the asset.

As for the cost of debt, it shall be noted that the appropriate value to attribute to debt is the market value rather than the book value. This because many companies own debt that is not traded publicly (e.g. bonds) but can be mostly defined as non-traded such as bank loans. In order to provide the right valuation of debt, we shall take into consideration similar companies that have their debt traded. It might be even better to assign a credit rating to the company if this is possible.

The cost of debt is given by the weighted average internal rates of return of the different types of debt (e.g. bank loans, bonds, leasing) which are subordinated to the credit rating of the company to be valued. For most companies, with the exception of firms benefiting from a tax exemption, this should be estimated on an after-tax $(1-t)$ basis.

Recent literature has nevertheless criticized the DCF method as, *today the WACC-based standard is obsolete* (Luehrman, 1997). This because, the three dimensions on which a complete valuation should be performed i.e. the valuation of operations, the valuation of opportunities and the valuation of ownership claims are summed up and discounted with a unique method in the classical DCF approach. Most experts agree that by using three different (complimentary) methods we should be able to outperform WACC-based DCF.

2.2.2 Adjusted Present Value – Value Operations

In order to assess the value of the operational part of the business recent literature suggests the Adjusted Present Value method or APV.

The theory behind this methodology is based on the philosophy of shared by the discounted cash flow methods. As stated by (Luehrman, 1997), *the procedure is first to forecast the expected future cash flows, period by period; and second, to discount the forecasts to present value at the opportunity cost of the funds.*

The opportunity cost is the return a company (or it's owners) could expect on alternative investments entailing the same risk.

As opposed to the more classical WACC method, APV relies on the concept of value additivity. By applying this principle we agree on splitting the forecasted cash flow as to analyze separately the different sources.

The method firstly discounts the expected cash flows as if the entity was unleveraged i.e. capital consists entirely of equity. In a second stage, the value of all financing choices is added which include positive effects as for example interest tax shields as well as negative effects such as financial distress costs.

This method is considered superior to the WACC method as *it requires fewer restrictive assumptions* (Luehrman, 1997). It is thus less subject to massive errors.

2.2.3 Option Pricing, Decision Trees and Simulations – Value Opportunities

The opportunity to expand or to reduce a business, allows a business to be more likely to capture a larger market share as well as being less subject to financial distress. This flexibility is valuable and the problem of expressing this value in numbers is likely to be addressed by most professionals with the Option pricing method.

The said method compares, for example, a possibility to expand to an option.

As stated by (Luehrman, 1997), *the potential investment to be made corresponds to an option's exercise price. The operating assets the company would own, assuming it made the investment, are like the stock one would own after exercising a call option. The length of time the company can wait before it has to decide is like the call option's time to expiration.*

In order to assess the risk for this option, we take into consideration the variance of the returns provided by said assets.

Based on the opportunity to evaluate it might be also useful to consider other methods such as decision trees or by relying on a simulation of various scenario analyses.

2.2.4 Terminal Value

The expected future cash flows should be predicted as to include the whole lifecycle of revenue growth. As the company approaches a steady state it is inevitable to assign a terminal value to the company. To do this we rely on the Gordon growth model, stating that for a company approaching the steady state it is reasonable to assume a constant growth of the dividends. By applying this theory to the valuation of a company we can express this mathematically as follows:

$$TV = \frac{FCFF(1 + g)}{WACC - g}$$

Eq. 15

Where,

$g = \textit{Profit growth}$

$FCFF = \textit{Free cash flows of the last year of the explicit period}$

2.3 Profitability methods

2.3.1 Dynamic ROE

The Dynamic ROE method focuses on the concept of excess return (Damodaran, 2006) to equity rather than to total assets.

The value of the investment for a shareholder or a holding company can be summarized as follows:

$$\text{Equity Value} = \text{EBV} + \frac{(\text{ROE} - K_e) \times \text{EBV}}{K_e - g}$$

Eq. 16

Where,

g = Profit growth

EBV = Equity book-value

ROE = Return on equity

K_e = cost of equity

2.3.2 Economic Value Added Method

Said method is also known as economic profit method as it is aimed at capturing the real profit of a company by subtracting the cost of the funds involved. As stated by (Stewart; 1991) *EVA is a measure of the true financial performance of a company.*

The formula that captures said return is:

$$\text{EVA} = (\text{ROIC} - \text{WACC}) \times \text{Capital Invested}$$

Eq. 17

(2.17)

Where,

ROIC = Return on Invested Capital

which can be also expressed as:

$$\text{NOPAT} - \text{WACC} \times \text{Capital Invested}$$

Where,

NOPAT = Net Operating Profit After Taxes

As stated by (Damodaran, 2006), *the Enterprise value of the company is the sum of the expected future growth either of the assets in place and also of future projects.*

$$EV = Net\ Assets \times \frac{EVA}{WACC - g}$$

Eq. 18

Where,

$g = Profit\ growth$

2.4 Conclusion

Virtually every popular valuation approach is simply a different way of expressing the same underlying model (Young et al., 1999).

According to this statement, it should follow that, in theory, all models are equally good at evaluating a company. Differences between one model and the others are simply the result of discrepancies in the underlying assumptions.

That being said while performing a valuation, different circumstances such as the availability of information regarding not only the company but also the industry and in general, the market the company is operating in can lead an analyst to prefer one model over another.

As a general advice, in order to provide an objective valuation, one should try to minimize the assumptions to be done, as to decrease the impact of information asymmetries and to limit evaluation mistakes.

3 Company profile

Maragro is a company founded in 2008, which, either through direct ownership or through third parties, performs one of the most important agricultural farming, stocking and trading businesses in Western Romania, more precisely in the TIMIS region.

Maragro Group has started investing in the agricultural business in 2008. As for the agricultural year 2017-2018, its activities include 5135 ha of prime cultivated land representing a huge growth as compared to the 746 ha cultivated in 2009. Of this land, 4797 ha are either owned or rented while work is performed on a variable number of Ha for third parties. The Group has also been developed in order to include a 56.100 tons stockage centre built on 34.230m² of the total surface. This centre can receive more than 120 trucks a day thanks to the high pumping capacity of the machines.

Maragro Group can be considered to be among the top farming activities in West-Romania, both because of its size and in relation to the completeness of its business. In fact, the Group's operations cover all areas that constitute the primary sector of the agricultural production.

Currently, Maragro cultivates land either directly or for third parties, produces seeds, stocks and dries up cereals and trades products for agriculture. The current farm is the result of 9 years of strong development, with a considerable work carried out to build new infrastructures able to manage an increasing amount of cultivated land and product.

The purpose of this development plan was to become also a service company, a stocking centre for other smaller regional farms granting a dynamic company structure able to offset a shortage of one of its sectors with an increase in another activity as to reach full capacity even in different scenarios.

3.1 Timeline

2008 Original Investment: A group of Italian Private Investors founds Maragro Srl and signs its first rental contract for 760 ha in Giera starting the activities only relying on services provided by third parties.

2009 The first tractors are bought, thanks also to the European Structural Funds, and the acquisition of a stocking centre from Comcereal Group is finalized. In the same year, Agrimeies Srl is founded.

2010 The implementation of the agricultural sector is completed, with the acquisition of modern and reliable equipment (Caterpillar, Claas, John Deere). The company is now able to perform also services for third parties.

2011 Rebuilding and expansion of the stocking centre is initiated. The company currently operates on 4900 ha of agricultural land.

2014 The expansion of the stocking centre is completed. In the same year, the works for the oil mill and the administrative building are initiated.

2015 The Oil mill structure, as well as the administrative building, are completed. A new warehouse has been built with the aim to increase the stocking capacity of finished products.

2016 The oil mill structure has reached full capacity now. The farming/cultivation segment increases its capacity with the acquisition of Agro Blochberger Srl, where it starts cultivating biological products. The acquisition will be finalized in 2018, after two years of rent.

2017 Production of biological goods is implemented with the conversion of agricultural land from the conventional method to the biological one.

3.2 Operativity

The Maragro Group sells its products mostly to top European players active both in the conventional and in the organic market. Approximately 90% of the client base is bound through a contract whose terms are negotiated, usually on a half-yearly basis. The usual payment terms are set at 30 days for raw materials and to 120 days for semi-finished goods. A snapshot of the client portfolio representing the major players is represented below in figure (1).



Fig. 1 Client Base

In contracting for the price of the goods to be supplied, Maragro Group takes into consideration the current market prices of the major agricultural exchanges. Among these the markets of the CME Group (e.g. CBOT), AGER Bologna, Associazione Granaria di Milano, Euronext Paris.

The Revenue of Maragro Group is built through five sources, namely the Farming and Seed Production segment, the oil mill segment (Agrimeies Srl), the trading segment, the service and stocking centre segment and finally through subsidies and incentives from the government. As for 2017, Maragro witnessed a slight decrease in the volumes generated by the farming and seed production sector. This was due to the bad weather conditions that characterized the year affecting negatively the yield per hectare. Nevertheless, the margins have been improved due to the transition to organic cultivation. Agrimeies saw its oil mill completed and full capacity has been reached, the benefits that come with economies of scale have been nevertheless limited by the decrease in price for vegetable oil combined to the slight increase of raw material cost. The strategy towards which the management team is oriented sees a reduction in the trading activity due to its low margins.

We see in this sense already an effect in revenue composition of 2017, where the stocking capacity of the group has been dedicated to a higher amount to the service segment as compared to the previous years. This shift in strategy will continue also in 2018 where it should stabilize around 5% of total income and should include only goods and fertilizers granting a high margin.

Finally, subsidies and incentives are in line with the level of production of the previous year, benefiting from a slight increase due to the organic farming method.

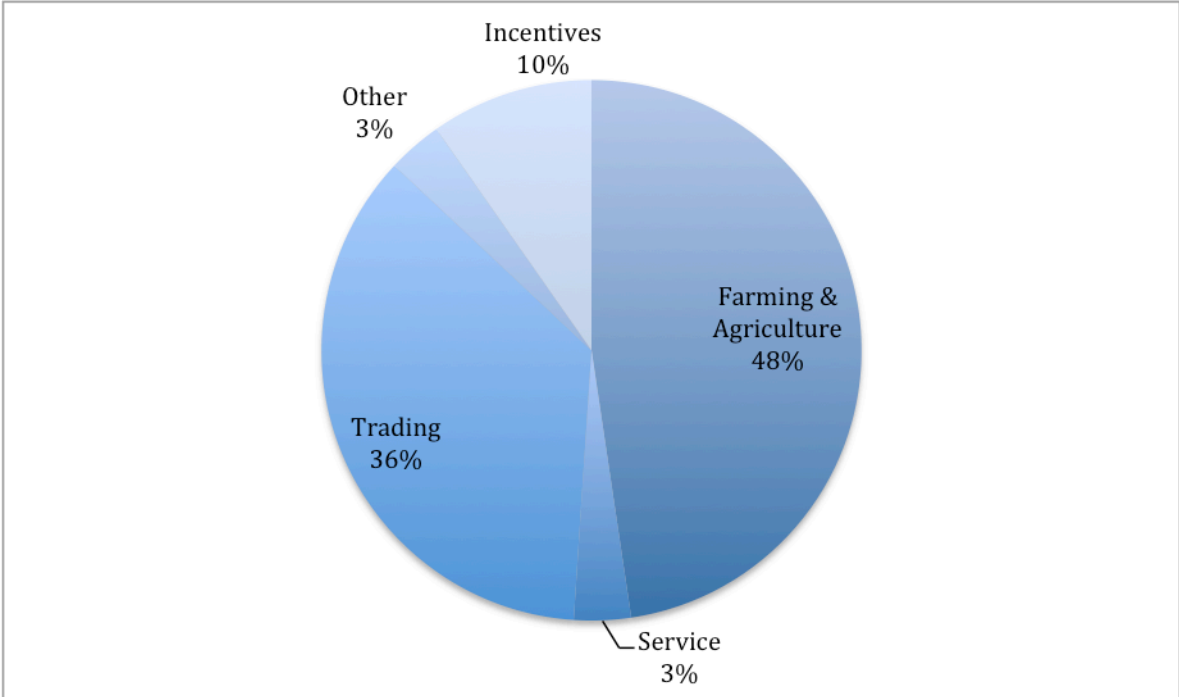


Fig. 2 Revenue Composition

Due to the pursue of more profitability in exchange for sales volume, the group achieved an increase in the relationship EBITDA/Total Sales of 5% as compared to the previous year, accounting now for 15% or 12.418.427 RON.

3.3 Group Structure

The group structure of the Maragro Group is represented by Figure (3).

Agrimeies Srl is operating mainly as an oil mill facility, while Maragro Srl is responsible for the cultivation of land, third party services and the trading activity. Agro Blochberger Srl is a subsidiary of Maragro Srl and is, as of 31.12.2017, entirely dedicated to the cultivation of biological products.

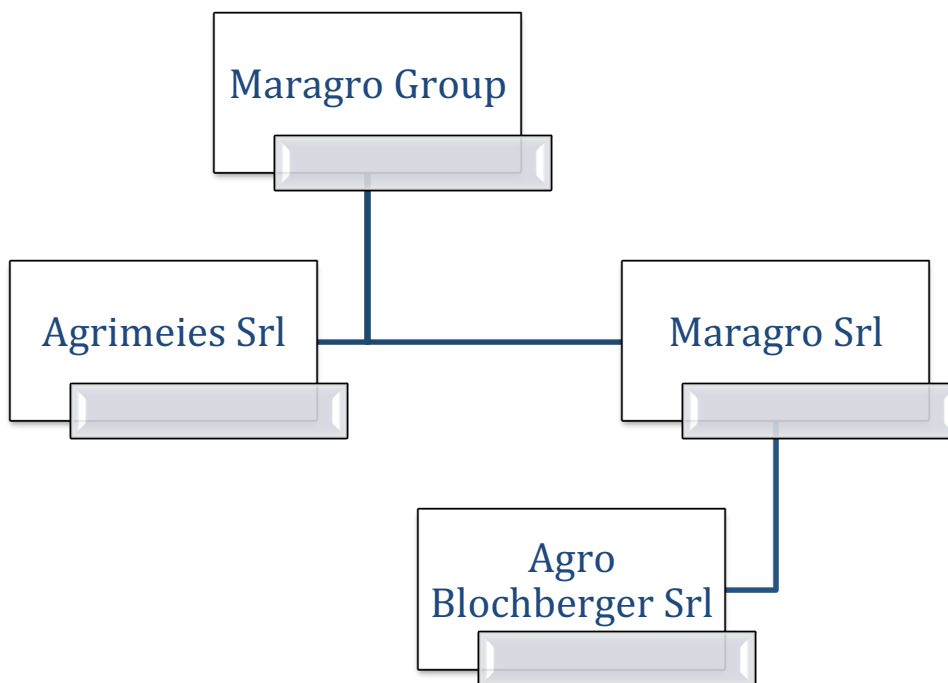


Fig. 3 Group Structure

3.4 Financial Information

3.4.1 Shareholder composition

The composition and ownership is illustrated in fig. (4).

I.E.S. International Equipment Service, the main shareholder is an Italian holding company that controls several businesses in the industry of drilling equipment, & in the real estate sector. It is a vehicle owned by the Casagrande family

META SRL is a company owned by two Italian entrepreneurs with several years of experience in the real estate industry. They moreover hold investments in the sector of gastronomy. Thanks to their contribution Maragro has not only been able to create a functional facility but to enrich it with details that are constantly appreciated.

Marco Chiaradia is an Italian entrepreneur with an academic knowledge of agriculture. Several years of experience in the sector building know how that has been transmitted to the company which has gained benefits not on the technical as in the commercial field. He is an expert of the international agro-business and of the fluctuations related to the agricultural commodities market. He is currently also investing in farming as well as building land in Italy.

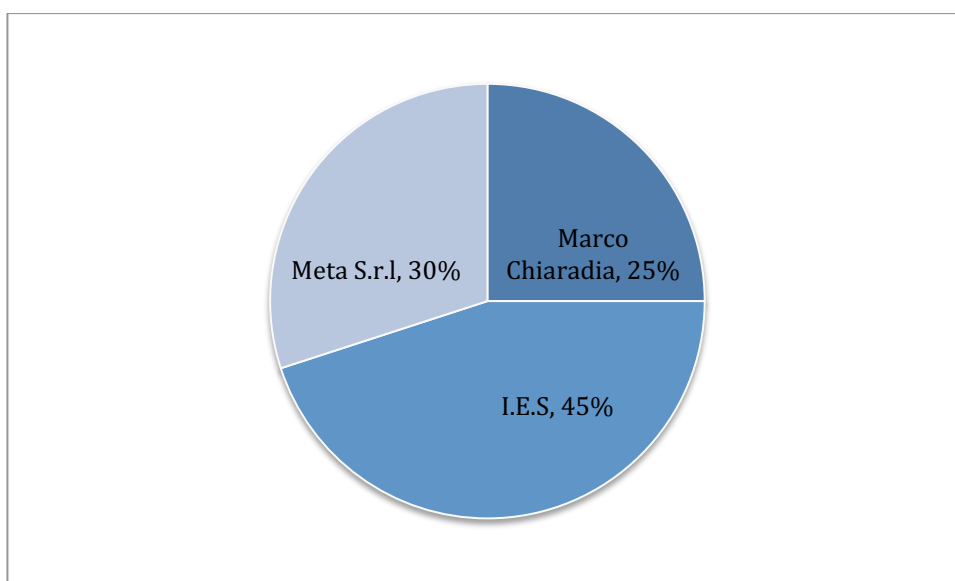


Fig. 4 Shareholders

3.4.2 Debt composition

Financial debt composition of Maragro group is subject to two broad categories i.e. debt towards financial institutions and debt towards shareholders. How to treat the latter for valuation purposes has been a major challenge. On one side it will be treated as debt in evaluating the tax shield as interest expense deriving from it is tax deductible. As for the evaluation of the riskiness of the company, it will be considered as equity as no fixed terms for the repayment of the principal are defined, thus it will be only repaid in case of positive cash flows. Table (1) shows the evolution of (total) debt as compared to equity, while the whole balance sheets can be consulted in Annex (I). The voice adjusted D/E shows the debt to equity ratio if debt towards shareholders is treated as Equity.

	2015	2016	2017
D/E	7,3	8,47	7,04
Interest coverage	3,23	3,05	4,07
Total Debt (- Loan from sh)	70.590.672 RON	99.550.215 RON	90.902.864 RON
Equity (+Loan from sh)	56.121.979 RON	49.241.144 RON	50.816.698 RON
Adjusted D/E	1,26	2,02	1,79

Tab. 1 Financial Stability

4 Industry Analysis

By 2050 the world population is estimated to increase to almost 10 billion individuals. Various governments are faced with the challenge to feed these people and must rely on the agricultural sector to do so. This is the reason for which the latter has gained a major focus from authorities, as well as investors, in the recent years. Maragro Group is based in Romania but the revenue is in a large amount generated through exports to countries part of the European Union.

For this reason, the industry analysis has to be done in consideration of the huge impact of macroeconomic factors on the local, as well as in the European market.

Talking on a global level, the increment in population will contribute to the increase in demand for crop and food production. It shall be noted that, in this sense, more and more attention from the consumer side is expected with regards to the quality of food and its environmental and social impact. A study conducted in 2010 (Francisco et al.) has shown a relationship between consumers' levels of knowledge and consumption of organic foods and has demonstrated that there is a willingness from the consumer to pay a premium for biological products. For the period 2017-2022 recent market researches predict a growth of the organic food market of roughly 16% on a CAGR basis.

Declining levels of yield gain rise concern on the supply side. As stated in the article *Yield Trends Are Insufficient to Double Global Crop Production by 2050* (Ray, Mueller, West, & Foley, 2013).

Numerous studies have shown that feeding a more populated and more prosperous world will roughly require a doubling of agricultural production by 2050 [1]–[7], translating to a ~2.4% rate of crop production growth per year. We find that the top four global crops – maize, rice, wheat, and soybean – are currently witnessing average yield improvements only between 0.9 to 1.6 per cent per year, far slower than the required rates to double their production by 2050 solely from yield gains.

This diminishing return in yield gain is due, among others, to the effects of global warming and water shortages. As demonstrated in an article by (Ray, Gerber, Macdonald, & West, 2015), climate variation explains one-third of global crop yield variability. According to the author *the current conventional wisdom is that crop production will move towards the poles*

with countries such as Canada and Russia benefiting from the combined impact of increased temperatures, greater precipitation and the carbon fertilization effect. Meanwhile, countries closer to the equator, such as India and Africa, could be hit the worst as higher temperatures reduce crop yields.

The expectations for the European Agricultural Market given by the European Union predict a decrease of the utilised agricultural area to 172 million Ha by 2030. For the same period, cereal stocks will stabilise below historical levels, with common wheat expected to recover to above EUR 170/t until approaching EUR 194/t in 2030.

It is likely to see a reduction in rapeseed oil production, as the demand from the energy market for this product is decreasing. Soybeans will see an increase in demand given the high trend protein meals is experiencing while for sunflower oil production is expected to recover from the recent historically low margins.

4.1 Geographical Setting

Timisoara, which is also the best Romanian city for business according to Forbes (2016).

The land in Giera is generally speaking from glacial origin, fairly homogeneous and extremely deep. The superficial layer measures approximately 1,5-2 meters. The mixture of the soil is between clay and slit (clay 40%, slit 40%, sand 20%). It is characterized by a fair level of organic substances (from 2,5 to 3,5 ppm) and phosphorus (from 15 to 40 ppm); it is very rich in potassium (from 150 to 240 ppm), magnesium (from 500 to 1000 ppm) and maintains an average level of nitrogen (1,4 – 1,6 g/kg).

The management team, based on these characteristics, estimates a potential yield of 5 T/Ha of wheat, 6 T/Ha of grain, 3 T/Ha of rape and 2,7 T/Ha of sunflower.

Production Romania

Cereals	21,8%
Vegetables	15,2%
Forage plants	15,0%
Industrial crops	8,0%
Milk	7,4%
Potatoes	6,4%
Fruits	6,2%
Pigs	6,0%
Eggs	4,8%
Other	9,2%

Tab. 2 Source: Eurostat, Comex (16-18 Avg. Prices)

4.1.1 Exchange rate

The Romanian Leu is expected to be replaced by the EUR in 2022, as stated by the Romanian Minister of foreign affairs Teodor Viorel Meleşcanu. In order to do so, among others, the Exchange rate stability parameter has to be respected.

The ERM II provides the framework for entering the EUR and must be respected for a period of two years before entering the European currency. Generally speaking, the European Central Bank agrees with the central bank of the interested country on an exchange rate from which the local currency as compared to the EUR shall not fluctuate more than 15% on a yearly basis. As of the 31.12.2017 one EUR paid 4.6772 LEU, price which according to most analysts should remain stable during 2019.

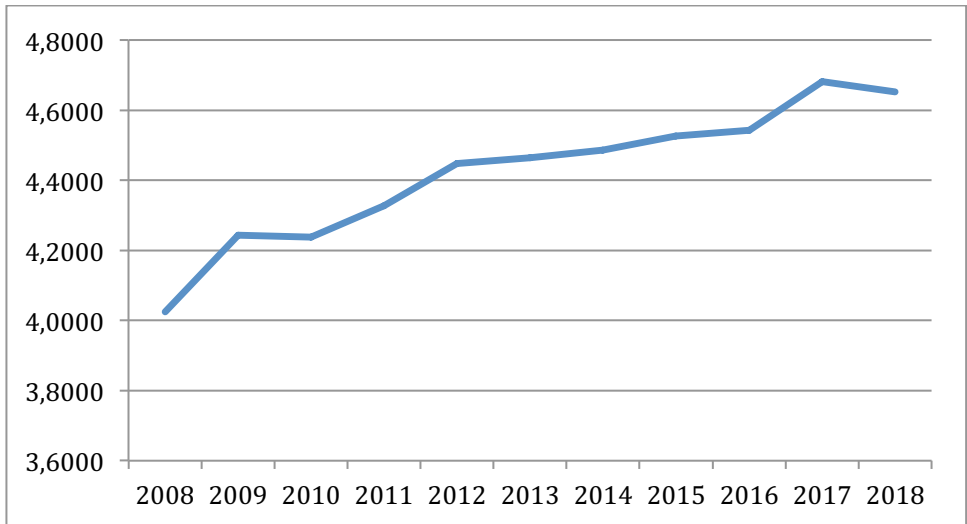


Fig. 5 EUR/RON Exchange Rate 2008 - 2018 Source: Reuters

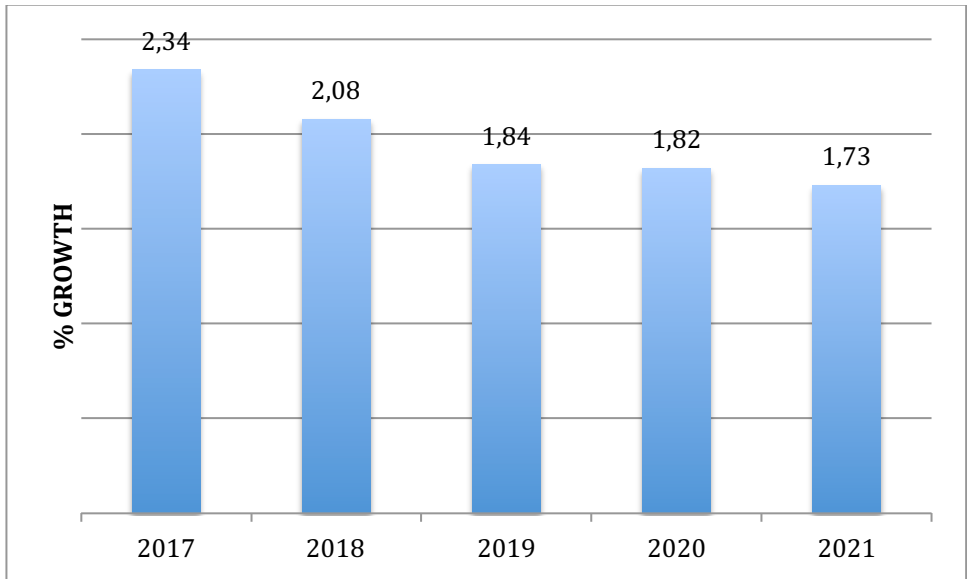


Fig. 6 GDP Growth Forecast Source: Statista

4.1.2 Common Agricultural Policy (CAP)

Since 1962 the Common Agricultural Policy, or CAP, is the answer of the European Union to the challenging task of feeding an increasing amount of population while protecting local producers.

As of today, the European Agricultural Guarantee Fund and the European Fund for Rural Development grant roughly €59 billion a year towards measures targeted at:

1. providing income support to farmers, based on market orientation with incentives for environmental sustainability, animal welfare and food safety.
2. implementing market measures to protect market prices from negative fluctuations due to external factors (e.g. bad weather conditions).
3. fostering agricultural development, conditional to particular needs of each of the 28 EU Countries.

The newest agreement on the CAP reform was reached in 2013 and sets the regulation for the period 2014-2020.

The total budget for the CAP 2014-2020 is set at €347.816 billion and is split among Direct Payments (€252.239 billion) and Market-related Expenditures (€95.577 billion). The new regulation introduces the Green direct payment, an instrument aimed at decreasing the environmental impact and pursuing sustainable productivity. Whilst being the disposal of the budget attributed to each nation based on flexibility, the urgent need to find eco-friendly solutions to the needs of the EU pushed the regulators towards distributing 30% of the national direct payment envelope to farmers that are respecting the duties of maintenance of permanent. Each member state has moreover to dedicate 30% of the budget granted to the Rural Development Programs for voluntary measures that benefit the environment (e.g. organic agriculture).

Around €20 billion are expected to be dedicated to the Romanian agriculture/farming industry. In opposition to the majority of the member states benefiting from the CAP reform, the Romanian government has decided not to enforce the otherwise foreseen 5% reduction on direct payments to farmers above €150.000.

Based on the communication presented by the European Commission on the 27th of November 2017, the plans for the future see a major focus on sustainability and reduction of the impact on the climate change. At the same time, direct payments to farmers will continue even though the way in which these are distributed must be revisited in order to ensure a better efficiency.

4.2 Peer Group

Finding an appropriate peer for the Maragro Group is not an easy task, as the geographical location, the core businesses and the capital structure, as well as the size, shall be taken into consideration. It shall be noted that while the D/E of the firms listed in table (5) is expressed in market terms, for Maragro Group we have to consider a leverage at book value, as the latter is a private company.

In the same table Profitability of the peer group is defined as the EBITDA/Sales margin, whereas the voice growth refers to the 5-years historical growth rate of revenues. The term industry average refers to the market-weighted averages of farming companies operating in the emerging markets.

Company	Location	Revenues	Assets	D/E	EV/EBITDA	EV/SALES	Profitability	Growth	Beta (Lev.)	Core Business
AB Linas Agro Group	Lithuania	644,90 €	352,90 €	0,65	8,5	0,3	3,5%	10,7%	0,26	Farming
MC. SA	Ukraine	124,70 €	158,90 €	1,27	4,7	1,5	10,9%	3,2%	0,41	Farming
Kernel Holding	Ukraine	1.706,60 €	1.673,33 €	0,55	5,5	0,6	10,9%	0,9%	0,36	Veg. Oil
Auga Group	Lithuania	48,80 €	151,10 €	0,54	16,2	2,86	17,7%	14,2%	0,9	Organic
Industry avg.	Emerging Mrkt.			0,42	12,52	1,25			0,94	

Tab. 3 Source: Reuters, Marketwatch

4.3 Risk-free rate

For valuation purposes, it is required to calculate the risk-free rate an investor would receive for investing in a risk-free asset. As for the latter I have used the yield of the 10y Romanian Government Bond, as buying shares of the company is located in that geographical setting and is, more importantly, operating in Romanian Leu. I have chosen a 10-year bond and not a shorter one, as the acquisition of a private company is a long-term investment and is not subject to short-term speculation. As of 31/12/2017, the yield on a 10 y Romanian Government Bond is 4,339%.

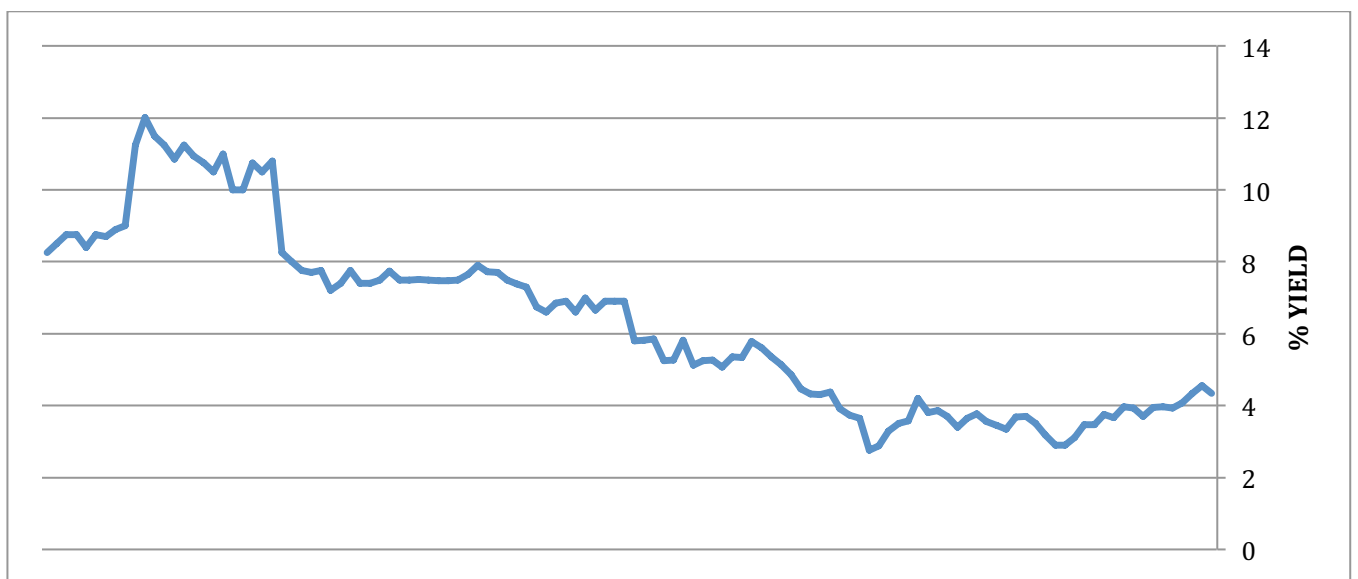


Fig. 7 10y. Yield on Rom. Government Bond

5 Valuation

5.1 Valuation criteria

The valuation will be performed using the APV methodology. This because a valuation based on multiples is difficult to assess, given the different nature of listed enterprises. In this sense, it is possible to identify similarities with the IMC.SA for what concerns the conventional farming operations. Nevertheless, Maragro Group has a definitely more competitive setup thanks to the high margin processing activity performed by Agrimeies and the production of also organic products. For this reason, we can state that part of the business is similar to the activities of AUGA Group, which nevertheless can also rely on its own brand and is operating in the B2C segment.

Given the above-mentioned characteristics, a discounted cash flow method seems to be more appropriate in evaluating the business, even if we can derive as an initial indication a price range set somewhere in between said peer companies. In deciding whether to choose the classic WACC method or the APV method, I relied on recent literature, which is defining the latter as *superior given the decreased number of restrictive assumptions required and thus its lower risk to incur in massive errors* (Luehrman, 1997). Moreover, it shall be noted that Maragro Group is subject to a change in capital structure in the upcoming years, a fact that reinforces the necessity to apply the APV approach.

I have defined the explicit period as the timeframe 2018-2020. This because, even if the company will reach its operational steady state in 2019, the target capital structure composition will be approached by the end of 2020 with a target D/E of about 0,85.

5.2 Defining the explicit period: Forecast of Revenue Streams

The first step to be done in performing a discounted cash flow valuation is to forecast the revenue streams for the explicit period that has been chosen.

In our case, I have identified five different sources that compose the revenue of the Group i.e. conventional farming activity & related subsidies, organic farming activity & related subsidies, oil mill activity (Agrimeies), service and, finally, trading activity.

	2018	2019	2020
Conventional (Ha)	3051	3752	3752
Organic (Ha)	1746	1746	1746
Total	4797	5498	5498

Tab. 4 Cultivation Outlook

Revenue from the farming activities is influenced by three main factors i.e the amount of hectares cultivated, the yield associated with those hectares and the price of agricultural commodities produced. The most certain data we have at our disposal is the one regarding the amount of land on which the Group can rely for its farming activity and which can be seen in table (6).

Starting from the campaign 2018-2019 (which will be reported in FY 2019), the Group can rely on additional 701 Ha, added to the total platfond of arable land through the rental formula. The cost of this operation is set at 980.650 RON or 1.399 RON/Ha.

As for the harvest of 2018, table (7) shows the Groups' farming activity. Yield per Ha has been forecasted by the management team based on prior experience and technical data available. Said data can be confronted with the yields of the previous campaign in Annex(II).

Crop	Ha	Yield t/Ha	Revenue Maragro	%	Price per ton	Tons
Sunflower	835	2,5	2.688.700 RON	24,0%	1.288 RON	2088
Wheat	554	5,3	1.632.527 RON	16,7%	556 RON	2936
Seeds	112	4,1	656.370 RON	5,8%	1.430 RON	459
Soybean	769	2,7	2.674.274 RON	23,9%	1.288 RON	2076
Lolium for seeds	720	1,05	3.024.000 RON	27,0%	4.000 RON	756
Rapeseed	61	3	292.800 RON	2,6%	1.600 RON	183
	3129		10.967.568 RON			

Crop	Ha	Yield t/Ha	Revenue Agrobloch.	%	Price per Ton	Tons
Sunflower	481	2,4	2.424.240 RON	23,9%	2.100 RON	1154
Wheat	430	5,5	3.074.500 RON	30,3%	1.300 RON	2365
Soybean	650	2,5	3.575.000 RON	35,2%	2.200 RON	1625
Rapeseed	185	2,7	1.073.925 RON	10,6%	2.150 RON	500
	1746		10.147.665 RON			
Total	4875		21.115.233 RON			

Tab. 5 Forecast Production Farming

As to predict the revenues of this segment for the following years of the explicit period it shall be noted that a large part of the production is destined to be transformed by the oil mill facility. Agrimeies in 2018 is expected to transform around 2000 tons of Sunflower, 4400 ton of Soybean and 2000 tons of Rapeseed. It is clear that the majority of inputs needed should be produced at Maragro, as to decrease transportation costs and to benefit from synergies between the companies of the Group. With the introduction of additional 701 Ha in 2019, around 50% of the surface is expected to be dedicated to oilseed production, around 20% to the production of seeds and the remaining 30% to cereals and forage crops.

The most challenging aspect in predicting revenue growth is the one related to the price of the final product. Being Maragro Group a price taker, predictions in this sense have to be made by looking outside of the company and is the result of three different domains. For commodities traded on the exchanges and for which data regarding future contracts until 2021 are available (Soybeans, Wheat) price has been forecasted relying on the predictions of futures. For those for which such information is not available, I have taken data from the agricultural commodities price index (real terms) forecast of governmental sources (Worldbank, European Commission).

Finally, as business is conducted in RON said data is adjusted for the expected fluctuations in exchange rate between the RON and the USD as the above-mentioned futures are quoted in USD on the CBOT while the ACPI is expressed in real 2010 USD. The forecasts for said exchange rates can be seen in tab.(11).

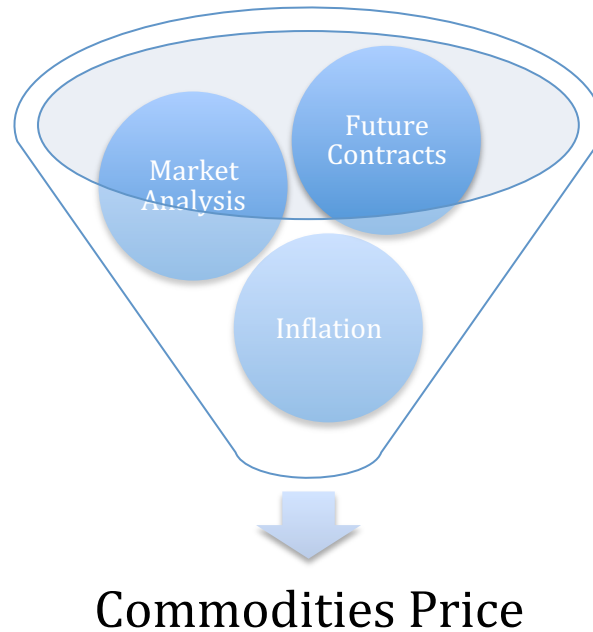


Fig. 8

Finally, yield increase per Ha estimations have been derived from the research article “Yield Trends Are Insufficient to Double Global Crop Production by 2050” (Ray et al., 2013). Said article analyzes the trend in yield gain per country of the four major crops i.e. Maize, Wheat, Soybean and Rice. Unfortunately, as it is not possible to find predictions for the other crops harvested by the Group constant yields have been assumed. This might seem like a limitation assumption, nevertheless, it shall be noted that the effect on the valuation given by said yield increase is of minor impact. Said Yield , as well as future price estimations, can be observed in Annex (II), where it is possible to verify how the farming revenue forecasts for the explicit period have been done.

Directly related to the farming segment, subsidies from government entities are a consequence of the total amount of hectares cultivated, the ecological impact of said cultivations (therefore subsidies for organic farming are higher) and price interventions on strategic commodities.

For the FY 2018 subsidies received by the Group are shown in table (6).

Subsidies	2018	2019	2020
Agroblochberger	3.782.350 RON	3.895.821 RON	3.993.216 RON
Maragro Srl	2.591.255 RON	3.604.475 RON	3.694.587 RON
Inflation		3%	2,50%
Total	6.373.605 RON	7.500.295 RON	7.687.803 RON

Tab. 6 Forecast Subsidies

It shall be noted that for the 3129 Ha of conventional cultivation in 2018, Maragro is only receiving subsidies for 2000 Ha. This is due to agreements made with the owners of the rented properties while the additional subsidies for the Ha expected for 2019 should be entirely perceived by the Group. Table (7) depicts in detail how subsidies have been attributed for the FY 2018. As previously mentioned the amount received is dependent on the hectares cultivated (i.e. 2000 for Maragro Srl and 1746 for Agrimeies Srl), the type of cultivation (organic/conventional) and particular crops which are subject to price regulations (in our case Soybeans).

CAP Contribution 2018	Hectars	
Agroblochberger Srl (Organic)		
Subsidies PAC	1746	1.400.000 RON
Subsidies for SOYBEANS	650	792.350 RON
Subsidies for bio production	1746	1.400.000 RON
Subsidies for diesel fuel	1746	190.000 RON
		3.782.350 RON
Maragro Srl (Conventional)		
Subsidies PAC	2000	1.635.760 RON
Subsidies for diesel fuel 2000 ha	2000	218.000 RON
Subsidies for SOYBEANS	605	737.495 RON
		2.591.255 RON

Tab. 7 Subsidies Detailed

For what concerns the trend of Agrimeies, a similar strategy than the one chosen for the forecast of the farming activity has been applied with the exceptions of yield increase, as this does not apply to the oil mill facility which has already reached maximum capacity.

Last but not least, service and trading revenues have been forecasted as to remain constant in proportion to total revenues, respectively 10% and 5% of total revenues. Detailed information regarding the whole revenue forecast can be found in Annex (II).

5.3 Defining the explicit period: Forecast of Operating Costs

In forecasting the operating costs for the following year a distinction has to be made between fixed costs and variable ones i.e. those directly related to the level of output of the company.

The latter are listed in detail in Annex (II), while the first can be consulted in table (8).

	2017	2018	2019	2020
Fixed Costs	14.600.104 RON	13.074.887 RON	13.687.469 RON	13.904.215 RON
Rent	4.037.012 RON	4.037.012 RON	5.017.662 RON	5.017.662 RON
Personnel Expense / Agr. Machines	3.413.178 RON	3.597.490 RON	3.705.414 RON	3.798.050 RON
Cars Expense	808.326 RON	851.976 RON	877.535 RON	899.473 RON
Third Party Security	148.695 RON	156.725 RON	161.426 RON	165.462 RON
Overhead Costs	4.059.085 RON	1.583.000 RON	1.630.490 RON	1.671.252 RON
Fees	260.000 RON	274.040 RON	282.261 RON	289.318 RON
Costs / oil production	1.312.519 RON	1.383.395 RON	1.424.897 RON	1.460.519 RON
	166.427 RON	796.000 RON	180.676 RON	185.193 RON
	375.000 RON	395.250 RON	407.108 RON	417.285 RON

Tab. 8 Fixed Costs Frc.

The forecast in table (8) has been made in concordance with the management team. The cost deriving from the **rent** can be seen to increase from 2019 onwards, as the additional 701Ha have been added at a total yearly cost of 980.650 RON. It shall be noted that, in opposition to the other costs I defined as fixed, this account is not revalued by the inflation rate, as rental contracts in agriculture are defined on a long-term basis. **Third party** expenses are estimated to harshly decrease, as a result of the decreasing amount of service and trading that has been decided as a guideline for the upcoming years. This will allow the company to rely majorly on

its own resources regarding the work to be done. The increase in **Fees** for 2018 is of exceptional matter, as it reflects the costs that the company is going to incur for the conversion of conventional agricultural land to an organic one. For this reason the account will return to its previous levels from 2019 onwards. It shall be noted that **costs related to oil production** include energy costs and those resulting from the purchase of spare parts.

Costs directly related to the output have been provided by the management team for 2018. Concerning the subsequent years of the explicit period, those have been revalued, both, at the forecasted inflation rate and in consideration of the additional hectares mentioned previously. Raw material used by Agrimeies is forecasted in line with the price estimations used to determine revenue from the farming segment, while remaining operating costs are revalued at inflation rate.

Transportation costs have been calculated based on the change in strategy suggested by the management team for the upcoming years. As opposed to the past, Maragro Group will only pay for 10% of the transportation costs, whilst the other 90% will be paid by the customer. This shall decrease double-invoicing of those costs and represent in this way a leaner solution. Over the past two years the expense resulting from paying 100% of those costs resulted in transportation expenses amounting to 2,5% of total sales; thus for the upcoming years I shall consider 0,25% of total sales in order to determine said cost. Detailed data regarding cost construction can be seen in Annex II. As for what concerns the inflation rates used, they can be consulted in table (9)

2018	2019	2020
5,4%	3%	2,5%

Tab. 9 Source: European Parliament, Tradingeconomics

5.4 Defining the explicit period: Forecast of Financial Impact

Interest expense for the upcoming years is estimated based on current loans and principal repayment requirements. It shall be noted that the Group has a large need for revolving credit lines given the seasonal nature of incoming cash flows. In this sense, we identify revolving lines of credit for input expenses and anticipation of subsidies. Forecasted interest expenses for the explicit period are shown in table (10), whereas debt composition and future outlook are exhibited in Annex(III).

Key measures of fin. Stability	2017	2018	2019	2020
D/E	7,04	5,26	3,43	2,34
D/E (Adj.)	1,79	1,44	1,12	0,86
Interest Coverage	4,07	4,35	7,94	9,21
Kd	3,27%	3,22%	2,40%	2,40%
Interest	3.052.681 RON	3.284.852 RON	2.252.439 RON	2.084.739 RON
TOTAL DEBT	124.096.922 RON	111.253.231 RON	104.246.314 RON	97.590.190 RON
TOTAL EQUITY	17.622.640 RON	21.152.873 RON	30.361.090 RON	41.754.245 RON

Tab. 10 Keyfigures Fin. Stability

Exchange rate plays a major role in the first years of the explicit period. To estimate the change I rely on the concept of purchasing power parity by comparing the estimates for the EUR/RON and the EUR/USD exchange rate as to predict the USD/RON rate. The latter is needed as to calculate price differences between the years of the explicit period, as data on this regard is expressed in USD. The estimates are shown in table (11).

	31/12/17	31/12/18	30/04/19
Exchange Rate Frc			
EUR/USD	1,2006	1,2377	1,2604
EUR/RON	4,6631	4,6945	4,6852
USD/RON	3,8840	3,7929	3,7172

Tab. 11 Exchange Rates FRC

The decreasing trend in EUR/RON exchange rate fluctuations in line with the assumptions made in the industry analysis, for which, given the intention of the Romanian government to adopt the European currency, we can expect a decrease in volatility of said rate for the upcoming years. As data extracted from Reuters is only available as of the 30/04/2019, I will take the last forecasts as to estimate profit (losses) due to exchange rate differences for the FY 2019 and 2020.

5.5 Cost of Capital

One major aspect that distinguishes the APV approach from the classical WACC approach is how the cash flows are discounted. By using the APV model I initially discount the future free cash flows to the firm at the unlevered cost of equity. Cost of equity is given by the following formula:

$$Ke = rf + (rm - rf) \times \beta$$

Eq. 19

Where,

β = unlevered beta

rf = risk-free rate

$rm-rf$ = equity premium

In our case, in deciding the risk-free rate, I considered the 10 years old government bond of Romania, as the company is located in that geographical setting and is, more importantly, adopting the Romanian currency.

The equity risk premium ($rm-rf$) is derived from data made available through Prof. Damodaran and accounts for the Romanian market to 7,62%.

Last but not least, the beta of the company has been derived by looking at similar enterprises that are listed on the market. By analyzing the core business of the companies I have chosen to derive the beta by taking into consideration the farming revenue and the one derived from product transformation, thus not considering sources such as subsidies, trading and service. I have selected a company for each subsegment (organic or conventional) and applied the betas at a weight reflecting the impact of said subsegment to total sales resulting from those activities. Table (12) provides the scheme used for said beta calculation.

Farming Revenue		
Organic	10.147.665 RON	25%
Conventional	10.967.568 RON	27%
	21.115.233 RON	
Product Transformation		
Organic	11.224.200 RON	28%
Conventional	7.586.000 RON	19%
	18.810.200 RON	
	39.925.433 RON	
Levered Beta		
Kernel Holding	Conventional Oil	0,36
IMC S.A	Conventional Farming	0,41
Auga Group	Organic Products	0,9
Maragro Group		66,3%

Tab. 12 Calculation of Beta

It shall be noted that, as the unlevered beta is needed for the application of the APV model, we need to unlever our result. This is done by applying the formula shown in eq. (20).

$$\frac{\beta_{lev}}{1 + (1 - t) * \frac{D}{E}}$$

Eq. 20

As a result of the formula we get an unlevered beta of 0,265 which corresponds to an unlevered cost of equity of 6,36%. The Cost of Debt construction can be seen in Annex (IV). For this purpose I will refer to data from 2018.

5.6 Unlevered firm value

As a result of the forecasted EBITDA I calculated the following free cash flows to the firm:

	2018	2019	2020
Revenues	53.841.838 RON	59.734.224 RON	61.638.494 RON
Farming	21.115.233 RON	24.363.974 RON	25.101.334 RON
Subsidies	6.373.605RON	7.500.295RON	7.674.263RON
Agrimeies	18.810.200RON	20.100.872RON	20.899.585RON
Service	6.075.400RON	6.257.662RON	6.414.104RON
Trading	1.467.400RON	1.511.422RON	1.549.208RON
Operating Costs	39.562.250RON	41.853.721RON	42.443.798RON
EBITDA	14.279.587 RON	17.880.503 RON	19.194.696,37 RON
Depreciation	5.507.318 RON	3.884.073 RON	2.971.091 RON
EBIT	8.772.269 RON	13.996.430 RON	16.223.605 RON
Exchange Loss	553.622RON	296.346RON	149.935RON
Tax	1.403.563RON	2.239.429RON	2.595.777RON
CAPEX	2.907.459RON	3.225.648RON	2.971.091RON
Δ NWC	190.954RON	6.449.705RON	2.485.038RON
FCFF	9.223.989 RON	5.669.376 RON	10.992.855 RON
	1	2	3
Discounted FCFF	8.672.670 RON	5.011.911 RON	9.137.190 RON
Interest expense	3.284.851 RON	2.252.438 RON	2.084.739 RON
Net Income	3.530.233 RON	9.208.216 RON	11.393.154 RON

Tab. 13 FCFF Forecast

Depreciation has been calculated based on current fixed assets and in consideration of the capital expenditures, I forecasted for the explicit period. For the latter, in absence of data from the management team, assuming a Capex to Sales relationship of 5,4% appeared to be logic.

The rate represents the 3-years average CAPEX to Sales relationship of the peer companies taken into reference for calculating the beta. In order to estimate the additional depreciation expense resulting from those capital investments, I have calculated the average duration of the current fixed assets of the Group, weighted by their initial value and amounting to 22,82 years. It shall be noted that for calculation purposes, capital investments equal depreciation expense in the last year of the explicit period. A detailed scheme summarizing the calculations done can be found in Annex (II).

In order to forecast the changes in NWC for the upcoming years, I have taken into consideration the Working Capital needs to total value of production over the past three years.

It shall be noted that the working capital needs are mostly resulting from the farming and oil mill segment. For this reason, I have not considered trading revenues when calculating working capital needs.

The terminal value of 200.893.170 RON is the result of considering the last year of the explicit period as a perpetuity adjusted according to equation (15) by the expected growth rate. For the latter, I have chosen the expected long-term GDP growth of the European Union i.e. 1,73% as shown in fig. (6).

In conclusion, I estimate the unlevered value of the firm to be 223.714.942 RON.

Explicit Period	22.821.772 RON
Terminal Value	200.893.170 RON
Unlevered Firm Price	223.714.942 RON

Tab. 14

5.7 Effects of financing choices

After having calculated the value of the firm as it was entirely financed through equity, it is time to add the effects of the financing choices, starting with the value of the tax shield. Eq. (21) shows an adjusted version of the classical formula used to calculate the terminal value of the tax shields and assumes a constant D/E ratio as opposed to a constant level of debt. Tax shield calculations can be seen in tab. (15).

$$\frac{(D \times t \times kd) \times (1 + g)}{(kd - g)}$$

Eq. 21

where,

D = Outstanding financial debt FY2020

T = Tax rate

Kd = Cost of debt

G = Growth rate

	2018	2019	2020
Tax Shield (PV)	509.180 RON	349.147 RON	323.152 RON
Terminal value			30.554.774 RON
Tax rate	16%	16%	16%
Interest Expense	3.284.851 RON	2.252.438 RON	2.084.739 RON
Year	1	2	3
Kd	3,22%		
Outstanding Fin. Debt 2020	86.864.126RON		
TOTAL Tax Shield			31.736.255 RON

Tab. 15 Calculation Tax Shield

In order to assess Bankruptcy costs, a credit rating has to be given to the company, as none is available. To do this, I have taken into consideration the interest coverage ratio as of the end of FY17 and have assessed the rating and default probability based on information taken from the Damodaran database. Said table can be seen in Annex IV. As a result, I have attributed a credit rating of BB+ for 2017, corresponding to a default probability of 1,98%. It shall be noted that interest due to shareholders has not been included in the calculation of the interest coverage ratio. Bankruptcy costs are estimated by literature to be about 25% of the firm value Fig.(9). For this reason, I calculate bankruptcy costs with the following formula:

$$Bankruptcy\ costs = 0,25 \times Pd \times Unlevered\ Firm\ Value$$

Eq. 22

where,

Pd = probability of default

From the calculations shown in chapter 5.6 it is possible to see how the unlevered firm value of the firm amounts to 223.714.942 RON. With this number, it is possible to derive that total bankruptcy costs amount to 1.107.389 RON .

Bankruptcy costs		
Direct	Indirect	Total
5%	20%	25%

Fig. 9 Source Altman 1984

5.8 Target Price and Scenario Analysis

After adding the effects of leverage to the unlevered firm value it is possible to define the target price at 254.343.809 RON .

From the scenario analysis, it is possible to note how the determination of the risk of the Group appears in fact to be a main limitation characterizing the valuation.

As to investigate how a change in the beta would affect the valuation of the Group, a sensitivity analysis has been performed and is shown in tab. (16). I wished to analyze also the effects that a change in the assumed long-term growth rate would cause to the calculations. It appears evident how important both parameters are for our valuation, capable of strongly affecting the perceived value of Maragro Group.

		Beta (levered)						
		51,5%	56,5%	61,5%	66,5%	71,5%	76,5%	81,5%
LT Growth	2,03%	297.033.559 RON	286.804.235 RON	277.320.905 RON	268.504.931 RON	260.288.354 RON	252.612.138 RON	245.424.754 RON
	1,93%	290.705.799 RON	280.956.937 RON	271.902.471 RON	263.470.852 RON	255.600.038 RON	248.235.959 RON	241.331.278 RON
	1,83%	284.688.515 RON	275.386.213 RON	266.731.419 RON	258.658.890 RON	251.111.861 RON	244.040.713 RON	237.401.885 RON
	1,73%	278.959.405 RON	270.072.893 RON	261.791.186 RON	254.343.809 RON	246.811.274 RON	240.015.409 RON	233.626.903 RON
	1,63%	273.498.252 RON	264.999.540 RON	257.066.656 RON	249.644.994 RON	242.686.757 RON	236.149.924 RON	229.997.404 RON
	1,53%	268.286.686 RON	260.150.256 RON	252.544.002 RON	245.417.817 RON	238.727.715 RON	232.434.926 RON	226.505.139 RON
	1,43%	263.307.980 RON	255.510.518 RON	248.210.556 RON	241.362.028 RON	234.924.385 RON	228.861.794 RON	223.142.468 RON

Tab. 16 Scenario Analysis I

Of less impact, but definitely worth analyzing, is the impact of uncertainties of macroeconomic events that could change the prospects for the agricultural industry. Besides changing weather conditions which could cause a shortfall in supply for some goods, the impact of economic treaties like the Comprehensive Economic and Trade Agreement (CETA) and the, yet to be approved, Transatlantic Trade and Investment Partnership (TTIP) can cause huge fluctuations in the price of commodities within the EU.

For this reason, a Scenario Analysis is appropriate, as to see the implications of eventual shortfalls in yields and in prices.

Tab. (17) shows how a change in yields and prices can affect the valuation. As determine the right interval for the scenario analysis, I strongly relied on data provided from the European Parliament and the FAO for what concerns the projections of price volatility of oilseed and

cereal prices. Projections forecast the prices for these two type of goods to be stable and volatility should be limited to not more than 10% for the period 2018-2024. For what concerns the volatility afflicting yields, I have based the analysis based on prior experience from the management team, which assumes a volatility of 15% to be more than reasonable.

		Avg. Price (weighted)						
		1314	1383	1456	1493	1530	1607	1687
Avg. Yield (weighted)	2,53	250.735.262 RON	251.318.758 RON	251.932.963 RON	252.247.941 RON	252.562.918 RON	253.208.621 RON	253.886.610 RON
	2,66	251.318.758 RON	251.932.963 RON	252.579.496 RON	252.911.051 RON	253.242.606 RON	253.922.294 RON	254.635.966 RON
	2,80	251.932.963 RON	252.579.496 RON	253.260.056 RON	253.609.061 RON	253.958.067 RON	254.673.527 RON	255.424.761 RON
	2,95	252.579.496 RON	253.260.056 RON	253.976.435 RON	254.343.809 RON	254.711.183 RON	255.464.300 RON	256.255.072 RON
	3,10	253.226.028 RON	253.940.616 RON	254.692.815 RON	255.078.557 RON	255.464.300 RON	256.255.072 RON	257.085.384 RON
	3,25	253.904.887 RON	254.655.205 RON	255.445.013 RON	255.850.043 RON	256.255.072 RON	257.085.384 RON	257.957.210 RON
	3,41	254.617.689 RON	255.405.522 RON	256.234.821 RON	256.660.102 RON	257.085.384 RON	257.957.210 RON	258.872.628 RON

Tab. 17 Scenario Analysis 2

Finally, as to get a valuation of the market value (MV) of the equity of Maragro Group, I subtract the MV of Debt from total enterprise value. Since the debt of Maragro Group is not publicly traded, I will estimate it by treating the entire debt as a one coupon bond, where the interest expenses are treated as the coupon payments and the maturity is derived through the face-value weighted average maturity of the debt.

MV of Debt	76.906.127 RON
Fin. Debt (- Shareholder loans)	76.898.489 RON
Kd (weighted)	3,27%
Days to Maturity	1078,21
Years	2,95
Interest expense	2.517.335 RON

Tab. 18 MV of Debt

The result of this calculation is a MV of Debt of 76.906.127 RON and an Equity value of 177.437.682 RON. It shall be noted that the equity value includes debt towards shareholders.

6 Conclusion and Limitations

This price translates in a slightly higher valuation, in relative terms, as the ones of the companies representing the peer group and in particular the AUGA Group. Opposed to the EV/EBITDA value of 16,2 of the latter, the calculated price for the Maragro Group translates into a value of 17,8 (2018 EBITDA).

As stated in the literature review, multiples can be very useful in understanding the dynamics that lead to one enterprise value as compared to the other. It appears evident how the high profitability of Maragro Group leads to a higher perceived value of the company, as compared to the other enterprises of the peer Group. The high profitability characterizing the AUGA Group, comes at the cost of a high beta associated to the enterprise. On the other hand the business performed by Maragro covers a larger amount of sectors and markets, where it is able to create margins benefiting from synergies. This argument, in addition to the high profitability of the Group, is in alignment with the “Cash is King” mentality.

Table (21) summarizes the results of the valuation:

Target Price	254.343.809 RON
MV of Debt	76.906.127 RON
MV of Equity (incl. SH debt)	177.437.682 RON

Tab. 19 Target Price

It shall be noted that the main limitations to this analysis are those caused by information asymmetries, as a valuation can only be as good as the assumptions on which it is based. The application of the APV model should nevertheless limit the downside of the assumptions that had to be made and should provide a more objective result than those provided by other methods. The difficulties encountered in evaluating a private company with a rapidly changing structure are majorly those related to the assessment of the risk profile. The latter is in fact of major importance, capable of having a large impact in the valuation as shown in the scenario analysis performed in the previous chapter.

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Annex I Historical Financial Statements

Maragro Group Income Statement (15-17)

Maragro Group

	2015	2016	2017		2015	2016	2017
Value of production	87.564.989 RON	93.932.372 RON	80.477.664 RON	Rent	2.340.996 RON	3.959.149 RON	4.037.012 RON
Sales Total	77.359.281 RON	82.089.230 RON	73.707.154 RON	Personnel	2.844.013 RON	3.975.598 RON	3.413.178 RON
Product sales	22.822.214 RON	41.615.705 RON	38.911.669 RON	Salaries	2.844.013 RON	3.153.368 RON	2.813.643 RON
Service Revenue	5.496.340 RON	6.206.775 RON	2.781.310 RON	Social charges	- RON	711.773 RON	599.535 RON
Trading Income	46.697.365 RON	33.153.981 RON	29.329.728 RON	Other	- RON	110.457 RON	- RON
Other Revenue	2.343.362 RON	1.112.769 RON	2.684.447 RON	Other Costs	1.564.059 RON	3.391.885 RON	1.732.552 RON
Change in Inventory	4.589.668 RON	3.531.402 RON	-1.188.231 RON	Deferred taxes	431.012 RON	573.976 RON	400.035 RON
Other Revenue Sources	5.616.040 RON	8.311.739 RON	7.958.741 RON	Penalties	112.065 RON	99.428 RON	234.087 RON
Subsidies	5.616.040 RON	8.200.777 RON	7.958.741 RON	Other	1.020.981 RON	1.542.423 RON	1.098.430 RON
Various	- RON	110.963 RON	- RON	Bad debt expense	- RON	1.176.057 RON	- RON
Cost of Production	79.172.545 RON	83.667.006 RON	68.059.237 RON	Direct margin	21.613.513 RON	29.543.863 RON	27.512.843 RON
Cost of Goods	65.951.476 RON	64.388.509 RON	52.964.821 RON	EBITDA	8.392.444 RON	10.265.366 RON	12.418.427 RON
Raw material	16.052.232 RON	27.814.747 RON	21.791.540 RON	Depreciation	4.134.192 RON	4.936.831 RON	5.503.507 RON
Cost of purchase of goods (Trading)	43.639.892 RON	30.278.203 RON	26.137.326 RON	EBIT	4.258.252 RON	5.328.535 RON	6.914.920 RON
Small goods purchases	160.672 RON	52.409 RON	78.072 RON	Financial result	-3.772.729 RON	-3.749.719 RON	-3.879.290 RON
Consumption goods	149.088 RON	357.080 RON	263.822 RON	Financial Income	2.602.068 RON	3.365.168 RON	3.052.681 RON
Fuel cost	2.271.001 RON	2.411.034 RON	1.889.690 RON	Interest expense	-1.198.528 RON	-384.611 RON	-826.645 RON
Spare parts	950.376 RON	867.848 RON	808.326 RON	Exchange rate gain (loss)	485.523 RON	1.578.817 RON	3.035.630 RON
Other	63.937 RON	541.919 RON	123.330 RON	PBT	105.661 RON	360.211 RON	499.329 RON
Transportation	2.664.277 RON	2.065.269 RON	1.872.715 RON	Taxes	379.862 RON	1.218.606 RON	2.536.301 RON
Service Costs	6.472.001 RON	7.951.865 RON	5.911.673 RON	Net Income	379.862 RON	1.218.606 RON	2.536.301 RON
Third parties	5.441.584 RON	6.620.636 RON	4.694.085 RON				
Utilities	438.384 RON	508.107 RON	554.020 RON				
Provisions	14.934 RON	- RON	- RON				
Telephone charges	60.118 RON	77.257 RON	75.352 RON				
Post charges	7.562 RON	- RON	- RON				
Insurance	97.795 RON	159.951 RON	341.253 RON				
Bank service costs	277.175 RON	480.149 RON	166.427 RON				
Travel expenses	77.494 RON	47.323 RON	25.365 RON				
Other	56.954 RON	58.443 RON	55.173 RON				

Maragro Group Balance Sheet (15-17)

Maragro Group

	2015	2016	2017		2015	2016	2017
Intangible Assets	3,063 RON	951 RON	6,714 RON		- RON	- RON	- RON
Tangible Assets	63,947,348 RON	65,218,240 RON	60,924,244 RON	Share capital	12,488 RON	12,488 RON	12,488 RON
Land & Buildings	41,825,873 RON	47,363,875 RON	46,097,514 RON	Reserves	13,024,042 RON	12,267,293 RON	11,542,868 RON
Equipment	15,049,212 RON	17,020,994 RON	14,132,997 RON	Retained earnings	2,217,965 RON	3,436,201 RON	6,067,283 RON
Other	7,072,263 RON	833,371 RON	693,732 RON		- RON	- RON	- RON
Minority Interests	- RON	- RON	- RON	Equity	15,254,495 RON	15,715,982 RON	17,622,640 RON
	2,672,068 RON	5,971,363 RON	14,005,466 RON	Accounts payable st	- RON	- RON	- RON
Inventory	30,955,399 RON	38,434,390 RON	27,383,955 RON		20,063,846 RON	23,199,669 RON	13,364,662 RON
Raw Materials	7,812,748 RON	22,923,541 RON	13,642,428 RON	Bank loan st	19,344,244 RON	27,991,029 RON	49,846,125 RON
WIP	2,673,616 RON	1,946,891 RON	1,446,236 RON	Short term debt	39,408,090 RON	51,190,698 RON	63,210,787 RON
Finished Goods	15,305,453 RON	11,120,903 RON	10,379,340 RON	Li bank	30,355,974 RON	47,157,345 RON	27,052,365 RON
Prepaid expenses	5,163,582 RON	2,443,055 RON	1,915,951 RON	Deferred Taxes	575,495 RON	857,842 RON	548,781 RON
Receivables	28,403,704 RON	36,595,374 RON	35,856,348 RON	Social charges	251,113 RON	344,330 RON	90,932 RON
Accounts receivable	16,913,261 RON	24,308,310 RON	21,644,301 RON	Debt towards shareholders	40,867,484 RON	33,525,162 RON	33,194,058 RON
Prepaid taxes	1,977,907 RON	2,050,589 RON	409,668 RON	Long term debt	72,050,066 RON	81,884,679 RON	60,886,136 RON
Other	9,512,536 RON	10,236,475 RON	13,802,379 RON		- RON	- RON	- RON
Cash	731,071 RON	2,571,041 RON	3,542,029 RON	Liabilities	111,458,156 RON	133,075,377 RON	124,096,922 RON
	- RON	- RON	- RON		- RON	- RON	- RON
Assets	126,712,651 RON	148,791,359 RON	141,718,756 RON	Equity + Liabilities	126,712,651 RON	148,791,359 RON	141,719,563 RON

Annex II Revenue & Cost Forecast (explicit period)

Farming Revenue Forecast

Production	FY 2018					FY 2019					FY 2020					
	Ha	Yield/H A	Price/Ton	Tons	Yield Incr.	Yield	HA	Price Incr.	Price/Ton	Tons	Yield Incr.	Yield	HA	Price Incr.	Price/T on	Tons
Sunflower	835	2,5	1.288 RON	2087,5	1,3%	2,53	835	1,2%	1303,84	2113,59	1,3%	2,56	835	1,2%	1319,6 ₂	2140,01
Wheat	554	5,3	556 RON	2936,2	-1,4%	5,22	854	10,2%	612,05	4461,02	-1,4%	5,15	854	10,2%	674,36	4396,78
Seeds	112	4,1	1.430 RON	459,2	1,3%	4,15	112	1,2%	1447,75	464,94	1,3%	4,20	112	1,2%	1465,2 ₆	470,75
Soybean	789	2,7	1.288 RON	2076,3	3,0%	2,78	1170	0,1%	1289,16	3254,09	3,0%	2,86	1170	0,1%	1290,3 ₂	3352,03
Lotium for seeds	720	1,05	4.000 RON	756	1,3%	1,06	720	1,2%	4049,20	765,45	1,3%	1,08	720	1,2%	4098,2 ₀	775,02
Rapeseed	61	3	1.600 RON	183	1,3%	3,04	61	1,2%	1619,68	185,29	1,3%	3,08	61	1,2%	1639,2 ₈	187,60
Sunflower BIO	481	2,4	2.100 RON	1154,4	1,3%	2,43	481	1,2%	2125,83	1168,83	1,3%	2,46	481	1,2%	2151,5 ₅	1183,44
Wheat BIO	430	5,5	1.300 RON	2365	-1,4%	5,42	430	10,2%	1432,34	2330,94	-1,4%	5,34	430	4,4%	1495,9 ₄	2297,38
Soybean BIO	650	2,5	2.200 RON	1625	3,0%	2,58	650	0,1%	2201,98	1673,91	3,0%	2,65	650	-2,5%	2147,3 ₇	1724,30
Rapeseed BIO	185	2,7	2.150 RON	499,5	1,3%	2,73	185	1,2%	2176,45	505,74	1,3%	2,77	185	1,2%	2202,7 ₈	512,07
Revenues	21.115.233 RON					24.363.974 RON					25.101.335 RON					
Average Price (weighted)	1493,08					1439,63					1473,14					

Farming Activity 2017 Campaign

	Ha	Yield/Ha	Tons	Price	Revenue	Cost / Ha	Cost
Soybeans	664	3,4	2257,6	1215	2.742.984 RON	1.675 RON	1.112.200 RON
Sunflower	1.090	1,6	1744	1395	2.432.880 RON	1.862 RON	2.029.580 RON
Lolium for seeds	860	1,2	1032	3825	3.947.400 RON	1.285 RON	1.105.100 RON
Other seeds	1.138	3,4	3.831	1382	5.294.718 RON	1.730 RON	1.968.740 RON
Soybeans (Second Harvest)	220	1,8	396	1215	481.140 RON	1.675 RON	368.500 RON
Barley	40	5	200	585	117.000 RON	1.352 RON	54.080 RON
Wheat Bio	170	5,3	901	1215	1.094.715 RON	3.432 RON	583.440 RON
Soybeans Bio	245	2,5	612,5	2700	1.653.750 RON	3.280 RON	803.600 RON
Soybeans Conversion	154	2,5	385	2025	779.625 RON	3.280 RON	505.120 RON
Rapeseeds Conversion	185	2,7	499,5	1800	899.100 RON	4.335 RON	801.975 RON
Rapeseeds Bio	156	2,7	421,2	2925	1.232.010 RON	4.335 RON	676.260 RON
Maize Bio	95	4,4	418	1125	470.250 RON	3.328 RON	316.160 RON
	5.017				21.145.572 RON		10.324.755 RON

Revenue Composition 2017

2017

Maragro Group Revenue Composition	
Farming	21.145.572 RON
Subsidies	7.958.741 RON
Agrimeies	16.577.866 RON
Service	5.465.757 RON
Trading	29.329.728 RON
Total	80.477.664 RON

Operating Costs Forecast

	2018		2019		2020	
	Ha	Total Cost	Ha	Total Cost	Ha	Total Cost
Direct Costs (variable)		25.031.993 RON		26.658.866 RON		26.993.451 RON
Farming Sector						
<i>Conventional Farming</i>						
Soybean	3051	4.659.033 RON	3752	5.869.691 RON	3752	6.016.434 RON
	769	1.303.250 RON	1170	2.042.323 RON	1170	2.093.381 RON
Sunflower	835	1.482.640 RON	835	1.527.119 RON	835	1.565.297 RON
Wheat	554	665.000 RON	854	1.055.862 RON	854	1.082.258 RON
Rapeseed	61	109.000 RON	61	112.270 RON	61	115.077 RON
Lolium for seeds	720	910.640 RON	720	937.959 RON	720	961.408 RON
Other seeds	112	188.503 RON	112	194.158 RON	112	199.012 RON
<i>Organic Farming</i>						
Soybean	1746	6.266.060 RON	1746	6.454.042 RON	1746	6.615.393 RON
	650	2.163.755 RON	650	2.228.668 RON	650	2.284.384 RON
Sunflower	481	1.817.831 RON	481	1.872.366 RON	481	1.919.175 RON
Wheat	430	1.482.577 RON	430	1.527.054 RON	430	1.565.231 RON
Rapeseed	185	801.897 RON	185	825.954 RON	185	846.603 RON
Tons	Total Cost	Cost/Ton	Tons	Total Cost	Cost/Ton	Tons
<i>Agrimeies</i>						
Sunflower	700	901.600 RON	700	912.690 RON	700	923.733 RON
Rapeseed	1650	2.517.900 RON	1650	2.672.472 RON	1650	2.704.809 RON
Soybean	2300	2.962.400 RON	2300	2.965.066 RON	2300	2.967.734 RON
BIO Sunflower	1700	3.570.000 RON	1700	3.613.911 RON	1700	3.657.639 RON
BIO Rapeseed	500	1.075.000 RON	500	1.088.223 RON	500	1.101.390 RON
BIO Soybean	1400	3.080.000 RON	1400	3.082.772 RON	1400	3.006.319 RON
<i>Trading Expense</i>						
Transport		1.336.700 RON		1.376.801 RON		1.411.221 RON
		118.671 RON		130.585 RON		134.911 RON

Depreciation of Fixed Assets Forecast

Maragro Group

Maragro Srl	Initial Value	Acc. Depreciation	Value 31/12/2017	Depreciation		
				2018	2019	2020
Buildings	37.417.324 RON	4.529.560 RON	32.887.764 RON	1.313.381 RON	1.461.279 RON	1.398.525 RON
Equipment	25.258.137 RON	18.348.945 RON	6.909.192 RON	2.588.102 RON	1.650.507 RON	938.785 RON
Control Equip.	842.702 RON	467.863 RON	374.839 RON	98.029 RON	134.283 RON	65.732 RON
Transport Equip.	1.494.725 RON	1.310.901 RON	183.824 RON	183.824 RON	52.970 RON	3.492 RON
Intangible A.	396 RON		396 RON	- RON	- RON	- RON
Furniture	176.162 RON	88.323 RON	87.839 RON	22.507 RON	68.547 RON	- RON
Software	14.837 RON	14.837 RON	- RON	- RON	- RON	- RON
			40.443.854 RON	4.205.843 RON	3.367.586 RON	2.406.534 RON
Maragro Srl	Initial Value	Acc. Depreciation	Value 31/12/2017	Depreciation		
				2018	2019	2020
Buildings	8.042.578 RON	695.994 RON	7.346.584 RON	201.065 RON	98.598 RON	98.599 RON
Equipment	9.248.045 RON	2.130.910 RON	7.117.135 RON	1.043.862 RON	186.197 RON	131.465 RON
Control Equip.	229.933 RON	48.898 RON	181.035 RON	20.719 RON	55.555 RON	32.866 RON
Transport Equip.	85.305 RON	85.305 RON	- RON	- RON	- RON	- RON
Furniture	827.991 RON	88.945 RON	739.046 RON	35.829 RON	48.729 RON	32.867 RON
				1.301.475 RON	389.079 RON	295.797 RON
Maragro Group			15.383.800 RON	5.507.318 RON	3.756.665 RON	2.702.331 RON

Annex III Financial Debt Composition

2018

2019

2020

ST	Debt Evolution			Days to Maturity	Rate	Interest	Repayment	Outstanding	Repayment	Outstanding	Repayment	Outstanding		
	Expiration													
ST	Maragro SRL													
	Unicredit	6.750.000 RON	06/05/18	revolving	EURIBOR 1M	126	2,40%	162.000 RON	6.750.000 RON			6.750.000 RON		
		4.500.000 RON	06/05/18	revolving	EURIBOR 1M	126	2,40%	108.000 RON	4.500.000 RON			4.500.000 RON		
		4.828.635 RON	02/07/18	revolving	ROBOR 3M	183	4,00%	193.145 RON	4.828.635 RON			4.828.635 RON		
		4.500.000 RON	26/07/18	revolving	EURIBOR 1M	207	2,80%	126.000 RON	4.500.000 RON			4.500.000 RON		
		11.267.490 RON	30/05/27	Agrochoc h.	EURIBOR 1M	3437	3,36%	378.024 RON	1.223.685 RON	10.043.805 RON	1.223.685 RON	8.820.120 RON	1.223.685 RON	7.596.435 RON
	Agrimeles SRL													
	Unicredit	4.500.000 RON	06/05/18	revolving	EURIBOR 1M	126	2,40%	108.000 RON	4.500.000 RON			4.500.000 RON		
	Bank	4.500.000 RON	11/05/18	revolving	EURIBOR 1M	131	2,40%	108.000 RON	4.500.000 RON			4.500.000 RON		
		9.000.000 RON	11/05/18	revolving	ROBOR 3M	131	3,90%	351.000 RON	9.000.000 RON			9.000.000 RON		
Maragro SRL														
Unicredit	6.300.014 RON	12/06/20	LT Loan	EURIBOR 1M	894	4,15%	261.451 RON	2.099.997 RON	4.200.017 RON	2.099.997 RON	2.100.020 RON	2.100.020 RON	- RON	
Bank	6.750.000 RON	01/04/24	LT Loan	EURIBOR 1M	2283	3,20%	216.000 RON	720.000 RON	6.030.000 RON	720.000 RON	5.310.000 RON	1.170.000 RON	4.140.000 RON	
BNP	417.195 RON	01/10/19	LT Loan	EURIBOR 1M	639		296.775 RON	120.420 RON	120.420 RON		0 RON	0 RON		
Paribas	2.367.216 RON	20/07/19	LT Loan	EURIBOR 1M	566	3,50%	82.853 RON	971.267 RON	1.395.950 RON	971.267 RON	424.683 RON	424.683 RON		
Unicredit	2.950.663 RON	20/11/21	LT Loan	EURIBOR 1M	1420	3,50%	103.273 RON	692.307 RON	2.258.356 RON	692.307 RON	1.566.049 RON	692.307 RON	873.742 RON	
Agrimeles SRL														
Unicredit	6.046.887 RON	17/08/21	LT Loan	EURIBOR 1M	1325	4,00%	241.875 RON	1.612.500 RON	4.434.388 RON	1.612.500 RON	2.821.888 RON	1.209.375 RON	1.612.513 RON	
Bank	2.220.390 RON	12/05/21	LT Loan	EURIBOR 1M	1228	3,50%	77.714 RON	592.110 RON	1.628.280 RON	592.110 RON	1.036.170 RON	592.110 RON	444.060 RON	
Shareholders debt	33.194.058 RON					3,20%		33.194.058 RON	33.194.058 RON		33.194.058 RON		33.194.058 RON	
total	110.092.547 RON				1078,21		2.517.335 RON	101.883.907 RON	93.851.622 RON		86.864.126 RON			

Annex IV Beta & Cost of Capital

Farming Revenue	
Organic	10.147.665 RON 25%
Conventional	10.967.568 RON 27%
	21.115.233 RON
Product Transformation	
Organic	11.224.200 RON 28%
Conventional	7.586.000 RON 19%
	18.810.200 RON
	39.925.433 RON
Levered Beta Peer Group	
Kernel Holding	Conventional Oil 0,36
IMC S.A	Conventional Farming 0,41
Auga Group	Organic Products 0,9
Maragro Group	66,3%

Cost of Capital	
Ke (Unlev.)	6,36%
Beta (Lev.)	66,30%
Beta (Unlev.)	26,50%
RF-RM	7,62%
Tax Rate	16%
Lt. Growth Rate	1,73%
D/E (Adj. For SH debt)	1,789
RF Rate	4,34%
Kd (2018)	3,22%
Kd (2019)	2,40%
Kd (2020)	2,40%

