



School of Social Science

MASTER'S DEGREE PROGRAMME IN BUSINESS
ADMINISTRATION (MBA)

MBA Dissertation

Financial statement analysis for ElvalHalcor company and its
position in the European market of aluminum industry.

Author: Varvara Anastasiou

Supervisor: Dr. Emmanouil Dedoulis

Patras, Greece, June 2021

Theses / Dissertations remain the intellectual property of students (“authors/creators”), but in the context of open access policy they grant to the HOU a non-exclusive license to use the right of reproduction, customisation, public lending, presentation to an audience and digital dissemination thereof internationally, in electronic form and by any means for teaching and research purposes, for no fee and throughout the duration of intellectual property rights. Free access to the full text for studying and reading does not in any way mean that the author/creator shall allocate his/her intellectual property rights, nor shall he/she allow the reproduction, republication, copy, storage, sale, commercial use, transmission, distribution, publication, execution, downloading, uploading, translating, modifying in any way, of any part or summary of the dissertation, without the explicit prior written consent of the author/creator. Creators retain all their moral and property rights.



MBA Dissertation

Author: Varvara Anastasiou

Supervising Committee

Supervisor:

Dr. Emmanouil Dedoulis

Associate Professor of Accounting at the
Department of Business Administration, Athens
University of Economics and Business

Co-Supervisor:

Dr. Nikolaos Daskalakis

Assistant Professor in Finance and Accounting at
Panteion University

Patras, Greece, June, 2021

“Acknowledgments and / or Dedication”

I would like to express my sincere gratitude to my supervisor Dr Emmanouil Dedoulis for the support and guidance to accomplish this thesis.

I am dedicating this thesis to my dearest children, Georgios and Vasiliki, who really inspired and encouraged me to pursue this goal.

I also need to memorialize my beloved father, who is no longer of this world, but I am sure he would be very proud of my achievement.

Abstract

Elval is the brand name of Hellenic Aluminum Industry, one of the greatest export companies in Greece. It is also one of the major processing industries with indisputable success in Europe's aluminum market. After the merger between Elval and Halcor the new company has been operating in both the aluminum and copper sector with the former having the greater contribution to the financial growth in terms of revenue and profits. In general, aluminum industry has been developed unexpected the past years and will continue more aggressive to the future due to the broad range of abilities, properties, physical, chemical and mechanical characteristics of alumina as raw material. Several trends favor the increase of demand for aluminum which has plenty of applications in key sectors of an economy. The objective of the current dissertation is to assess the financial position of ElvalHalcor and to compare the company with other 2 European companies operating in the same sector. For this purpose we are going to use ratio analysis by computing liquidity, activity, profitability and solvency ratios. We are also going to use the z score index which is a measure of a company's financial strength. Our analysis is quite vulnerable to the weaknesses associated with financial statements. According to our results, all the companies have experienced deterioration in their performance after 2017. Moreover, the z score index predicts financial problems with a moderate probability for all the companies examined and particularly for ELVAL. However the recovery of the aluminum industry and several megatrends, are expected to strengthen the companies' prospects.

Keywords

Aluminum industry
Financial statement analysis
Ratio analysis
Company performance

Οικονομική ανάλυση της εταιρείας Ελβαλ και η θέση της στην Ευρωπαϊκή αγορά της βιομηχανίας αλουμινίου

Βαρβάρα Αναστασίου

Περίληψη

Η Elval είναι το εμπορικό σήμα της Ελληνικής Βιομηχανίας Αλουμινίου, μιας από τις μεγαλύτερες εξαγωγικές εταιρείες στην Ελλάδα. Είναι επίσης μία από τις μεγαλύτερες βιομηχανίες μεταποίησης με αδιαμφισβήτητη επιτυχία στην ευρωπαϊκή αγορά αλουμινίου. Μετά τη συγχώνευση μεταξύ της Elval και της Halcor, η νέα εταιρεία δραστηριοποιείται τόσο στον κλάδο αλουμινίου όσο και στον χαλκό, με τον πρώτο να έχει τη μεγαλύτερη συμβολή στην οικονομική ανάπτυξη όσον αφορά τα έσοδα και τα κέρδη. Γενικά, η βιομηχανία αλουμινίου αναπτύχθηκε απροσδόκητα τα τελευταία χρόνια και θα συνεχίσει να γίνεται πιο επιθετική στο μέλλον λόγω του ευρέος φάσματος ικανοτήτων, ιδιοτήτων, φυσικών, χημικών και μηχανικών χαρακτηριστικών της αλουμίνης ως πρώτη ύλη. Αρκετές τάσεις ευνοούν την αύξηση της ζήτησης αλουμινίου που έχει πολλές εφαρμογές σε βασικούς τομείς μιας οικονομίας. Ο στόχος της τρέχουσας διατριβής είναι να εκτιμήσει την οικονομική θέση της ElvalHalcor και να συγκρίνει την εταιρεία με άλλες 2 ευρωπαϊκές εταιρείες που δραστηριοποιούνται στον ίδιο τομέα. Για το σκοπό αυτό, θα χρησιμοποιήσουμε την ανάλυση αναλογίας υπολογίζοντας τους δείκτες ρευστότητας, δραστηριότητας, κερδοφορίας και φερεγγυότητας. Θα χρησιμοποιήσουμε επίσης τον δείκτη βαθμολογίας z που αποτελεί μέτρο της οικονομικής δύναμης μιας εταιρείας. Η ανάλυσή μας είναι ευάλωτη στις αδυναμίες που σχετίζονται με τις οικονομικές καταστάσεις. Σύμφωνα με τα αποτελέσματά μας, όλες οι εταιρείες παρουσίασαν επιδείνωση της απόδοσής τους μετά το 2017. Επιπλέον, ο δείκτης βαθμολογίας z προβλέπει οικονομικά προβλήματα με μέτρια πιθανότητα για όλες τις εταιρείες που εξετάστηκαν και ιδιαίτερα για την ELVAL. Ωστόσο, η ανάκαμψη της βιομηχανίας αλουμινίου και αρκετών μεγαθρίων, αναμένεται να ενισχύσουν τις προοπτικές των εταιρειών.

Λέξεις – Κλειδιά

Βιομηχανία αλουμινίου
Ανάλυση οικονομικών καταστάσεων
Ανάλυση δεικτών
Δραστηριότητα εταιρείας

Table of Contents

Table of Contents

Abstract	v
Περίληψη.....	vii
Table of Contents	ix
List of Tables.....	x
1. Introduction	1
2. Methodology	4
2.1 Ratio analysis	4
2.2 Z - Score	7
3. An Overview of the Aluminium Industry	8
3.1 The Aluminium Industry Worldwide.....	8
3.2 The Aluminium Industry in Greece	12
4. Financial Statements	15
4.1 Basic financial statements and advantages and disadvantages	15
4.2 Accounting manipulation	17
4.3 Firm valuation	19
5. Analysis of Elval Company	21
5.1 Company overview	21
5.2 Strategy of the Company.....	23
5.3 SWOT Analysis	27
6. Overview of Competitors in Europe	28
7. Results	30
7.1 Liquidity Ratios.....	30
7.2 Solvency Ratios.....	33
7.3 Profitability Ratios	35
7.4 Activity Ratios	38
8. Discussion	46
List of Tables.....	53

List of Tables

Table 1:	Statement of Financial Position ELVALHALCOR 2017-2018
Table 2:	Income Statement of ELVALHALCOR 2017-2018
Table 3:	Statement of Financial Position ELVALHALCOR 2018-2019
Table 4:	Income Statement of ELVALHALCOR 2018-2019
Table 5:	Statement of Financial Position ELVALHALCOR 2019-2020
Table 6:	Income Statement of ELVALHALCOR 2019-2020
Table 7:	Statement of Financial Position HYDRO 2017-2018
Table 8:	Income Statement of HYDRO 2017-2018
Table 9:	Statement of Financial Position HYDRO 2017-2018-2019-2020
Table 10:	Statement of Financial Position Constellium 2017-2018
Table 11:	Income Statement of Constellium 2017-2018
Table 12:	Statement of Financial Position Constellium 2019-2020
Table 13:	Income Statement of Constellium 2019-2020

1. Introduction

Elval operates in the aluminum industry and has been recognized through time as a solid and fast growing company possessing a broad portfolio of quality products that serve the packaging, shipbuilding, automotive, energy and industrial markets. It is considered as one of the most significant exporting companies in Greece where it exports about 75 to 80 % of its production to more than 60 countries satisfying in this way the highly specialized needs of global customers. The annual production capacity, of the company exceeds that of 280.000 tones on an annual basis.

The basic strategy the company has been adopting, is that of internalization where it has been expanding in new markets to increase the volume of sales and to exploit investment opportunities. However expanding in new markets, implies several risks especially when the market environment of the hosting country is unsteady.

As far as the aluminum market is concerned, it consists of the primary aluminum and its alloys referred to as the upstream segment, the producers of aluminum products referred to as the downstream segment and the producers of aluminum out of processes raw material. While a hundred and more years ago aluminum was considered to be an expensive metal with limited use, today it is considered to be the second mostly consumed metal after steel. The developments in the energy and motor market, together with the rapid growth of cities, will turn aluminum into a dominant structural material having multiple and extensive uses.

The aluminum rolling industry has experienced a significant growth over time, due to the increasing demand from the application sector. Complicated and updated methods of manufacturing have resulted in a higher degree of refinement and richness of final product. Analysts predict that global consumption of aluminum rolled products will reach an amount of 30 mil. Tones with a cumulative average return of 5 % on an annual basis. European demand for rolling products is strong due to the shift of key sectors towards aluminum.

Aluminum, is a part of many large value chains and the most important of them is the automotive and transport sector which represents more than 30 % of the entire market. The automotive industry has been facing over the last months, a significant slow down due to the health crisis and at least in the short run the sector is at risk. Given the uncertainty in

the market, the European Aluminum has suggested a vehicle renewal scheme focused on increasing the sales of the most environmentally friendly vehicles, both clean ICEs and electric-powered vehicles. Experts support, the introduction of a scrappage premium for old cars.

Financial statements, include the balance sheet, income statement and cash flow statement of a company and are publicized at regular intervals so as if someone examines the financial statements of a company, he can carry out a ratio analysis which refers to the process of computing indices through which he can assess the liquidity, profitability, efficiency and solvency of a company. The computation of these indices is easy and can offer significant insight to the company's current financial condition but has also several shortcomings due to the weaknesses of financial statements.

First of all, financial statements have poor predictive value. A company might be in an excellent financial condition but a negative unexpected event might deteriorate its prospects. Such an event cannot be predicted through financial statements and the only thing a user can do is to make prediction from past data assuming that the existing trend with regard to several economic figures will persist in the future (Maines et. Al., 2006).

Secondly, financial statements are subject to accounting manipulation. Managers many times try to distort the financial picture of a firm to external users so that they attract more investors, borrow under favorable terms, prevent the sharp decline of a stock, pay lower taxes e.t.c. During the last decades, firms which proceeded into accounting manipulation received heavy penalties and therefore the trend to distort the financial position of a company for obvious reasons, has weakened. However a company due to the nature of accounting, has always the potential to mislead users and at the same time be consistent with the accounting standards. The user should always be aware of the warning signs of accounting manipulation (Barth et. Al., 2006).

Another problem with financial statements is that although they provide critical economic data of quantitative nature, they do not provide qualitative data. An analyst or investor should be aware not only of quantitative data / economic figures but of the qualitative characteristics of the firm such as its strategy, the style of leadership, its relations with its stakeholders, its corporate governance, the competencies of managers, the degree of their accountability to investors e.t.c.

The objective of our dissertation is to examine the position of Elval company in the aluminum sector and the strategies it has been developing to enhance its competitive advantage. We are also going to use ratio analysis to assess the financial condition of the company together with its competitors. In this way we can compare the company with its competitors in the European Aluminum market. As a part of our methodology we are going also to use the z score index to calculate the company's financial strength and the probability of default. To identify the company's external and internal environment we are going to use PESTLE, SWOT and PORTER ANALYSIS. Though our analysis, we shall be able to assess the company's readiness to deal with the upcoming developments in this rapidly growing sector. The present analysis is very important since we examine a company that is a global leader in the aluminium and copper processing industry, operates in a very promising sector with major contribution to Greece's exporting activity.

2. Methodology

2.1 Ratio analysis

Ratio analysis consists of the construction of financial indices, which are based on the elements of the financial statements. In this way an investor can acquire precious information with regard to the profitability, solvency, effectiveness and liquidity of the company. Ratio analysis, exhibits plenty of advantages since the indices can be easily computed and give a representative picture of the financial situation of the company. Additionally, the company can be compared with competitors and its performance can be evaluated through time.

Ratio analysis however, exhibits several disadvantages as well. Since it depends on financial statements, its disadvantages are associated with the weaknesses of financial statements. The specific analysis is vulnerable to accounting manipulation and it has poor predictive value. Additionally, it is static in nature (CFA, 2009).

Liquidity ratios attempt to assess the liquidity of a company. The current ratio is derived by the ratio of current assets to current liabilities. The specific ratio shows the potential of the company to meet its short term obligations through its current assets. A ratio higher than 1,5 is considered to be satisfactory.

The acid ratio, is derived by the ratio of current assets minus inventory to current liabilities. The specific ratio does not take into account inventories since the latter many times cannot be easily liquidated. A ratio higher than 1, is considered to be satisfactory (CFA, 2009).

The cash ratio, is derived by the ratio of cash to current liabilities and shows the ability of the firm to meet its current liabilities, that is liabilities that expire in less than one year, with its cash. A ratio higher than 0,5 is considered to be satisfactory. We should point out, that what is considered to be satisfactory and what not, depends on the industry the firm operates in. This applies for all ratios.

The cash conversion cycle, shows the time that elapses from the firm's purchases from suppliers to the conversion of the products to cash. The index is derived by the sum of days

receivables and days inventory minus days suppliers. A small value of this index, indicates that the firm is unlikely to face financial gaps (CFA, 2009).

Solvency ratios, refer to the firm's capital structure that is to the composition of debt and equity. The most popular indices, are debt to total assets and debt to equity. If a firm has high borrowing, than it realizes, tax advantages and return on equity increases. At the same time however, the cost of debt and equity increases and the conflict between debt holders and shareholders intensifies. The firm should borrow up to the point, where the marginal benefit from increased borrowing is equal to the marginal cost (CFA, 2009)

The interest coverage ratio, is derived from the ratio of earnings before taxes and interest to interest expenses. A high ratio indicates that a company responds to its loan obligations.

Profitability ratios, refer to the company's potential to generate profits. The net profit margin, is derived from the ratio of net income to sales and shows how effective are sales in generating profits. The gross profit margin, is derived by the ratio of gross profits to sales and shows how big is the gross profit in comparison to sales.

Return on equity, shows the return shareholders realize with regard to net income and is derived from the ratio of net income to total equity. The specific ratio can be decomposed according to the Du Pont equation to the product of net profit margin, asset turn over and financial leverage. The specific equation shows the factors that can affect return on equity. For example if a firm wants to increase the examining index it can increase asset turn over.

Return on assets, shows the combined return shareholders and debt holders realize and is derived from the ratio of net income plus interest expenses to total assets. Interest expenses are added since they represent debt holders' income.

Activity ratios show how efficiently a company utilizes its assets. The receivables turn over ratio is derived from the ratio of sales to receivables and shows how many times per year receivables are renewed. A high ratio indicates that the company collects its receivables frequently. The days receivable is derived from the ratio of 360 to receivables turn over ratio. A high ratio shows that it takes a lot of time until the customers pay their debt and in this case the company is not efficient in collecting its receivables and a liquidity crisis can emerge.

The inventory turnover ratio shows how frequently inventories are renewed during the fiscal year. The specific index, is derived by the ratio of cost of goods sold to inventories. A high ratio, means that the company sells easily its products. However a relatively low ratio, is not always bad since the company should keep extra inventories so that it is able to respond to unexpected increases of demand. Generally speaking, the optimal level of inventory is determined by the cost of not meeting demand, by the storage cost and by the cost of ordering new inventories. If for instance the storage cost is high and order cost is low, the company will be prone to keep low inventories. The days inventories is derived from the ratio of 360 to inventory turnover ratio and shows how much on average inventories remain in the warehouse. A low index, is always desirable since this means that inventories are easily liquidated.

The suppliers turnover ratio is derived by the ratio of cost of goods sold to suppliers. A high ratio means that the company orders frequently supplies from its suppliers. The days suppliers ratio, is derived from the ratio of 360 to supplies. A low ratio means that the company delays to repay its suppliers but on the other hand it reduces the probability of a financing gap.

The asset turnover ratio, shows the ability of the company to generate sales from its assets. A ratio closer to one is considered desirable. If the ratio is low, this means that the company has invested too much in fixed and current assets, based on the sales it makes.

Investment ratios are used for valuation purposes. The price to earnings ratio is the most popular investment ratio used and shows us how many years an investor needs to get his capital back assuming that profits will remain stable. A low p/e ratio does not necessarily mean that the stock is attractive. It might imply that investors avoid the stock because they fear a default. By the same reasoning a high p/e does not mean that the stock is overvalued and should be avoided. In this case investors might expect a big rise in profits and therefore they exhibit high demand for the stock, something which results in the high price earnings ratio. If profits indeed increase as investors expect, then the p/e will naturally drop.

2.2 Z - Score

The objective of our methodology is to evaluate the financial position of Elval by using ratio analysis. We are going also to use trend analysis to see how basic economic figures evolved through time. The ratio analysis despite its disadvantages which we mentioned in a previous section is very useful in assessing how financially healthy is a firm.

In our ratio analysis we are going to use the liquidity, solvency, profitability and investment ratios we mentioned in the theoretical part of our dissertation. The period examined is that of 2014 – 2019 and apart from Elval's financial indices, those of its competitors will also be computed.

The z score also will be calculated. The specific index is used to predict the probability that a company will go bankrupt during the next 2 years. The formula of the index is based on elements from the balance sheet and the financial statements.

The z score is calculated by the formula

$$Z = 1,2 * \text{Working capital} / \text{total assets} + 1,4 * \text{Retained earnings} / \text{total assets} + 3,3 * \text{EBIT} / \text{total assets} + 0,6 * \text{market value} / \text{total assets} + 0,99 * \text{total sales} / \text{total assets}.$$

If the index is smaller than 1,81 then the company is on the verge of financial distress. If $1,81 < z < 2,99$ the company stands on the grey zone and is likely to encounter financial problems within the next years. If $z > 2,99$ the company is financially healthy and is unlikely to have financial problems in the future.

We are going also to perform ratio analysis for 2 other big companies that operate in the European aluminum industry such as Hydro and Constellium. Apart from calculating the financial ratios for these 3 companies we are going to present in the relevant diagrams how they evolved during the period 2016 – 2020.

3. An Overview of the Aluminium Industry

3.1 The Aluminium Industry Worldwide

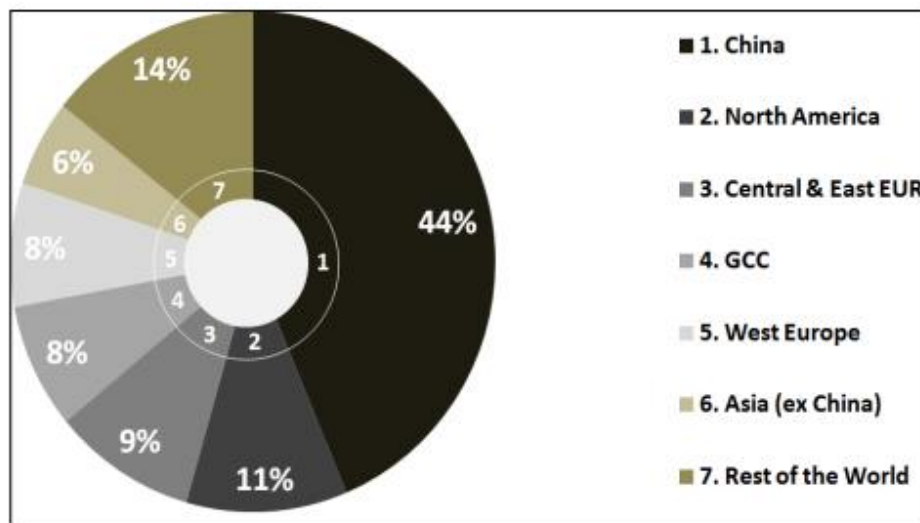
Aluminum is the third most abundant element in nature and comprises 8 % of the earth's crust. Nowadays, more aluminum is produced than all the other metals combined. The specific element is light, strong, durable and quite easy to recycle. It can be used in a wide range of fields but the three most prominent ones, are transportation, packaging and construction and electrical tools (Batachrisna et. Al., 1996).

The manufacturing process of aluminum consists of three stages. During the first stage the bauxite ore is mined and cleaned. During the second stage, alumina is refined from the ore by using the well known Bayer's process. At the third and last stage aluminum production is smelting the alumina into aluminum.

During the last decades the aluminum industry has experienced significant changes. About 40 % of the bauxite production takes place in Brazil, India, Russia and China, while the alumina output has shifted away from industrialized economies to countries which have in abundance bauxite. The reason for the shift of primary production to less developed economies is attributed to the increase in energy prices and to the implementation of specific government policies. The world's most important producer is China which produces the 45 % of the total world production (Dutta et. Al., 2016).

In the diagram below, we demonstrate how the production of aluminum was distributed amongst the countries for the year of 2012.

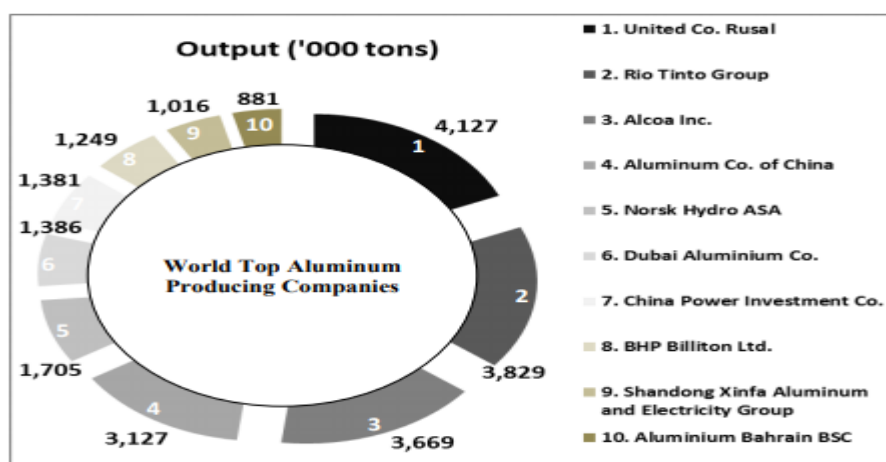
Diagram 1. Distribution of aluminum production



Source : Gupta et. Al., 2016

In the diagram below we demonstrate the top world company producers of aluminum for 2013

Diagram 2. Top producers of aluminum worldwide.



Source : Bloomberg

There is a tendency for aluminum to replace steel in the aerospace and automotive industries. The extensive use of this element in several industries, is attributed to its ability to get recycled. More than 90 % of aluminum that is used in the construction and automotive sector, is recycled and it has been estimated that 75 % of the aluminum that has been produced in the past is in circulation today.

Aluminum is rarely found in its elementary form and therefore it has to be extracted from minerals in ores. At the year of 2016, 289 millions of tones of bauxite ore were mined and 118 millions of tones of alumina were produced while 58 million of primary aluminum was smelted. The specific figures are expected to keep rising due to advancements in aluminium alloy metallurgy, to population increase and to the surge of economic activity. These factors will trigger higher demand and analysts predict that demand by 2025 will double compared to demand in 2016. Other analysts who are more conservative in their predictions, expect that demand by 2050 will have doubled (Brough, 2020).

The aluminum industry, is closely related to the steel industry. While the latter dominates the ferrous metals category, aluminium is considered to be the most significant non ferrous metal that is used in the construction sector. The smelting of alumina into aluminum ingots is the most energy intensive industrial process in the world and its energy intensity is ten times higher than that of steel.

There are several factors influencing the price of aluminum. One of them is the cost of electricity since aluminum is very energy intensive. Another factor, is the transportation cost since aluminum has to be transported in various destinations. Raw material prices of aluminum depend also on the economic conditions of the industries the particular metal is used, such as construction, automotive, transportation e.t.c. The price of aluminum, depends also on the situation of the global economy since aluminum is incorporated in products or in other words serves as an input for which there is global demand. During the last years, the price of aluminum has been affected by the growing exports of raw materials from China. Increased exports have resulted in an increase of supply, causing therefore the price to drop. The price of aluminum, is also affected by speculators who aim at realizing capital gains and create a momentum in the market either positive or negative. When speculation is observed, then the price of aluminum obviously deviates from its fair value, that is it is not representative of the real conditions of supply and demand which are supposed to primarily

determine the price. Finally factors than can determine the price are the climate changes that have been taking place in the planet. When extreme weather phenomena occur, then there are disruptions in the relevant supply chain and the price of aluminum will naturally be affected (Wzorek, 2017).

As we mentioned earlier, aluminum serves as a significant material in manufacturing. Attributes such as lighter weight and greater connectivity properties are affecting demand. The specific material is also used in fitness and sports equipment such as exercise machines, baseball nets and archery equipment. Increasing application scope in durable and consumer goods is expected to determine the industry's growth rates.

The health crisis has caused strict lockdowns in many countries something which in turn has resulted in disruptions in the supply chain affecting therefore producers who rely on regional transportation rules. Many manufacturers are not vertically integrated, which means that they did not receive the product in time causing therefore shortages in the market. Additionally, demand was also negative affected as a result of the global economic slow down. Due to the restrictions in transportations there was a drop in automotive sales affecting negatively demand for aluminum which serves as an input. The market is expected to recover in 2021 and until 2027 the extruded product segment is expected to grow each year by 5 %. The Asia Pacific countries will attain a dominant share in the market and 2027 it is projected that the value of the market will exceed 210 billion dollars (Ajuha, 2020).

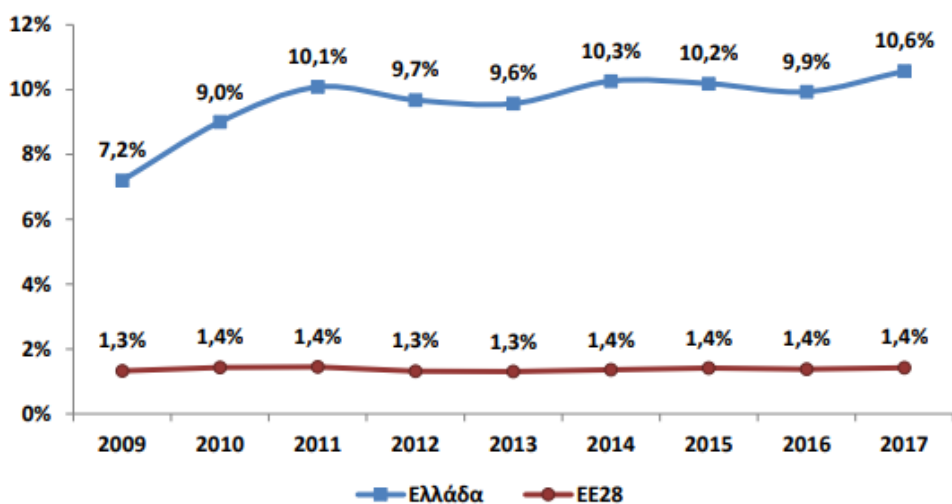
Demand in the extruded sector will rise amongst other due to the increasing incentives of owners of building that are equipped with photovoltaics to employ aluminum extrusions. Extruded products have a wide scope of applications such as high conductivity of heat and electricity; air conditioning, radiators, heatsink, and electronics. The extrusion product growth will be propelled from high demand for airconditionings and power generation devices.

3.2 The Aluminium Industry in Greece

In Greece, the aluminum industry is vertically integrated and it includes activities that range from the mining of bauxite to the production of industrial and consumer goods. The exploitation of bauxite in Greece started taking place in the 60s from the company of Alluminum of Greece. Since then, the industry has been considerably grow contributing also to the overall Greek exporting activity. The examining industry could significantly contribute to the growth of the Greek economy since it has significant linkages with other sectors of the economy. The European Union has set a target for the aluminum industry to account for the 20 % of the European GDP (IOBE, 2019).

The aluminum industry has significantly contributed to the exporting activity of Greece and in turn to the improvement of the trade balance. The exports of aluminum account for the 10 % about of total Greek exports while the corresponding figure in Europe is only 1,5 %. This can be shown in the diagram below

Diagram 3. Share of aluminum in total exports



Eurostat 2013

The aluminum sector has significantly contributed to the Greek GDP both in a direct and indirect way. It has been estimated that the examining industrial activity has contributed to the GDP by more than 4,3 billion euros in 2018 or up to 2,3 % of the total GDP. The direct

impact has been estimated to be 1,1 billions euros, the indirect impact was 1,3 billion euros while the impact associated with the creation of income from the employees working in the sector was estimated to be about 40 % of the total impact. In terms of employment, it has been estimated that there were about 80.000 job positions in the sector.

At this point we present a swot analysis regarding the aluminum sector in Greece.

STRONG POINTS

- Significant availability of raw material
- Sustainable material
- Effective supply chain
- Innovative and certified products
- High exports
- High global demand for Greek products

WEAK POINTS

- Existence of energy intensive activities
- The economic crisis in Greece has not yet been totally over
- Problems in the industry sector
- Intense competition by non developed countries
- Trade wars

Opportunities

- The economies have cyclical characteristics
- The European industry is growing
- New markets have been emerging
- New products are being produced with a high added value
- There is a tendency for an increase in energy efficiency
- The Greek economy will benefit from the European funds

Threats

- The cost of emission rights might increase
- The banking system is still unstable
- Imports of cheaper products with lower quality
- The impact of trade wars

In order for the contribution of the aluminum industry to GDP to increase several suggestions have been made such as :

- Transformation of the energy market in Greece into a more competitive one
- Implementation of new tools which will ensure the stability of energy contracts
- Provision of incentives aiming at saving up energy in buildings
- Implementation of standards for the recycling of high quality aluminum
- Efficient use of raw materials
- Taxing of aluminum imports
- Regulation of the business environment aiming at the promotion of innovations
- Impose of stricter standards in public procurement
- More effective protection of intellectual property
- Adoption of strategies that will offer protection from trade wars
- More beneficial relationships with trading partners

4. Financial Statements

4.1 Basic financial statements and advantages and disadvantages

The financial statements, refer to the balance sheet, the income statement and the cash flow statement. Users such as analysts, investors, borrowers, the government e.t.c aim at evaluating the financial position of a company. The balance sheet shows the assets and liabilities of a company including equity. According to the accounting equation total assets are equal to foreign capital plus equity. Total assets are classified to non current assets which cannot be easily liquidated and to current assets such as cash, receivables and inventory. Foreign capital is classified to long term and short term obligations. Equity consists of share capital, par value and retained earnings (CFA, 2009)

Financial statements are publicised at regular intervals are conducted according to specific accounting principles and aim at providing to users an overall picture of the company's financial situation. The introduction of widely accepted accounting standards has resulted in the mitigation of creative accounting and to the easiest comparison of the financial situation amongst firms (CFA, 2009).

The income statement shows, the way net profit is calculated. The latter is derived from the sales minus cost of goods sold, minus operating expenses, minus depreciation, taxes and interest and minus taxes. Many times analysts prefer to use the EBITDA figure since it is less affected by accounting manipulation techniques.

The cash flow statement, shows the cash inflows and outflows in a year and the cash flows are classified into operating, investing and financing cash flows. When a company purchases or sells an equipment then the corresponding cash flows are classified in the investing cash flows. When a company pays dividends, issues stocks, borrows or lends, then the corresponding cash flows refer to the financing cash flows. Sometimes dividends and interests paid or received are classified to more categories, depending on which accounting principles we use. The operating cash flows can be calculated through the indirect method and according to the formula net profit plus depreciation, minus change in working capital (CFA, 2009).

The financial statements can provide crucial information with regard to the profitability, liquidity, capital structure, fixed cost, profit margin, e.t.c of the company. However, someone should have in mind that he will not derive entirely accurate information regarding the financial position of the company due to the disadvantages financial statements have.

One disadvantage, is that financial statements include quantitative but not qualitative data which can be equally important. Investors and analysts are not only interested in economic / monetary figures but in other aspects of the company such the effectiveness of management, the skills of employees, corporate governance, quality of products, working environment e.t.c. For instance, the balance sheet of a company might deteriorate temporarily but if the company has a proven record of successful management, then investors will not be discouraged from investing since they will be convinced that the company's management will overcome the difficulty (Liu, 2016).

Another advantage of balance sheet, is that it has poor predictive value. Financial statements reflect the company's current financial situation and they cannot take into account future events that can affect positively or negatively a company. For instance, a company might present excellent financial statements but an unexpected incident such as a negative market shock might deteriorate the company's figures rendering the financial analysis previously made rather useless since now the corporate and market environment is different. After all, someone invests in a company not for its current financial situation but for its future financial / economic condition (Liu, 2016)

Several researchers however, had claimed that someone can predict a company's future trend / stock return. This happens for stocks which have a good quality of earnings. In this case, earnings are persistent and do not exhibit high volatility. Present earnings are indicative of future earnings meaning that they embody predictive value. Additionally, the z score has been invented during the 70s, based on which someone can predict the probability of a firm's default over the next 3 years. The z - score has managed to predict a lot of bankruptcies and despite its inherent weaknesses it is still widely used. The specific index is based on key economic variables such as liabilities, sales, total assets, current assets, earnings before interest and taxes, market capitalization e.t.c. In later sections we are going to examine the specific index in more details (Penman, 2005).

A major disadvantage of financial statements, is that many components of the balance sheet are measured at historical cost. Such a thing, can be misleading with regard to the true value of the assets, since the latter appreciate through time particularly in periods of high inflation. Accounting standards however, allow for the reconsideration of the value of fixed assets where in this case, they are reported in their fair value. The problem, is that many companies present their fixed assets in their fair value and if they do so, they might not use reliable and accurate valuation techniques (Liu, 2016).

Another problem, is that financial statements can be subject to accounting manipulation. In this case, managers distort financial statements so that they present to users a more healthy company financial position and in turn attract more investors. Accounting manipulation, has been mitigated due to the adoption of international accounting standards and to the creation of a strict legal framework. However, there is always a potential for creative accounting without the company violating the existing legal framework. In the following section we analyze more extensively the concept of accounting manipulation.

4.2 Accounting manipulation

Accounting manipulation as we mentioned earlier, is associated with the distortion of financial statements aiming at misleading investors. Managers also distort financial statements when their salary is linked to the performance of the company. Therefore if the company presents high earnings, then manager's salaries will be high as well. Another reason for which accounting manipulation takes place is when a firm desires to get a loan and it has to convince lenders that it has high solvency ratios. Managers engage also in accounting manipulation, when the company is on the verge of distress and they want to secure their reputation (Akpanuko et, al., 2019)

There are several signs which can point to accounting manipulation. These signs are the following (CFA, 2009):

When the firm sells mainly on credit. In this case, it might sell to customers with low solvency so that to boost sales. However if customers do not respond to their debt obligations, high bad debt expenses will occur resulting in lower profits.

When the firm capitalizes its expenses. In this case, the firm records an expense on the balance sheet instead of recording it on the income statement. The purpose for such a practice, is to delay full recognition of the expense and therefore increase short term profits.

When the firm has a lot of extra profits. An investor is mainly interested, in operating profit. An extra profit might enhance the firms profitability, but only temporarily. What really matters, is the sustainability of profitability.

When profitability exhibits high volatility. In this case, profits alternate with losses and the other way round. A firm might deliberately present high losses, so that it avoids tax payments. This sign of accounting manipulation will be even stronger if the extreme volatility in earnings is not accompanied by a similar volatility in sales.

When a firm has much higher intangible assets compared to tangible assets. In this case, total assets can be quite high due to the existence of patents the value of which however might determined by entirely subjective criteria. Additionally, tangible assets serve as a safety net in case a company defaults, since they can be liquidated in the market.

If the firm changes frequently its inventory valuation methods. Inventories are mainly valued according to the FIFO, LIFO and weighted average method. The way a company values its inventory will affect the cost of goods sold and in turn net profits. If for example there is high inflation where inventories appreciate through time , the implementation of the FIFO method will yield higher profits.

If the company uses different depreciation methods from time to time. In this case and depending on the depreciation method employed, profits will be affected since depreciation represents an accounting expense. For this reason, analysts many times prefer to use EBITDA as a measure of financial performance, since it does not include depreciation. A firm for instance, might use the declining method of depreciation so that it recognizes high expenses in the short term and in turn pay less taxes.

When the firm tends to present many of its assets in their fair value. This practice can distort financial statements since the criteria based on which the company values its assets can be subjective and biased towards overestimating the value of assets. In this case the company will also present many extra profits (as a result of the assets reevaluation) which however will be accounting profits since the company will have not yet liquidated the asset.

4.3 Firm valuation

Financial statements can also be used for firm's valuation purposes. The most common valuation method is that of the free cash flow to firm. In this case we estimate free cash flows through the following formula

Free cash flow to firm = net income + depreciation + interests*(1 – tax rate) – change in working capital – capital expenditures.

When valuing a firm usually the free cash flows of the firm for the first 5 years are estimated and then analysts assume that FCFF to firm grow at a constant rate. The problem is how FCFF will be estimated. A quite common method is that of sales percentage. In this case the firms sales are predicted and the other elements of the FCFF are derived by computing the percentage of each element from sales. For example the cost of goods sold in the income statement will be estimated by deriving the past average percentage of sales. In this way all the components of FCFF are computed and the figure of FCFF is estimated. The FCFF are then discounted with the weighted average cost of capital which represents the minimum combined return investors of the firm require to accept an investment. If the return of an investment is higher than the WACC, then the investment is accepted.

The particular method has the disadvantage of making strong assumptions. First the estimation of the WACC will likely not be accurate. Secondly our results will be very vulnerable to changes of the constant growth rate g . Third the estimation of the FCFF through the sales percentage method will probably won't be accurate since the percentages change from year to year particularly for companies which proceed into accounting manipulation. When the value of the firm is estimated through the discount free cash flow method, then the value of debt is subtracted to estimate the value of equity that is the share holders value.

The multiples method, is another way to value a company. In this case the multiples of an industry are calculated such as P/E , P/ BV e.t.c. Then assuming that the company should have the same P/E for instance and by being also aware of the earnings / net income value we can calculate the fair value of the stock. After doing that we can find the value of the

company by multiplying the price of the stock with the number of stocks. The same method can be applied with multiples such as P/E, P/BV , P/Sales e.t.c.

This method has the advantage of being simple and the data required can be easily collected. However when calculating the value of the company we should ensure that the company has similar characteristics with the other companies of the sector. Such a thing rarely happens since despite several similarities amongst the companies operating in the same sector there will definitely be differences in view of the fact that each company represents a unique entity. No matter the similarities elements such as working environment, management style, quality of human capital, brand name, strategy cannot be the same amongst companies.

5. Analysis of Elval Company

5.1 Company overview

Elval has a history of more than 80 years and is a leading global manufacturer of aluminum and now copper products. The company in 2017 merged with Halcor and realized significant synergies on every level such as innovation, technology, research and development infrastructure offering high quality solution to customers in many countries. The company's success is attributed to its commercial export orientation, customer focused corporate culture and to constant investments in research and development.

The examining company possesses a strong production base consisting of 17 industrial units and exports its products in more than 100 countries. Additionally the company has been investing in its human capital and has a highly specialized and skilled personnel.

With regard to its activities the company has significant presence in sectors such as road, sea and transportation, packaging, automotive, heating and refrigeration, building and construction, renewable energy, energy and power networks, water supply and industrial applications <https://www.elvalhalcor.com/who-we-are/overview>.

The company, has created state of the art production facilities and in combination with its dynamic commercial presence it has managed to be well positioned in the global aluminium industry. The aluminium segment consists of the aluminium division and aluminium processing subsidiaries such as Symetal, Elval Colour, Anoxal and Viomal. The aluminium products and solutions offered include coils, sheets and foil for various applications and architectural and industrial aluminium profiles.

Elval has as a vision to represent a benchmark for the global market offering products which are characterised and recognised by their high quality, reliability, competitiveness and innovation. It aims at satisfying specialised needs through the development of diverse and competitive products that are based on new technologies. Another objective of the company, is to act as a reliable business partner and create value for stakeholders. The company's mission, is to predict customers needs and to maximise customer satisfaction. The specific mission, is supported by the investments it carries out and by its commitment to respect its customers' expectations.

In order to establish a corporate culture which will be in line with the objectives it has set, the company's operation relies on certain values such as integrity, respect and innovation. Through integrity the company has managed to create a corporate culture that is characterised by responsibility, honesty, transparency and fairness. It operates to the highest ethical standards and expects its stakeholders to do so. With regard to the element of respect, the company aims at creating an environment of trust, meritocracy, and teamwork offering equal opportunities to all the agents involved with the company. Another concern of the company, is to maintain occupational health and safety creating in this way a safe working environment. It is also concerned with society and local communities and seeks open communication with local communities. A fundamental value, is innovation through which the company offers highly differentiated products that add value to customers and enhance the competitive advantage. Customer value is also one of the company's priorities. The company has built long term relationships with its customers offering to them, consistent and high quality services. Another customer value enhancing strategy is the focus on service and the provision of tailor made solutions. To achieve its goals, the company has embraced also the effectiveness concept. It does so by operating through team work and by acting professionally with dedication to the company. Finally the company has exhibited corporate responsibility by creating value to stakeholders.

Sustainability is a part of the company's business model. Its sustainability model is focused on three pillars such as economy, society and the environment. The company we examine aims at strengthening its exporting base by expanding in several markets and by investing in research and development to keep producing innovative products of high quality. At the same time, the company shows respect towards the environment by implementing environmentally friendly practices in cooperation always with local communities <https://www.elvalhalcor.com/sustainability/strategy>.

At this point we are going to examine several corporate events that have taken place during the last years. In 2015 there was a spin off of the aluminum rolling sector of Elval which was absorbed by Symelal. During the same year, Halcor acquired the commercial activities and distribution network of Reynolds European copper segment in France <https://www.elvalhalcor.com/who-we-are/history>.

In 2016 Halcor gained a leading position among European copper tubes manufacturers. At the same year there was a turnaround in the group's profitability while Halcor in which Elval had the majority of shares, absorbed Corinth Pipeworks and Hellenic Cables <https://www.elvalhalcor.com/who-we-are/history>.

In 2017 Elval was merged with Halcor while one year later the shares of ElvalHalcor, the new merged company, started trading on the Athens Stock Exchange. On the same year the company acquired the asset of Ipirus Metalworks aiming at reactivating the plant's production capabilities and transforming the acquired unit into an exporting one. In May 2018, ElvalHalcor copper tubes division, acquired the 50 % of the Netherlands based NedZink <https://www.elvalhalcor.com/who-we-are/history>.

In 2019, the company carried out significant investment programs by investing 147,7 mil euros in the aluminum segment and 20,1 mil euros in the copper segment. Moreover, new loan agreements were signed up to 73 mil euros so that the company refinances its existing loans and strengthens its working capital base. It also acquired the 100 % of Cable Wires.

The company has managed to create a customer base of about 3.800 customers around the world. It has been adopting a customer oriented approach where particular emphasis is placed on quality, consistency, reliability and prompt response to demand. Additionally, customer needs are constantly monitored so that the company improves the quality of products and service aiming at customers derive maximum satisfaction <https://www.elvalhalcor.com/who-we-are/our-customers>.

5.2 Strategy of the Company

A strategy refers to the means a company uses to achieve its goals. The fact that there are many differences observed amongst companies operating in the same sector, implies that an effective strategy strengthens the competitive advantage of a firm. According to Porter the basic strategies a company adopts referred to as generic strategies are differentiation strategy, cost leadership strategy and focus strategy.

The fundamental aspects of the strategies the company adopts are extroversion and penetration into new markets, constant increase of production capacity, innovation and

R&D, occupational health and safety, support of local communities, responsibility for the environment, implementation of responsible environmental practices and initiation of preventive actions, customer oriented approach and delivery of high quality products.

A strategy the company has been adopting in order to deal with the crisis was that of differentiation strategy where the company tries to modify its products compared to competition in order to have a more inelastic demand. During the crisis, construction activity fell more than 70 % and Elval in order to maintain its sales differentiated its products particularly those that are sold in the automotive industry and one year after the breakup of the crisis it managed to increase its sales by more than 10 % (www. capital.gr).

The company has been also adopting an expansion strategy by investing in new markets. The aim of the company is to increase its revenue and to diversify its activities by investing in different sectors and in different markets. In this way it reduces its risk since possibly losses in a market will be offset by gains in other markets.

A major issue for the company is the energy cost. To overcome uncertainty associated with fluctuations of energy prices the company has signed a long term agreement with PPC where electricity prices will increase every year at a small and predictable rate. Steady pricing is very important for the group since the business environment becomes more predictable and the exporting strategy can be conducted with bigger ease (Protonaroy, 2019).

Elval intends to enter the energy sector and has made the relevant application for the production of 566 MW of electricity energy. The investment is expected to cost 300 mil euro. In case the production unit is finally built the main pit used will be natural gas. Elval is the first industrial client that intends to construct its own production electricity unit and taking into consideration that is the third biggest consumer of electricity after Alluminim of Greece and Larco. The new unit will promote the firm's vertical integration and the latter will be able to satisfy its electricity needs. The quantity of electricity that will not be consumed, sold to electricity wholesalers (Protonariou, 2019).

As far as the extrusion sector is concerned, the company has signed an agreement with Gestamp which is a company that has a leading position globally in the construction of metallic spare parts for the automotive industry. ElvalHalcort intends also to initiate a three

year investment program in Bulgaria, aiming at strengthening even further its position in the automotive industry.

The company has been also adopting the lean production strategy. In this case, the company reduces waste from eight sources such as defective products, overproduction, waiting, non utilized talent, transportation, inventory, motion and extra processing. Therefore, the company is able to respond effectively to issues which are related with production and industrial facilities. Such examples are cost rationalization and increase of productivity. Lean production aims at generating the maximum output by using the least amount of resources such as raw materials and labor hours.

It is very interesting to examine the business model Elval has been adopting. Each company wants to adopt a business model that will increase its revenues and profits. The Ansof matrix represents a very useful tool which allows to a company view the options it has to expand. Through the examining tool, a company can also assess the potential risks associated with each option.

The examining matrix known also as product / market expansion grid, shows four strategies a company can employ so that it grows. Additionally the risk linked to each strategy are analyzed and each time the company moves from one quadrant to another risk increases. In the diagram below we demonstrate the Ansof Matrix.

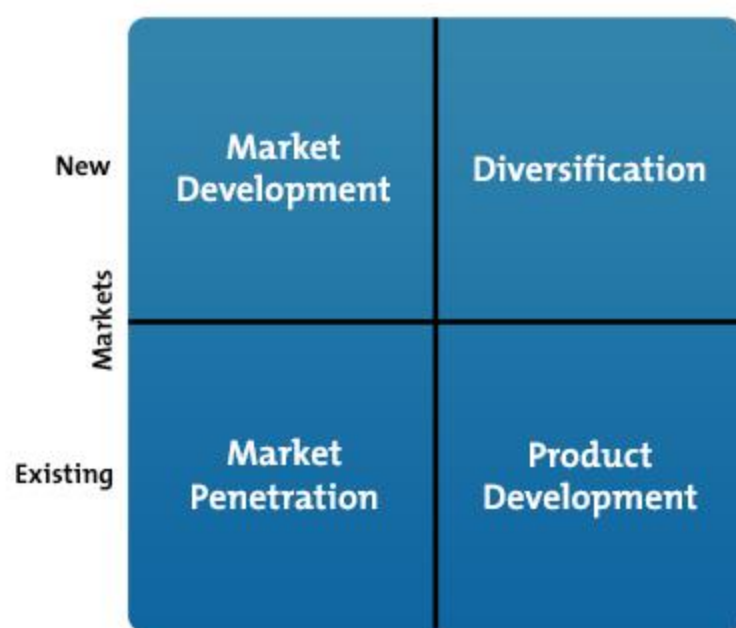


Diagram 1. Ansof Matrix

Market penetration is located in the lower left quadrant and represents the safest option. In this case the company aims at increasing its sales by expanding an existing product into an existing market. Elval has been adopting this strategy to a big extent.

Product development is located in the lower right quadrant and represents a slightly riskier strategy since the company develops a new product into an existing market. The company has been adopting this strategy to a big extent.

Market development is located in the upper left quadrant and in this case an existing product is promoted to an entirely new market. Elval has been adopting this strategy to a big extent since it has expanded in many foreign markets.

Diversification is the located in the upper right quadrant and is the riskiest compared to the previous options. In this case an entirely new product is promoted in a new market. This strategy has not been adopted by Elval.

Generally speaking, Elval has been adopting an internalization strategy by expanding into new foreign markets. The specific strategy has the advantage of allowing a company to overcome the restrictions of the domestic strategy and to increase its geographical diversification. The disadvantage is that it enters into new unknown markets running therefore the risk of poor adjustment to the new market conditions (Tzortzakis, 2010).

An internalization strategy can take place through exports. In this case the company exports the products and is not deeply involved in the market. The risk it undertakes is moderate. Elval's exporting activity is very high. A company can also expand abroad, through the acquisition of foreign companies. The advantage of this strategy is that it gains more knowledge of the market while the disadvantage is that acquisitions are not always successful due to different corporate cultures. As we saw earlier, Elval has been implementing this strategy to a big extent. Finally a company can expand abroad through the creation of a new production unit abroad. Such a strategy has the benefit of offering to a company a high control of the new market but the disadvantage is that the company incurs a high cost. Elval has not built production facilities abroad.

5.3 SWOT Analysis

In this section we perform a swot analysis for the company of ELVAL by identifying its strengths, weaknesses, opportunities and threats.

Strengths

- The company has a leading position in the sector
- The company has sufficient flexibility to effectively respond to the customers' changing needs.
- The company has managed to acquire the adequate certificates in order to switch to products of high adding value
- The company used technologically upgraded equipments
- The company has carried out an investment which has considerably increased its capacity.
- A big percentage of its sales such as almost 70 % takes place abroad which means that the company through its exporting activities has managed to overcome the limitations of the domestic market.
- The company has managed to sign strategic partnerships

Weak points

- The company participates in many companies
- Elval has a high debt to equity ratio
- The company has been reorganizing its operations due to the crisis

Opportunities

- Global demand for aluminum is expected to rise considerably in the future
- The company has significant opportunities to expand into new fast growing markets
- Companies operating in this sector are expected to receive financing from the European Union

Threats

- The aluminum sector in Greece has been weakening
- The company faces exchange rate and interest rate risk

6. Overview of Competitors in Europe

We begin first with an overview of the European aluminum industry. The European aluminum industry exhibits a significant competitive advantage which stems from the technological leadership of the downstream segments. The latter accounts for roughly the 70 % of the annual turnover of EU aluminum industry. During the last years the examining industry has experienced substantial structural changes the most important of which was the decline of primary production. Rising dependency on imports and strong competition from third countries are factors that have been affecting the competitiveness of the industry particularly in downstream activities. Additionally, the trade balance in all segments of semi – finished products has deteriorated during the last 20 years. EU tariffs on unwrought aluminum have turned out to be non effective while at the same time they incur extra costs to downstream transformers. The specific cost has been estimated to be 18 bil euros for EU downstream producers during the period 2000 to 2017. Import tariffs at the same time have increased revenues of EU primary and secondary recycling producers (Casseta et. Al., 2019).

At this point, we report the main competitors of Elval in the European market.

Constellium has its headquarters in Holland and is one of the key players in the European rolling industry offering high value added aluminum products and solutions for the aerospace, automotive and packaging markets. Owing to the company's advanced aluminum solutions the global automotive manufacturers are able to produce lighter, safer and more fuel efficient vehicles which additionally provide cost benefits to every kind of aerospace companies.

Within a one year time frame, the examining company can ship more than one million tones of packaging and automotive rolled products. According to the company's report,

packaging and automotive rolled products amount for more than 50 % of total revenue. Aerospace and transportation amount 25 % and automotive structures and industry 21 %. Hydro represents a leading industrial company which builds businesses and partnerships for a more sustainable future. The company was founded in 1905 and since then it has turned natural resource into valuable products for people and businesses creating in this way a safe and secure workplace for 30.000 employees in more than 140 locations around the world (Sengupta, 2018).

Today the company owns and operates various businesses and has investments in sustainable industries. Additionally, it operates in a wide range of market segments for aluminum, energy, metal recycling, renewable and batteries and offers a unique wealth of knowledge and competence.

Arlo is located in Romania and it is one of the largest vertically integrated aluminium producers by production capacity in Europe. Its processing capacity of processed aluminium products includes coils, sheets, plates and profiles. The company during the last years has been carrying out investments aiming to reach a production capacity of 120.000 tones by the end of 2022. The company's products are graded by thickness and they are used by customers to produce end products such as boxes, panels, mechanical parts, tools and white goods. In this case we refer to products in which mechanical and corrosion characteristics are advantageous and for which the low weight of the material plays a vital role (Sengupta, 2018).

Aludium represents a dynamic entity in aluminium rolling. The specific company is engaged with the distribution, building and construction and special featuring products. The examining company might be a new entrant in the industry, but owing to its effective management, it has managed to earn a strong reputation as a leading supplier in the European and global markets. Ever since it was founded, the company has carried out an investment plan of up to 60 mil euros and these investments have generated considerable competitive advantages. The company has exhibited a remarkable growth of more than 50 % since its foundation and its workforce consists of more than 1000 employees (Sengupta, 2018).

Impol is based in Serbia and the rolled products it produces, include foil and thin coils, cold – rolled coils, disks and stamped shapes. The specific products are produced in 3 different countries. The company supplies the rolled products to sectors such as the

automotive, defense transport, food and pharmaceutical sectors. It has also managed to penetrate in the aircraft industry by participating in the manufacturing of space technology (Sengupta, 2018).

7. Results

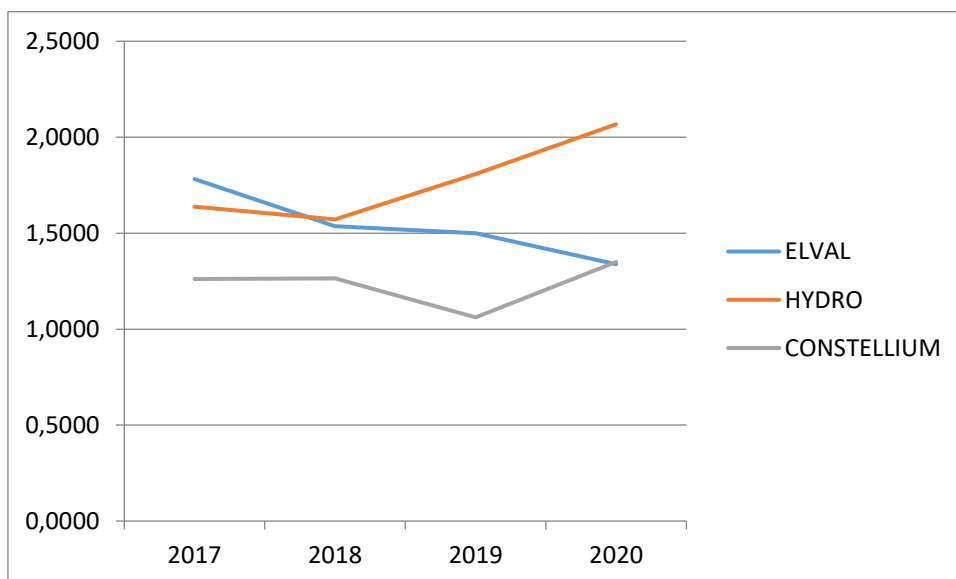
7.1 Liquidity Ratios

One of the most important liquidity ratios is the current ratio. This ratio is formulated as:

$$\text{Current ratio} = \text{Current Assets} / \text{Current Liabilities}$$

The Current ratios for the period 2017 to 2020, for the selected three companies of European aluminium segment were:

Current Ratio				
	2017	2018	2019	2020
ELVAL	1,7820	1,5365	1,4990	1,3384
HYDRO	1,6387	1,5719	1,8075	2,0674
CONSTELLIUM	1,2613	1,2651	1,0613	1,3499



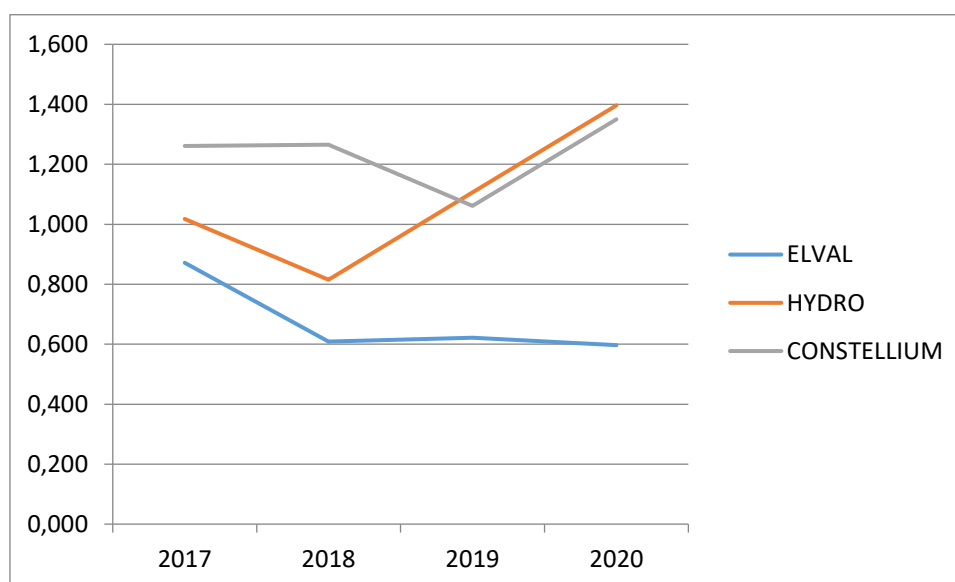
We can observe that Hydro exhibits the highest current ratio through the examining period. Moreover the current ratio of Elval has been declining over the last 4 years. The index for Constellium is relatively low.

Another liquidity ratio is the acid-test ratio which exempts assets that may be difficult to liquidate. This ratio is formulated as:

$$\text{Acid-Test Ratio} = (\text{Cash \& Cash Equivalents} + \text{Accounts Receivables} + \text{Marketable Securities}) / \text{Current Liabilities}$$

The Acid-Test ratios for the period 2017 to 2020, for the selected three companies of European aluminium segment were:

ACID TEST RATIO				
	2017	2018	2019	2020
ELVAL	0,872	0,608	0,622	0,597
HYDRO	1,02	0,81	1,11	1,40
CONSTELLIUM	1,26	1,27	1,06	1,35



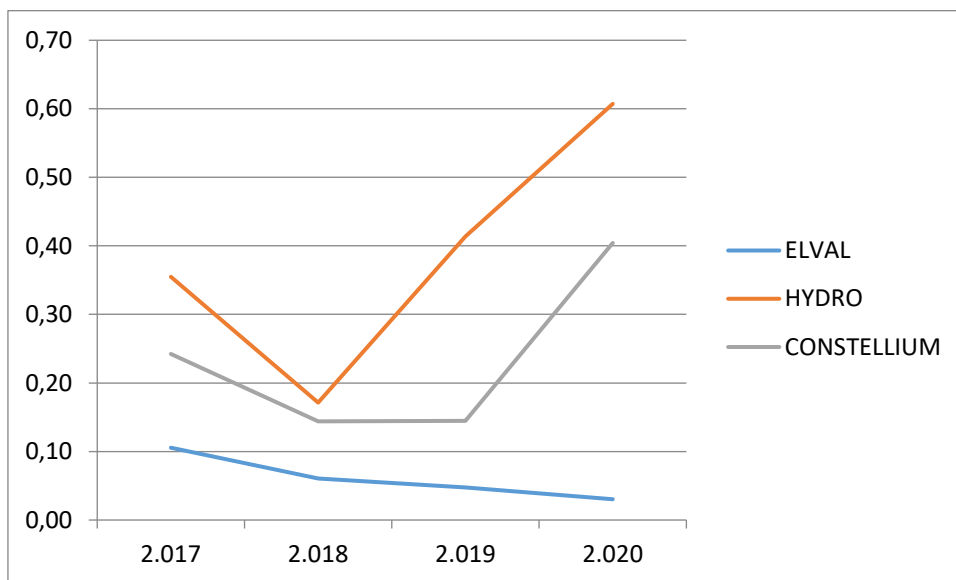
We can observe that Elval has the lowest acid ratio which ranges at levels well below 1. The acid ratio for Hydro has been improving over the examining period while Constellium has the highest ratio.

Cash ratio is another liquidity ratio. This ratio is formulated as:

$$\text{Cash Ratio} = \text{Cash \& Cash equivalents} / \text{Current Liabilities}$$

The Cash ratios for the period 2017 to 2020, for the selected three companies of European aluminium segment were:

Cash Ratio				
	2017	2018	2019	2020
ELVAL	0,11	0,06	0,05	0,03
HYDRO	0,35	0,17	0,41	0,61
CONSTELLIUM	0,24	0,14	0,14	0,40



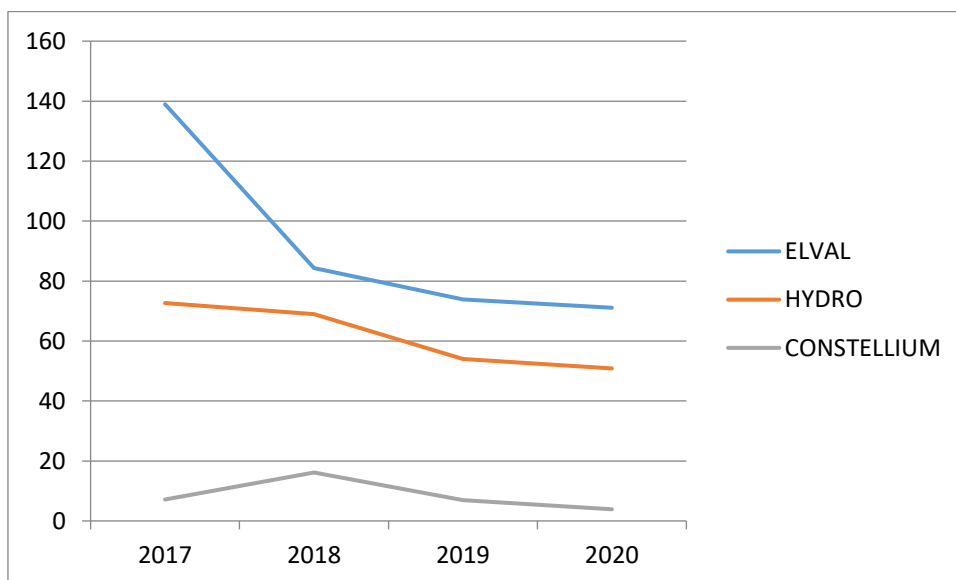
ELVAL has the lowest cash ratio. The specific index for Hydro and Constellium has improved over the last 2 3 years.

The Cash Conversion Cycle is formulated as:

$$\text{Cash Conversion Cycle} = \text{Days Inventory} + \text{Days Receivables} - \text{Days suppliers}$$

The cash Conversion cycles for the period 2017 to 2020, for the selected three companies of European aluminium segment were:

Cash Conversion Cycle (in days)				
	2017	2018	2019	2020
ELVAL	138,9544	84,27486	73,84522	71,09184
HYDRO	72,6564	68,93384	54,05021	50,84507
CONSTELLIUM	7,1353	16,14269	6,96287	3,87877



We can observe that Elval has the highest cash conversion cycle index while Constellium has the lowest one.

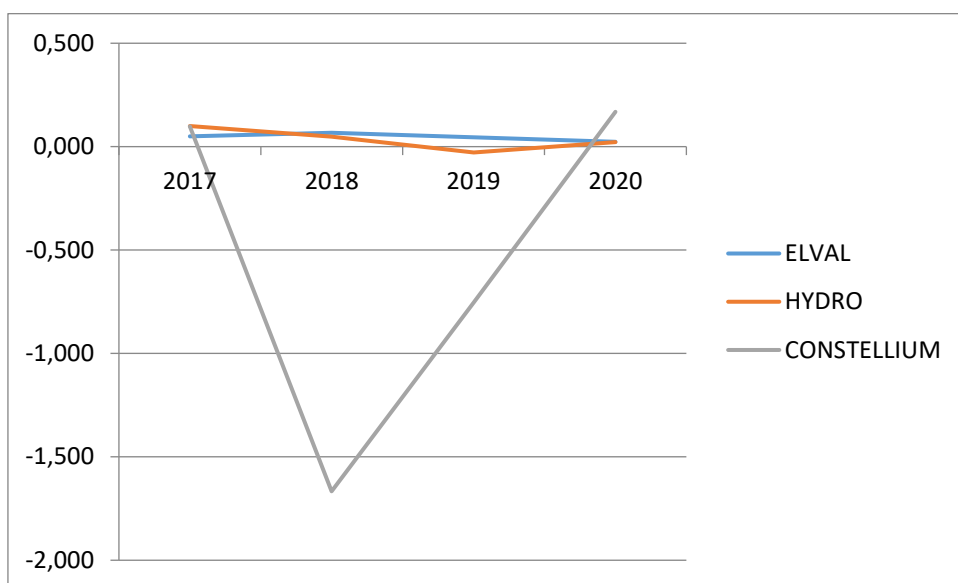
7.2 Solvency Ratios

The Debt to Equity Ratio is one of the financial leverage ratios. It is formulated as:

$$\text{Debt to Equity Ratio} = \text{Total Liabilities} / \text{Total Shareholders' Equity}$$

The debt to equity ratios for the period 2017 to 2020, for the selected three companies of European aluminium segment were:

Debt to Equity Ratio				
	2017	2018	2019	2020
ELVAL	1,022	1,066	1,082	1,195
HYDRO	0,771	0,783	0,955	1,123
CONSTELLIUM	-12,633	-35,219	-50,224	-41,881



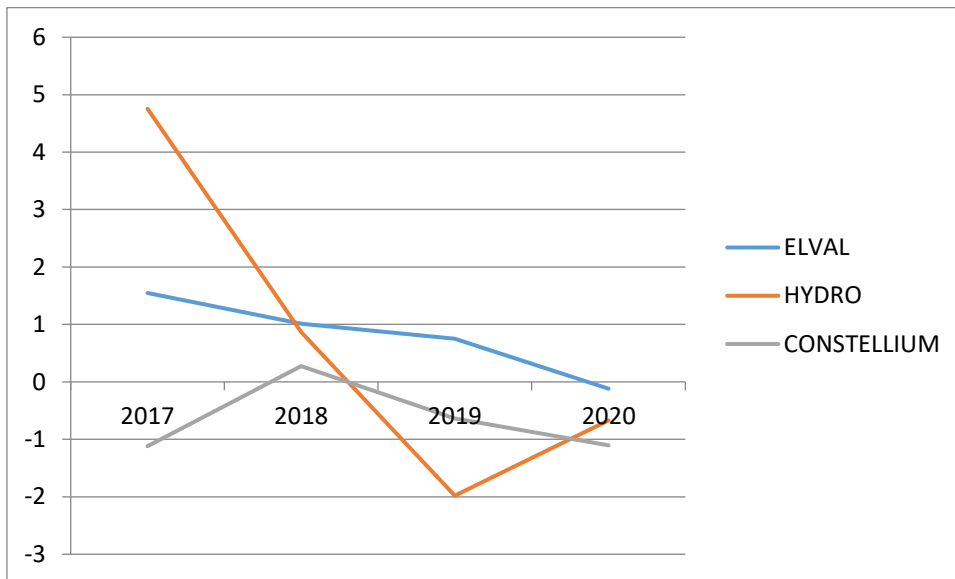
Elval has a balanced capital structure while Hydro has increased its borrowing during the last years. Constellium has negative equity due to accumulated losses.

Another leverage ratio is the Interest Coverage Ratio. It is formulated as:

$$\text{Interest Coverage Ratio} = \text{EBIT} / \text{Interest Expense}$$

The interest coverage ratios for the period 2017 to 2020, for the selected three companies of European aluminium segment were:

Interest Coverage Ratio				
	2017	2018	2019	2020
ELVAL	1,54771	1,01186	0,74899	-0,11868
HYDRO	4,75439	0,86739	-1,97934	-0,66886
CONSTELLIUM	-1,12	0,28	-0,63	-1,11



We can observe that the index for ELVAL is low and gradually deteriorates. As far as Constellium is concerned, the index is negative while with regard to Hydro company it ranges at satisfactory levels and then it deteriorates.

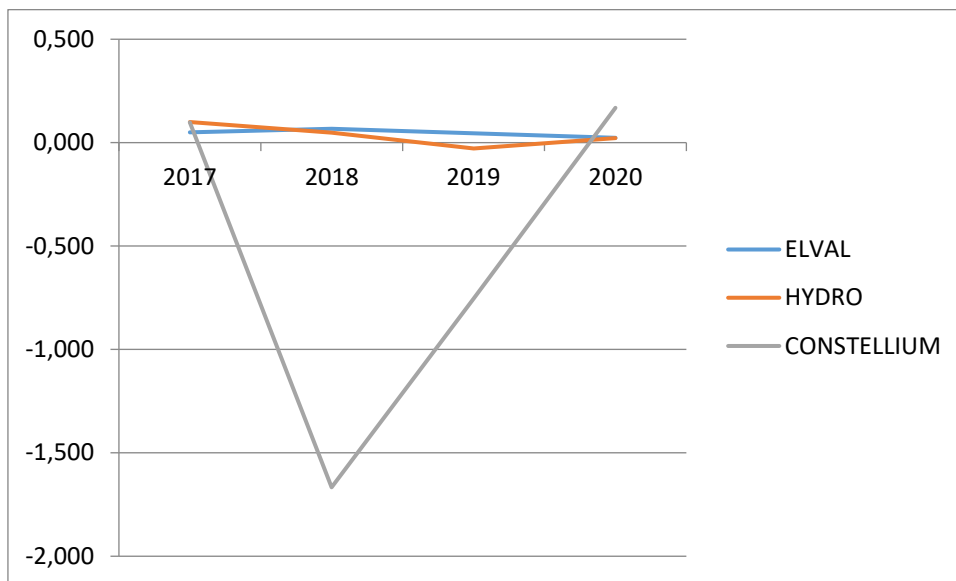
7.3 Profitability Ratios

The Return on Equity is one of the profitability ratios. It is formulated as:

$$\text{Return on Equity} = \text{Net Income} / \text{Average Shareholders' Equity}$$

The return on equity ratios for the period 2017 to 2020, for the selected three companies of European aluminium segment were:

Return on Equity				
	2017	2018	2019	2020
ELVAL	0,050	0,067	0,045	0,023
HYDRO	0,100	0,048	-0,028	0,021
CONSTELLIUM	0,097	-1,667	-0,753	0,168



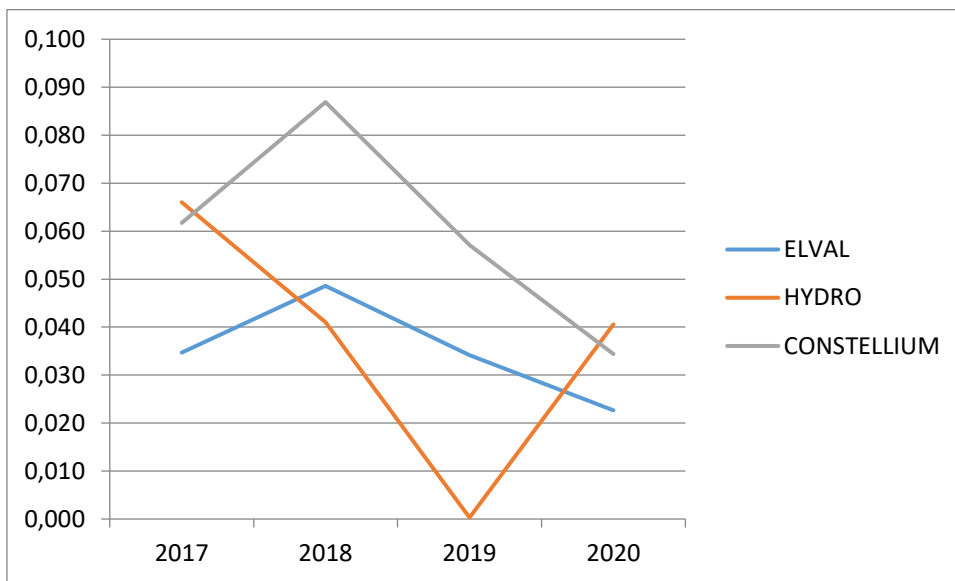
The index for Constelium is negative due to negative profits. The index for CONSTELLIUM is positive in 2020 since equity and profits are both negative. Return on equity for Hydro exhibits high volatility while with regard to Elval it ranges at normal levels and in 2020 it drops.

Another profitability ratio is Return on Assets. It is formulated as:

$$\text{Return on Assets} = (\text{Net Income} + \text{Interest Expenses}) / \text{Total Assets}$$

The return on assets ratios for the period 2017 to 2020, for the selected three companies of European aluminium segment were:

Return on Assets				
	2017	2018	2019	2020
ELVAL	0,035	0,049	0,034	0,023
HYDRO	0,066	0,041	0,000	0,041
CONSTELLIUM	0,062	0,087	0,057	0,034



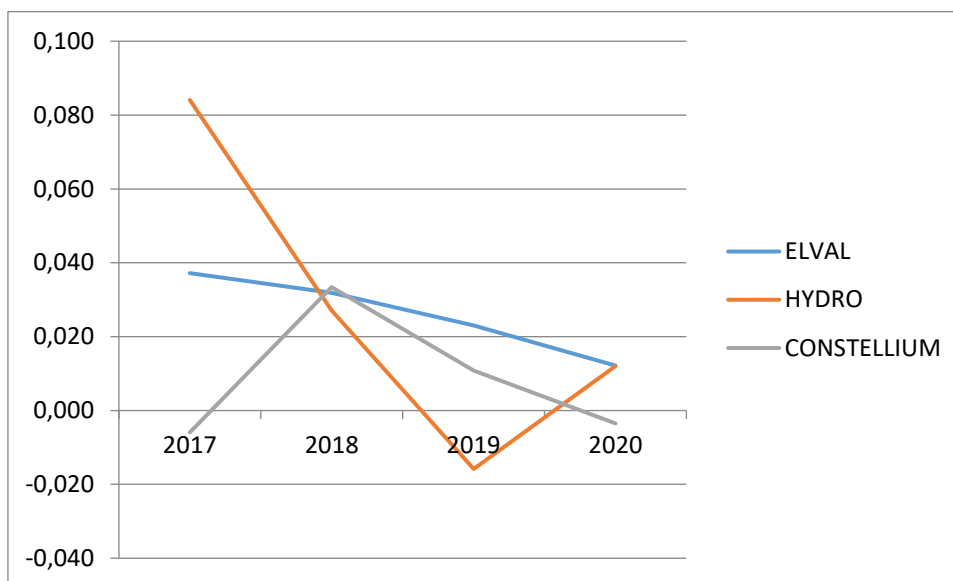
Return on assets for CONSTELLIUM ranges at satisfactory levels due to high income from interests. As far as ELVAL is concerned, the examining index ranges at normal levels while it is quite volatile for HYDRO.

The Net Profit Margin ratio is formulated as:

$$\text{Net Profit Margin Ratio} = \text{Net Profit} / \text{Revenue}$$

The Net profit margin ratios for the period 2017 to 2020, for the selected three companies of European aluminium segment were:

Net Profit Margin Ratio				
	2017	2018	2019	2020
ELVAL	0,037	0,032	0,023	0,012
HYDRO	0,084	0,027	-0,016	0,012
CONSTELLIUM	-0,006	0,033	0,011	-0,003



We can observe that the examining index is quite low and in some years even negative for CONSTELLIUM while it s relatively higher and positive for the entire examining period for ELVAL Finally HYDRO exhibits a high index in 2016 and in turn it drops significantly.

7.4 Activity Ratios

The Accounts Receivable Turn Over Ratio is an activity financial ratio. It is formulated as:

$$\text{Accounts Receivable Turn Over Ratio} = \text{Net Sales} / \text{Average Accounts Receivables}$$

The Accounts receivable turn over ratios for the period 2017 to 2020, for the selected three companies of European aluminium segment were:

Accounts Receivable Turn Over Ratio				
	2017	2018	2019	2020
ELVAL	4,696791	7,423094	7,30973	6,04442
HYDRO	5,465646	7,683041	7,899467	7,521128
CONSTELLIUM	12,49881	9,686542	12,46203	12,02709

Additionally, the calculation in days, is formulated as:

Accounts Receivable Turnover (in days) = 365 / Accounts Receivable Turn Over Ratio

The Account Receivable Turnover in days for the period 2017 to 2020, for the selected three companies of European aluminium segment were:

Accounts Receivable Turnover (in days)				
	2017	2018	2019	2020
ELVAL	77,71264	49,17087	49,93345	60,38628
HYDRO	66,78076	47,50723	46,20565	48,52995
CONSTELLIUM	29,20279	37,68115	29,28898	30,34815

We can observe that all the clients of CONSTELLIUM pay their debt at regular intervals while the receivable turn over ratio is lower for the other companies with the corresponding values however ranging at normal levels.

Another financial ratio is the Inventory Turnover ratio. It is formulated as:

Inventory Turnover ratio= Cost of Goods Sold / Average Value of Inventory

The Inventory Turnover ratios for the period 2017 to 2020, for the selected three companies of European aluminium segment were:

Inventory Turnover ratio				
	2017	2018	2019	2020
ELVAL	2,916684	4,004996	4,425818	4,270718
HYDRO	3,372507	3,871276	4,682648	4,339832
CONSTELLIUM	7,281493	7,800000	7,917910	7,548110

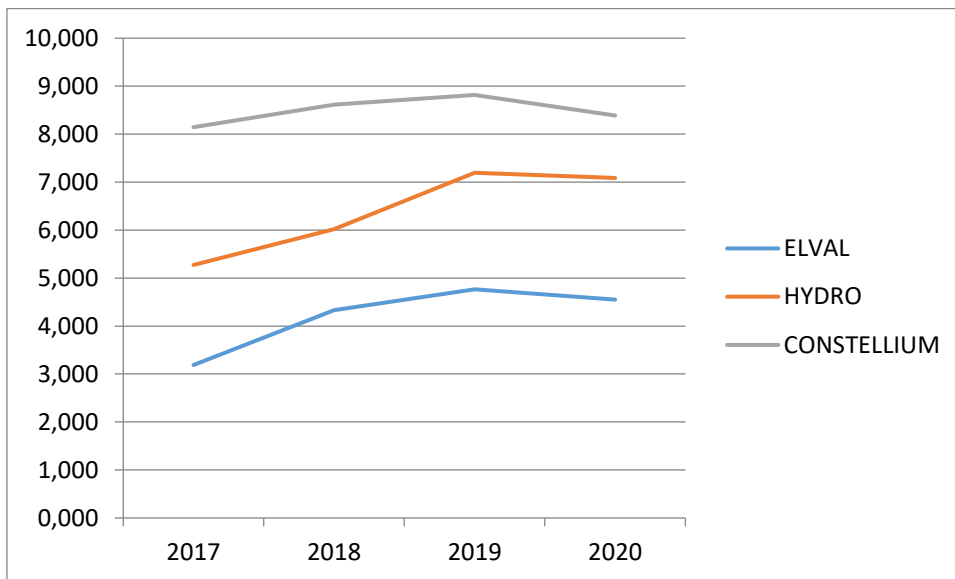
Additionally, the calculation in days, is formulated as:

Inventory Turnover (in days) = 365 / Inventory Turn Over Ratio

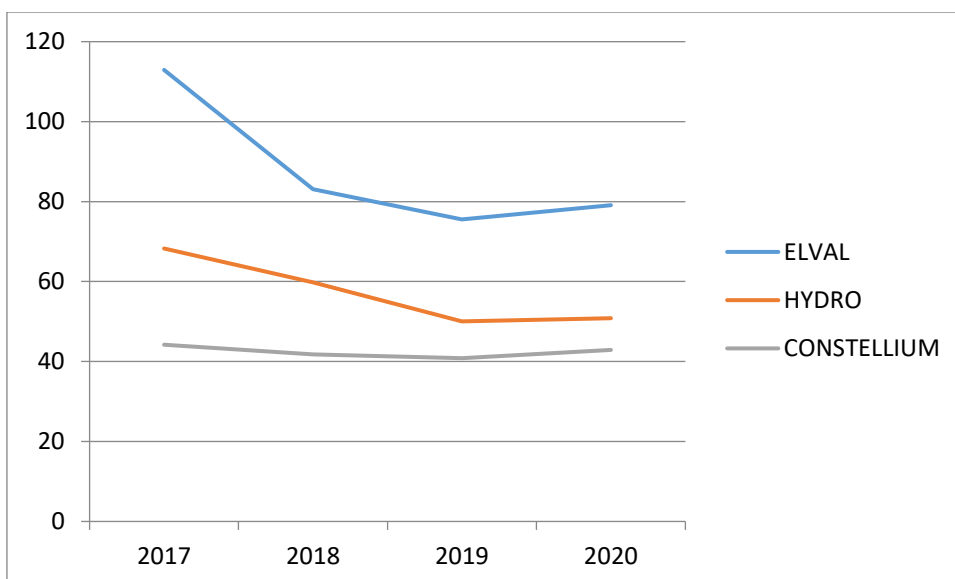
The Inventory Turnover in days for the period 2017 to 2020, for the selected three companies of European aluminium segment were:

Inventory Turnover (in days)				
	2017	2018	2019	2020
ELVAL	123,4278	89,88773	81,3409	84,29496
HYDRO	106,7455	92,9926	76,87958	82,95253
CONSTELLIUM	49,44041	46,15385	45,46654	47,69406

Inventory Turnover ratio



Inventory Turnover (in days)



We can observe that the days inventory ratio is lower for CONSTELIUM while for ELVAL it ranges at relatively high levels which means that inventories are not easily liquidated.

Another financial ratio is Suppliers Turnover Ratio. It is formulated as:

$$\text{Suppliers Turnover Ratio} = \text{Cost of Goods Sold} / \text{Suppliers}$$

The Suppliers turn over ratios for the period 2017 to 2020, for the selected three companies of European aluminium segment were:

Suppliers Turnover Ratio				
	2017	2018	2019	2020
ELVAL	5,789076	6,571293	6,268596	4,892009
HYDRO	3,568954	5,030322	5,214744	4,464429
CONSTELLIUM	5,034409	5,318182	5,31031	4,854144

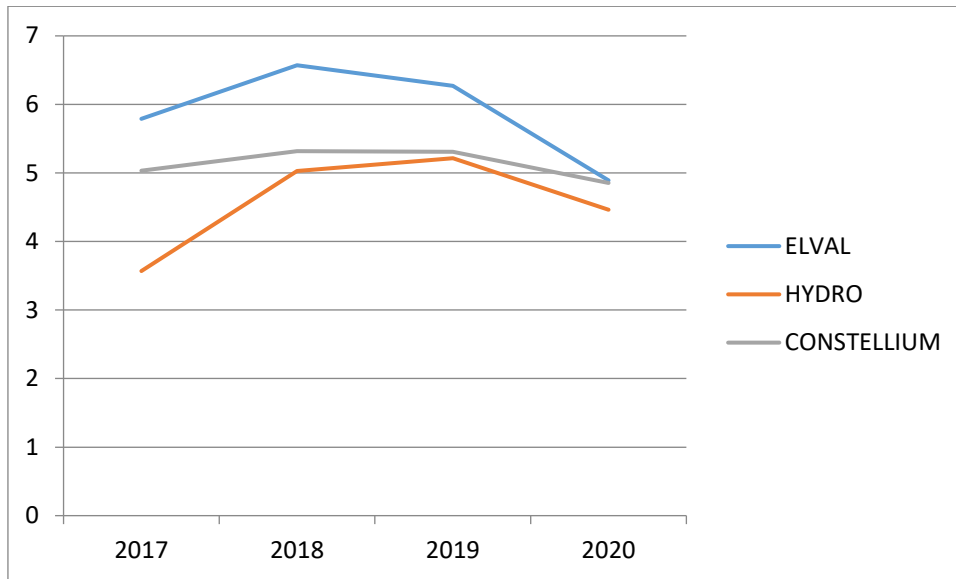
Additionally, the calculation in days, is formulated as:

$$\text{Suppliers Turnover (in days)} = 365 / \text{Suppliers Turnover Ratio}$$

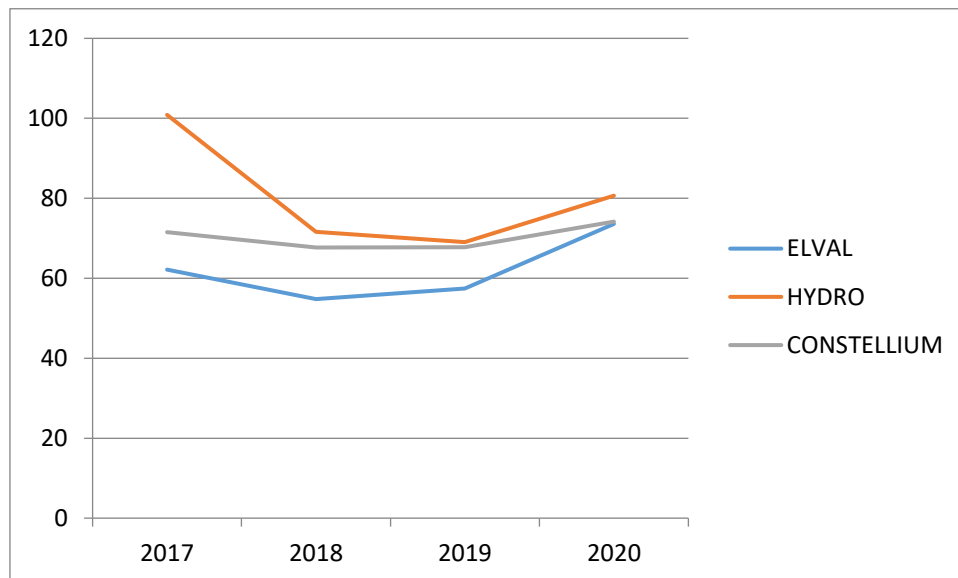
The Suppliers Turnover in days for the period 2017 to 2020, for the selected three companies of European aluminium segment were:

Suppliers Turnover (in days)				
	2017	2018	2019	2020
ELVAL	62,18609	54,78374	57,42913	73,5894
HYDRO	100,8699	71,56599	69,03502	80,63741
CONSTELLIUM	71,5079	67,69231	67,79265	74,16344

Suppliers Turnover Ratio



Suppliers Turnover (in days)



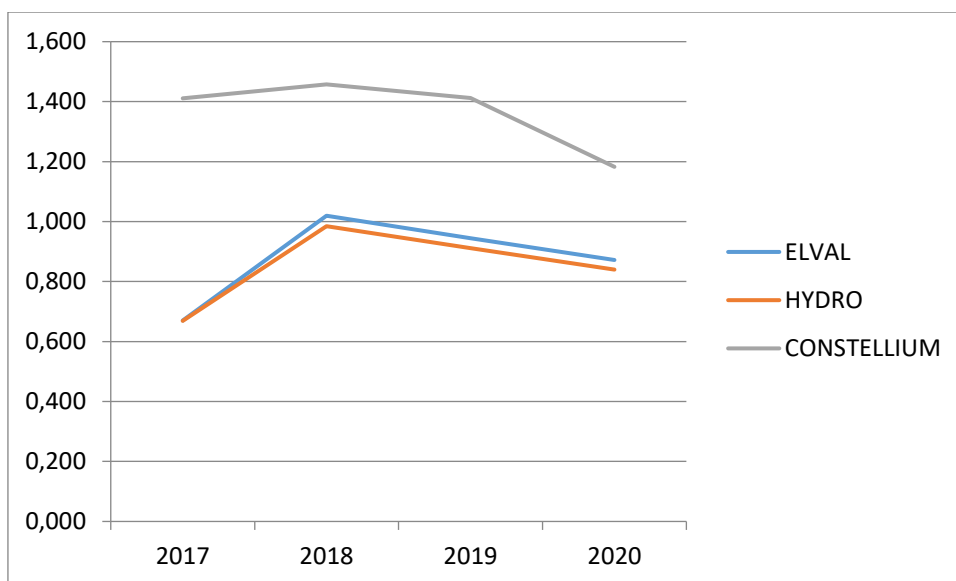
We can observe that ELVAL pays its suppliers at the most regular intervals. The indices amongst the companies do not differ significantly.

Another financial ratio is the Asset Turnover Ratio. It is calculated as:

$$\text{Asset Turnover Ratio} = \text{Net Sales} / \text{Average Total Assets}$$

The Asset turnover ratios for the period 2017 to 2020, for the selected three companies of European aluminium segment were:

Asset Turnover Ratio				
	2017	2018	2019	2020
ELVAL	0,670	1,020	0,944	0,872
HYDRO	0,669	0,985	0,911	0,840
CONSTELLIUM	1,411	1,458	1,412	1,183



We can observe that the index for ELVAL ranges at particularly high levels. For the other 2 companies it ranges at satisfactory levels.

TREND ANALYSIS

ELVALHALCOR SA							
	2017		2018		2019		2020
Current assets	507.157	12,05%	568.275	-9,77%	512.781	8,69%	557.344

Non current assets	829.425	7,33%	890.253	12,52%	1.001.710	5,33%	1.055.086
Cash	32.574	-31,02%	22.470	-27,71%	16.243	-22,26%	12.627
Receivables	190.723	5,03%	200.317	-2,35%	195.619	18,88%	232.555
Inventory	281.004	22,16%	343.286	-12,59%	300.058	2,92%	308.816
Total Assets	1.336.582	9,12%	1.458.528	3,84%	1.514.491	6,47%	1.612.430
Current Liabilities	308.643	19,83%	369.852	-7,51%	342.093	21,73%	416.430
Suppliers	141.577	47,78%	209.222	1,26%	211.850	27,26%	269.596
Non Current liabilities	367.020	4,29%	382.763	16,25%	444.972	3,71%	461.502
Total Liabilities	675.663	11,39%	752.614	4,58%	787.065	11,55%	877.933
Revenue	895.786	66,00%	1.486.972	-3,84%	1.429.922	-1,70%	1.405.660
Cost of goods sold	819.614	67,74%	1.374.859	-3,41%	1.328.002	-0,69%	1.318.866
Interest expenses	13.080	79,89%	23.530	-20,02%	18.820	3,16%	19.414
Net profit	33.324	42,06%	47.339	-30,47%	32.916	-48,02%	17.110

We can observe that net profit has been declining considerably, total liabilities have been increasing at a steady rate, total assets have also been increasing steadily. Revenue exhibited a significant increase in 2018 while cash has been considerably declining.

HYDRO ALUMINIUM (NOK million)							
	2017		2018		2019		2020
Current assets	54.631	0,67%	54.997	-2,42%	53.665	11,91%	60.055
Non current assets	108.643	-1,64%	106.858	3,63%	110.736	-5,77%	104.352
Cash	11.828	-49,32%	5.995	104,94%	12.286	43,56%	17.638
Receivables	19.983	3,81%	20.744	-8,60%	18.959	-3,14%	18.364
Inventory	20.711	27,87%	26.483	-21,40%	20.816	-6,36%	19.492
Total Assets	163.273	-0,87%	161.855	1,57%	164.401	0,00%	164.407
EQUITY	92.209	-1,56%	90.769	-7,37%	84.081	-7,89%	77.443
Current Liabilities	33.337	4,95%	34.987	-15,14%	29.691	-2,17%	29.048
Suppliers	19.571	4,14%	20.381	-8,29%	18.692	1,37%	18.948
Non Current liabilities	37.728	-4,32%	36.098	40,25%	50.629	14,39%	57.916
Total Liabilities	71.064	0,03%	71.086	12,99%	80.320	8,27%	86.964
Revenue	109.220	45,92%	159.377	-6,03%	149.766	-7,78%	138.118
Cost of goods sold	69.848	46,78%	102.523	-4,92%	97.474	-13,22%	84.592
Interest expenses	1.596	45,05%	2.315	4,54%	2.420	107,15%	5.013
Net profit	9.184	-52,93%	4.323	-154,82%	-2.370	-	1.660

Net profit after 2017 has significantly declines while total assets have remains almost unchanged. Total liabilities have demonstrated a small increase while revenue increased significantly form 2017 to 2018.

CONSTELLIUM (EUR million)							
	2017		2018		2019		2020
Current assets	1.400	2,93%	1.441	-6,32%	1.350	8,59%	1.466
Non current assets	2.311	6,45%	2.460	15,20%	2.834	-6,03%	2.663
Cash	269	-39,03%	164	12,20%	184	138,59%	439
Receivables	419	40,10%	587	-19,25%	474	-14,35%	406
Inventory	643	2,64%	660	1,52%	670	-13,13%	582
Total Assets	3.711	5,12%	3.901	7,25%	4.184	-1,31%	4.129
EQUITY	- 319	-64,26%	- 114	-25,44%	- 85	18,82%	- 101
Current Liabilities	1.110	2,61%	1.139	11,68%	1.272	-14,62%	1.086
Suppliers	930	4,09%	968	3,20%	999	-9,41%	905
Non Current liabilities	2.920	-1,51%	2.876	4,21%	2.997	4,90%	3.144
Total Liabilities	4.030	-0,37%	4.015	6,33%	4.269	-0,91%	4.230
Revenue	5.237	8,57%	5.686	3,89%	5.907	-17,34%	4.883
Cost of goods sold	- 4.682	9,95%	- 5.148	3,05%	- 5.305	-17,19%	- 4.393
Interest expenses	- 260	-42,69%	- 149	17,45%	- 175	-9,14%	- 159
Net profit	- 31	-712,90%	190	-66,32%	64	-126,56%	- 17

Net profit exhibits a high volatility while equity is negative. Total assets have been exhibiting a small increase while total liabilities remain relatively steady. Cash has exhibited a significant increase during 2019 and the same occurred for receivables in 2018.

Z SCORE RESULTS

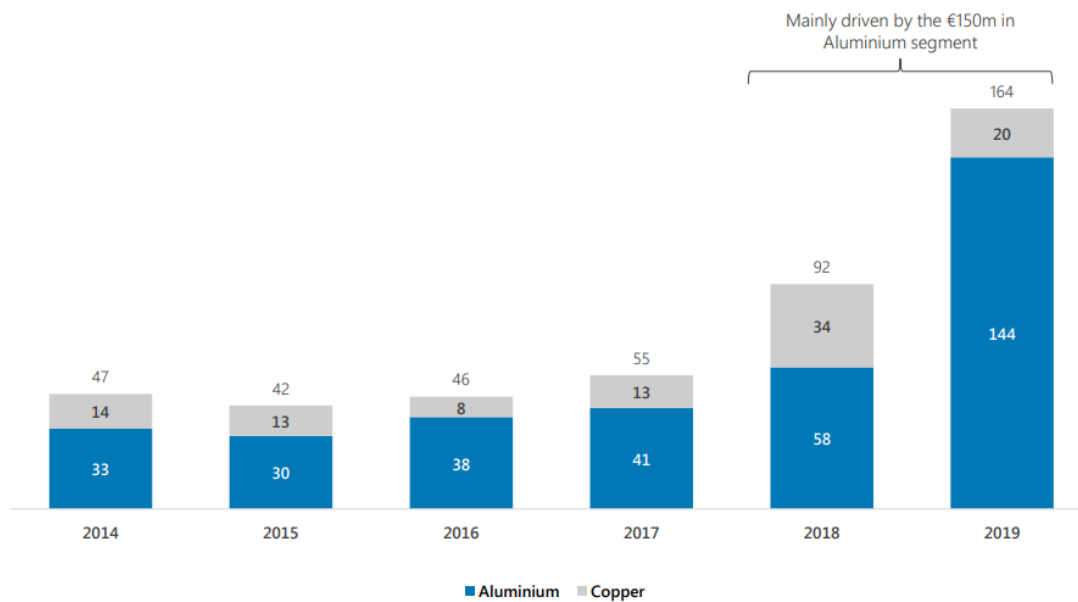
	ELVAL	HYDRO	CONSTELLIUM
z-score index value	1,574828	2,064457	2,0000

According to the z – score index Constellium and HYDRO are in the grey zone. ELVAL has the lowest index and is expected to experience problem of sustainability unless its economic figures recover.

8. Discussion

In our methodology we examined the financial position of Elval and that of its competitors such as Hydro and Constelium. Elval had a positive profitability for the period 2017 – 2020 but profitability has declined significantly in 2019 and in 2020. As far as 2020 is concerned, the decline of profitability is attributed to the COVID. Revenue exhibited a significant increase in 2018 and then it stabilized. The fact that revenue was slightly affected by the COVID is quite encouraging for the company. Total assets have been exhibiting a steady increase. This means that the company has been carrying out investments to increase its size. The annual growth rate of total assets however is relatively small. Return on equity is positive for all the years but it has been deteriorating during the examining period despite the increase of borrowing. The capital structure of the company does not change during the examining period and is balanced. An alarming fact is that cash has significantly declined. The decline of cash can be attributed to the firm's investments. Net profit is very low and has been declining, which means that the company should further increase its sales so that it maintains its profitability. The significant decline in profitability in 2020 is partly attributed to the significant increase of interest expenses in 2020. The latter doubled during 2020. Moreover the company has been carrying out a significant investment project which resulted in the increase of the depreciation and in turn in the decrease of profitability. In the diagram below we demonstrate the evolution of capital expenditure of ELVAL HALCOR.

Diagram 2. Evolution of CAPEX



Source : ElvalHalcor annual report

Interest coverage ratio is relatively low which means that Elval cannot significantly expand borrowing since if it does so it will have a problem in paying interests. Purchases on credit from suppliers have been increasing year by year since the company has lower cash liquidity. Cash conversion cycle was very high in 2017 but has significantly declined over the next years, The company however should attempt to increase inventory or receivable turnover ratio or decrease supply turnover ratio so that the cash conversion cycle index drops even further. Net profit exhibits a high volatility while equity is negative. Total assets have been exhibiting a small increase while total liabilities remain relatively steady. Cash has exhibited a significant increase during 2019 and the same occurred for receivables in 2018. In summary Elval has a healthy balance sheet and financial statements while its capital structure is quite balanced. An alarming fact is that profits have been declining while revenue after the significant increase of 2018 have remained steady. Apparently , the company has reached the stage of maturity and the management should find new investment opportunities so that growth rate of sales increases and profitability recovers. It should also improve its cost structure so that net profit margin which as we mentioned before is very low, increases. We expect that profitability will recover since the investment program initiated in 2018 will start paying off, while the health crisis will significantly weaken. By 2022 the hot rolling capacity will have increased by 150 thousand tones. The company's

P/E ratio according to earnings of 2020 is about 40. It is much higher than the average P/E of the Greek market. The high P/E ratio is attributed to the significant decline of profits and to the increase of the stock price during the last months. If however earnings recover according to analysts' expectations, then the P/E will drop significantly.

Several key macro drivers that will affect the company's prospects in most cases positively are the manufacturing activity and industrial growth in developed and emerging countries, the increased demand for solar panels, wind turbines and high frequency tables, consumer spending and preferences, regulations which will limit lead content in potable water plumbing fixtures, population growth and urbanization, the recovery of the mature region housing, environmental legislations, consumer spending, take away and pre packed food demand, industrial production, substitution of steel from aluminum due to light – weighting of vehicles, fuel efficiency standards, construction activity e.t.c.

With regard to HYDRO financial statements we can observe that non current assets have remained during the examining period relatively steady while there has been a considerable increase in cash. The cash ratio of the company in 2020 is particularly high while liquidity ratios are also quite high. Profitability exhibits high volatility something which is quite alarming. However the fact that cash increases from year to year mitigates worries regarding volatile earnings. Additionally in 2020 the company experienced significant recovery in earnings. The significant recovery was partly attributed to the decrease of cost of goods sold while if interest expenses haven't increased so much earning would be even higher. However profits are still well below the high levels of 2017. Return on equity is quite low and the same applies for the net profit margin.

Another factor that resulted in Hydro's 2020 improvement of financial figures was the ramp-up and increased operational robustness of the Bauxite & Alumina operations in Brazil. Alunorte intends to deliver alumina volumes at around 90 percent of nameplate capacity in Q4 2020. Hydro has also played a vital role in the local community in Brazil during the health crisis.

Although revenues have significantly increased after 2017 profitability ratios deteriorated which means that the company was less efficient. The deterioration of earnings was partly attributed to the significant drop of the profit margin. The increase of interest expenses is attributed to the increase of long term loans. The capital structure however remains

relatively steady. Since the company has high cash we would recommend any further investment to be financed from retained earnings and not borrowing. The company's current profitability is too low to secure the payments of interests so and further borrowing will increase financial risk

The acquisition of SAPA from HYDRO in 2017 was a very significant development and the relevant synergies are expected soon to pay off. With the specific acquisition, the company became fully integrated. The contribution of HYDRO to the new integrated company is that it represents and upstream performance leader, it has significant technological resources, it attains strong positions mid and down stream while it is characterized by its high quality asset. The contribution of SAPA refers to its being a global leader in extruded aluminum solutions, it engages in product innovation and it is characterized by flexibility and speed. The prospects of the company are quite promising since it plans to strengthen its position in the low carbon aluminum. There are also several mega trends which support an increase of demand for alluminium something which will obviously benefit the company. Demand for aluminum in the vehicle sector is expected to increase by 5,2 % on an annual basis. Additionally total semis demand is expected to grow by 32 mil tones until the year of 2030. The strategy of the company has been designed in such a way so that it matches the megatrends the most important of which is recycling. The company therefore, will expand in areas such as recycling, renewable and batteries. The company's recycling portfolio also provides a solid foundation for further growth. At the present moment, Hydro possesses a portfolio of 29 recyclers and an annual capacity of 2.6 million tonnes for recycled scrap. Until 2025, the company plans to double its current post-consumer scrap utilization, which could provide an EBITDA uplift of NOK 1 – 1.5 billion. A strategy has also been implemented across the recycling value chain within Primary Metal, Rolled Products and Extruded Solutions.

In summary, HYDRO has relatively healthy financial statements but its performance weaker than ELVAL. Both companies have experienced a significant increase in profitability but HYDRO during the examining period, have realized losses while Elval did not. Moreover ELVAL has intensified its investment program stimulating its growth while HYDRO seems to have been adopting a consolidated strategy. A key area where HYDRO has been outperforming ELVAL is its ability to generate cash inflows. However the cash position of ElvalHalkor has been deteriorating due to increased investment activity. An advantage also

of ELVAL over HYDRO is that its earnings on the one hand have been deteriorating, but on the other they were less volatile.

Constelium during the examining period has exhibited a weak performance. Out of the 2 examining years profitability was negative and even more alarming was the fact that equity was negative. The negative sign is attributed to accumulated losses. Net profit and cash exhibit significant volatility. Cash during 2020 is quite high while the negative sign of return on equity in some of the years should not mislead users of financial statements since this sign is attributed to both negative equity and earnings. The company however has a high asset turn over ratio which is higher than that of the 2 other companies. This means that its assets are more effective in generating sales compared to the other 2 companies. It is also encouraging that the value of profits is higher than that of losses. High volatility of earnings companies with high volatility in cash prompts to accounting manipulation. This means that analysts and investors should analyze other key elements of financial statements together with non qualitative data included in financial reports.

According to a report a few months ago analysts believe that Constelium as a stock represents a significant investment opportunity. The risk of investing in this company can be high but analysts claim that investors will be properly compensated by taking this risk. The company's cash position might have been volatile but it has significantly grown during the last years with the growth rate being much higher than the sector average. To be more specific, the company's annualized cash flow growth rate has been 30.5% over the past three to five years while the industry average was 9.2%. Another positive development anticipated, is that the company's EPS is expected to grow 283.3% this year, much more than the industry average, which is expected to be 126.2%.

With regard to the Z – score results ELVAL has the lowest index though its financial statements appeared to be healthier compared to the other 2 companies. The low z score index is attributed to the significant deterioration of profit in 2020 which translates also into a lower EBIT. However we should bear in mind that ELVAL has initiated a big investment program causing total assets to significantly increase during 2019, 2020. ELVAL does not have so low EBIT, working capital, sales and retained earnings. However it has very high assets which resulted in a quite low Z – score that does not have however a value which is too far from the grey zone. Total assets will normally start generating income during the next years resulting in a significant improvement of the z – score index. Constelium exhibited very volatile earnings during the examining period. However its z

score is not so low since it experience a significant recovery in certain economic figures during 2020. HYDRO has the highest z score index which is expected to improve during 2021 due to profitability recovery.

We have seen that the performance of the 3 examining companies in terms of profitability was weak. All of the companies had a significantly lower profitability in 2020 compared to 2017. A question that arises is, which are the prospects of ElvalHalcor having represented the company we focused on. According to analysts the company's profitability is expected to recover since economic recovery in Europe will increase demand. Analysts are quite optimistic since amongst other they point out the resilience the company exhibited during the recent global economic recession as a result of the pandemic.

The aluminum activities of the company were negatively affected by the tariff / damping issues in the US market something which resulted in a decline of revenue by 18 % in the specific market. The impact however on profits was rather negligible. In 2021 the specific issue will be probably resolved allowing the company to regain its market share in the US market. Additionally, the increased production capacity of roller products will permit the company to benefit from the recovery of the European economy. The investments in the roller sector are expected to improve the product quality and the cost structure of the company. The fact also that plastic products will be substituted by aluminum products provides a positive catalyst for further growth.

During the first quarter of 2021 the company realized profits of 34,8 mil euros while the profits for the same period last year were just 0,9 thousand euros. However Elval has for the first quarter an extra gain due to revaluations of 12, 6 mil euros while during the first quarter the company has negative results from revaluations up to 15, 3 mil euros. Even if we take into account revaluations and focus entirely on operational profit the company has shown at the beginning of 2021 strong signs of profitability recovery. The recovery on profitability is attributed to the higher prices of alumina and copper which have increased compared to the first quarter of last year, 14 and 38 % respectively. The volume of sales for aluminum have increased compared to the equivalent time period of last year by 11 % while the aluminum sector has contributed more than 60 % to operating profits. Net borrowing has increased by 10 % to support the ambitious investment program of the company. Analysts anticipate an outstanding recovery in profitability and if expectations are met, than the price earnings ratio will drop to a level round 9 which is well below the market average.

In conclusion the prospects of the 3 examining companies such as ELVAL – HALCOR, Constelium and Hydro are quite promising, The European economy is expected to recover as we are heading towards the health crisis and several megatrends in the energy, automotive, recycling sector, technology e.t.c guarantee an increase of demand for aluminum. The examining companies have experienced a drop in performance during the last 3 – 4 years but right now they are in a position to take advantage of the upcoming trends. Elval has been carrying out an ambitious investment program which will soon start paying off and allow the company to enhance its competitive edge in the foreign markets. Constelium as we showed before, has weak financial statements but has managed to considerably strengthen its cash position and taking also into consideration the upward revision of its expected earnings it represents probably an investment opportunity. Finally HYDRO has a very strong market position and the adequate resources to expand into new areas and significantly diversify its portfolio of products. The strategy of the company points to the exploitation of the new investment opportunities that will result from the future developments.

Our research has several limitations. First financial statements are not representative of the true financial position of a company due to the potential of accounting manipulation. To assess the company as a whole, an analyst should examine qualitative data such as quality of management and human capital, relation with suppliers, corporate governance e.t.c.. Secondly, the z score index suggested by Altman has several limitations. The specific model has high predictive value but on the other hand it was confirmed only by one author. Other authors suggested that the relation between probability of default and financial indices is weaker than the one suggested by Altman. Third, through ratio analysis we derived an overall picture of a firm's financial condition but we can draw relatively little conclusion regarding the prospects of the firm relying only on financial statements. Unexpected events can change the prospects of a company. As we saw during the examining period all of the companies experienced a significant decrease in profitability. However the trend of past profitability is not indicative of future profitability since the recovery of the aluminum industry which is not reflected in the financial statements will improve the financial position of the companies.

List of Tables

Table 1

I. Statement of Financial Position

		GROUP		COMPANY	
		2018	2017	2018	2017
ASSETS	Note	€ '000	€ '000	€ '000	€ '000
Non-current assets					
Property, plant and equipment	10	720,564	687,479	459,754	423,549
Intangible assets and goodwill	11	76,527	74,547	70,447	70,801
Investment property	12	6,838	7,076	19,591	20,809
Investments in subsidiaries	13	(0)	0	251,472	242,471
Investments in associates	13	82,846	64,186	82,661	65,339
Other Investments	14	3,853	3,771	3,853	3,771
Deferred income tax assets	15	1,717	2,267	-	-
Derivatives	18	3	262	3	260
Trade and other receivables	17	2,650	2,624	2,473	2,423
		894,998	842,212	890,253	829,425
Current Assets					
Inventories	16	519,218	433,498	343,286	281,004
Trade and other receivables	17	218,286	199,025	200,317	190,723
Income tax receivables		191	-	-	-
Derivatives	18	3,115	4,751	2,202	2,856
Cash and cash equivalents	19	34,241	41,446	22,470	32,574
		775,050	678,720	568,275	507,157
Assets held for sale	34	4,495	4,495	-	-
Total assets		1,674,543	1,525,427	1,458,528	1,336,582
EQUITY					
Capital and reserves attributable to the Company's equity holders					
Share capital	20	146,344	146,344	146,344	146,344
Share premium	20	65,030	65,030	65,030	65,030
Other reserves	20	281,103	282,340	291,906	293,926
Retained earnings/(losses)		224,310	161,796	202,634	155,618
Equity attributable to owners of the company		716,788	655,511	705,914	660,919
Non-Controlling Interest		13,679	12,905	-	-
Total equity		730,468	668,416	705,914	660,919
LIABILITIES					
Non-current liabilities					
Loans and Borrowings	22	372,905	278,940	299,841	278,414
Obligations under financial lease	22	11,511	13,993	11,511	13,973
Derivatives	18	101	51	101	2
Deferred tax liabilities	15	58,024	61,825	47,714	50,233
Employee benefits	23	15,584	14,946	11,270	10,761
Grants	24	19,602	21,557	11,067	12,378
Provisions	25	1,410	1,410	1,260	1,260
		479,136	392,724	382,763	367,021
Current liabilities					
Trade and other payables	26	244,506	179,172	209,222	141,577
Contract liabilities		9,238	-	7,425	-
Current tax liabilities	15	14,178	7,641	9,520	5,002
Loans and Borrowings	22	191,225	273,016	137,984	158,216
Obligations under financial lease	22	2,328	2,291	2,328	2,291
Derivatives	18	3,301	2,005	3,263	1,446
Provisions	25	162	162	110	110
		464,939	464,287	369,852	308,643
Total liabilities		944,075	857,011	752,614	675,664
Total equity and liabilities		1,674,543	1,525,427	1,458,528	1,336,582

Table 2

II. Income Statement

		GROUP		COMPANY	
		2018	2017	2018	2017
		€ '000	€ '000	€ '000	€ '000
EUR					
Revenue	6	2,117,789	1,150,369	1,486,972	895,786
Cost of sales	8	(1,950,840)	(1,046,804)	(1,374,859)	(819,614)
Gross profit		166,948	103,566	112,112	76,172
Other Income	7	14,093	7,892	9,749	8,304
Selling and Distribution expenses	8	(21,468)	(12,335)	(10,472)	(5,117)
Administrative expenses	8	(42,909)	(25,329)	(31,377)	(17,375)
Impairment loss on receivables and contract assets		(505)	(377)	(149)	(124)
Other Expenses	7	(9,108)	(3,801)	(4,494)	(2,793)
Operating profit / (loss)		107,051	69,616	75,370	59,067
Finance Income	9	137	118	418	75
Finance Costs	9	(32,313)	(17,767)	(23,530)	(13,080)
Dividends		20	-	1,691	1,722
Net Finance income / (cost)		(32,156)	(17,649)	(21,420)	(11,283)
Share of profit/ (loss) of equity-accounted investees, net of tax	13	953	(1,293)	-	-
Profit/(Loss) before income tax		75,849	50,674	53,949	47,784
Income tax expense	15	(11,546)	(17,410)	(6,610)	(14,461)
Profit/(Loss) for the year		64,303	33,264	47,339	33,324
Attributable to:					
Owners of the Company		63,646	33,549	47,339	33,324
Non-controlling Interests		656	(285)	-	-
		64,303	33,264	47,339	33,324
Shares per profit to the shareholders for period (expressed in € per share)					
Basic and diluted	21	0.1806	0.1188	0.1343	0.1180

Table 3

I. Statement of Financial Position

	Note	GROUP		COMPANY	
		2019	2018	2019	2018
		€ '000	€ '000	€ '000	€ '000
ASSETS					
Non-current assets					
Property, plant and equipment	10	813,265	720,564	543,612	459,754
Right of use assets	33	19,274	-	17,292	-
Intangible assets and goodwill	11	79,983	76,527	71,068	70,447
Investment property	12	6,589	6,838	20,045	19,591
Investments in subsidiaries	13	0	-	264,672	251,472
Investments in associates	13	85,801	82,846	80,965	82,661
Other investments	14	3,611	3,853	1,682	3,853
Deferred income tax assets	15	1,167	1,717	-	-
Derivatives	18	1	3	1	3
Trade and other receivables	17	2,629	2,650	2,374	2,473
		1,012,320	894,998	1,001,710	890,253
Current Assets					
Inventories	16	469,952	519,218	300,058	343,286
Trade and other receivables	17	215,700	218,286	195,619	200,317
Income tax receivables		1,577	191	-	-
Derivatives	18	949	3,115	861	2,202
Cash and cash equivalents	19	48,688	34,241	16,243	22,470
		736,865	775,050	512,781	568,275
Assets held for sale	34	4,495	4,495	-	-
Total assets		1,753,680	1,674,543	1,514,491	1,458,528
EQUITY					
Capital and reserves attributable to the Company's equity holders					
Share capital	20	146,344	146,344	146,344	146,344
Share premium	20	65,030	65,030	65,030	65,030
Treasury Stock		-	-	-	-
Translation Reserve &					
Other reserves	20	305,261	281,103	315,592	291,906
Retained earnings/(losses)		230,553	224,310	200,460	202,634
Equity attributable to owners of the company		747,188	716,788	727,427	705,914
Non-Controlling Interest		14,084	13,679	-	-
Total equity		761,272	730,468	727,427	705,914
LIABILITIES					
Non-current liabilities					
Loans and Borrowings	22	440,374	372,905	361,663	299,841
Lease liabilities	22	11,813	11,511	10,502	11,511
Derivatives	18	12	101	12	101
Deferred tax liabilities	15	58,783	58,024	48,950	47,714
Employee benefits	23	17,929	15,584	12,776	11,270
Grants	24	17,365	19,602	9,811	11,067
Provisions	25	1,410	1,410	1,260	1,260
		547,685	479,136	444,972	382,763
Current liabilities					
Trade and other payables	26	258,979	244,506	211,850	209,222
Contract liabilities		8,722	9,238	6,802	7,425
Current tax liabilities		13,099	14,178	12,087	9,520
Loans and Borrowings	22	158,595	191,225	107,005	137,984
Lease liabilities	22	3,798	2,328	3,091	2,328
Derivatives	18	1,369	3,301	1,147	3,263
Provisions	25	162	162	110	110
		444,723	464,939	342,093	369,852
Total liabilities		992,408	944,075	787,065	752,614
Total equity and liabilities		1,753,680	1,674,543	1,514,491	1,458,528

Table 4

II. Income Statement

		GROUP		COMPANY	
		2019	2018	2019	2018
EUR	Note	€ '000	€ '000	€ '000	€ '000
Revenue	6	2,044,606	2,117,789	1,429,922	1,486,972
Cost of sales	8	(1,899,542)	(1,950,840)	(1,328,002)	(1,374,859)
Gross profit		145,064	166,948	101,920	112,112
Other Income	7	11,928	14,093	11,712	9,749
Selling and Distribution expenses	8	(21,284)	(21,468)	(11,323)	(10,472)
Administrative expenses	8	(47,771)	(42,909)	(33,391)	(31,377)
Impairment loss on receivables and contract assets		437	(505)	11	(149)
Other Expenses	7	(8,334)	(9,108)	(6,109)	(4,494)
Operating profit / (loss)		80,038	107,051	62,820	75,370
Finance Income	9	231	137	364	418
Finance Costs	9	(25,640)	(32,313)	(18,820)	(23,530)
Dividends		50	20	2,355	1,691
Net Finance income / (cost)		(25,358)	(32,156)	(16,101)	(21,420)
Impairment losses on investments	13	-	-	(300)	-
Share of profit/ (loss) of equity-accounted investees	13	3,500	953	-	-
Profit/(Loss) before income tax		58,179	75,849	46,419	53,949
Income tax expense	15	(16,238)	(11,546)	(13,503)	(6,610)
Profit/(Loss) for the year		41,942	64,303	32,916	47,339
Attributable to:					
Owners of the Company		41,304	63,646	32,916	47,339
Non-controlling Interests		638	656	-	-
		41,942	64,303	32,916	47,339

Table 5

I. Statement of Financial Position

EUR		Note	GROUP		COMPANY	
			2020	2019	2020	2019
ASSETS			€ '000	€ '000	€ '000	€ '000
Non-current assets						
Property, plant and equipment	10		851,942	813,265	582,956	543,612
Right of use assets	33		19,734	19,274	17,838	17,292
Intangible assets and goodwill	11		79,474	79,983	70,627	71,068
Investment property	12		6,267	6,589	18,714	20,045
Investments in subsidiaries	13		-	-	271,359	264,672
Investments in associates	13		91,745	85,801	84,965	80,965
Other investments	13		4,301	3,611	2,185	1,682
Deferred income tax assets	15		172	1,167	-	-
Derivatives	18		64	1	64	1
Trade and other receivables	17		2,748	2,629	2,403	2,374
Non-current loan receivables	34		3,975	-	3,975	-
			1,060,422	1,012,320	1,055,086	1,001,710
Current Assets						
Inventories	16		503,773	469,952	308,816	300,058
Trade and other receivables	17		254,606	215,700	232,555	195,619
Income tax receivables			206	1,577	-	-
Derivatives	18		5,477	949	3,346	861
Cash and cash equivalents	19		33,838	48,688	12,627	16,243
			797,900	736,865	557,344	512,781
Assets held for sale			-	4,495	-	-
Total assets			1,858,322	1,753,680	1,612,430	1,514,491
EQUITY						
Capital and reserves attributable to the Company's equity holders						
Share capital	20		146,344	146,344	146,344	146,344
Share premium	20		65,030	65,030	65,030	65,030
Other reserves	20		310,790	305,261	319,045	315,592
Retained earnings/(losses)			241,771	230,553	204,078	200,460
Equity attributable to owners of the company			763,935	747,188	734,497	727,427
Non-Controlling Interest			14,352	14,084	-	-
Total equity			778,287	761,272	734,497	727,427
LIABILITIES						
Non-current liabilities						
Loans and Borrowings	22		452,706	440,374	382,339	361,663
Lease liabilities	22		10,480	11,813	9,222	10,502
Derivatives	18		270	12	270	12
Deferred tax liabilities	15		55,448	58,783	46,131	48,950
Employee benefits	23		19,395	17,929	13,691	12,776
Grants	24		15,607	17,365	8,590	9,811
Provisions	25		1,597	1,410	1,260	1,260
Trade and other payables	26		200	-	-	-
			555,703	547,685	461,502	444,972
Current liabilities						
Trade and other payables	26		309,707	258,979	269,596	211,850
Contract liabilities			8,826	8,722	6,427	6,802
Current tax liabilities	15		10,062	13,099	8,926	12,087
Loans and Borrowings	22		189,671	158,595	126,996	107,005
Lease liabilities	22		3,992	3,798	3,278	3,091
Derivatives	18		1,912	1,369	1,097	1,147
Provisions	25		162	162	110	110
			524,332	444,723	416,430	342,093
Total liabilities			1,080,034	992,408	877,933	787,065
Total equity and liabilities			1,858,322	1,753,680	1,612,430	1,514,491

Table 6

II. Income Statement

		GROUP		COMPANY	
		2020	2019	2020	2019
EUR	Note	€ '000	€ '000	€ '000	€ '000
Revenue	6	2,028,588	2,044,606	1,405,660	1,429,922
Cost of sales	8	(1,893,640)	(1,899,542)	(1,318,866)	(1,328,002)
Gross profit		134,948	145,064	86,794	101,920
Other Income	7	10,785	11,928	10,690	11,712
Selling and Distribution expenses	8	(21,430)	(21,284)	(11,772)	(11,323)
Administrative expenses	8	(54,306)	(47,771)	(37,954)	(33,391)
Impairment loss on receivables and contract assets		(485)	437	(112)	11
Other Expenses	7	(9,905)	(8,334)	(7,248)	(6,109)
Operating profit / (loss)		59,607	80,038	40,398	62,820
Finance Income	9	288	231	400	364
Finance Costs	9	(25,506)	(25,640)	(19,414)	(18,820)
Dividends		-	50	1,208	2,355
Net Finance income / (cost)		(25,218)	(25,358)	(17,806)	(16,101)
Impairment losses on investments	13	-	-	-	(300)
Share of profit/ (loss) of equity-accounted investees, net of tax and impairment of subsidiaries	13	4,580	3,500	-	-
Profit/(Loss) before income tax		38,969	58,179	22,592	46,419
Income tax expense	15	(9,462)	(16,238)	(5,482)	(13,503)
Profit/(Loss) for the year		29,507	41,942	17,110	32,916

Table 7

Consolidated balance sheets

Amounts in NOK million, December 31	Notes	2018	2017 Restated
Assets			
Cash and cash equivalents		5.995	11.828
Short-term investments	25	975	1.311
Trade and other receivables	26	20.743	19.983
Inventories	27	26.483	20.711
Other current financial assets	13	801	798
Total current assets		54.997	54.631
Property, plant and equipment	29	71.299	72.933
Intangible assets	30, 31	11.443	12.712
Investments accounted for using the equity method	32	11.570	11.221
Other non-current assets	13, 28	5.720	4.410
Prepaid pension	37	5.162	5.750
Deferred tax assets	24	1.664	1.617
Total non-current assets		106.858	108.643
Total assets	7	161.855	163.273
Liabilities and equity			
Bank loans and other interest-bearing short-term debt	34	8.543	8.245
Trade and other payables	33	20.381	19.571
Provisions	35	3.281	2.296
Taxes payable		2.266	2.570
Other current financial liabilities	13	515	655
Total current liabilities		34.987	33.337
Long-term debt	34	7.080	9.012
Provisions	35	5.588	5.828
Pension liabilities	37	15.648	15.118
Other non-current financial liabilities	13	2.429	2.041
Other liabilities		2.318	2.228
Deferred tax liabilities	24	3.037	3.501
Total non-current liabilities		36.098	37.728
Total liabilities		71.086	71.064
Share capital	38	2.272	2.272
Additional paid-in capital	38	29.126	29.097
Treasury shares	38	(756)	(810)
Retained earnings		57.127	56.452
Other components of equity	38	(1.936)	20
Equity attributable to Hydro shareholders		85.833	87.032
Non-controlling interests		4.936	5.178
Total equity		90.769	92.209
Total liabilities and equity		161.855	163.273

Table 8

Consolidated income statements

Amounts in NOK million (except per share amounts). Years ended December

31	Notes	2018	2017
Revenue	7, 15	159.377	109.220
Share of the profit (loss) in equity accounted investments	7, 32	765	1.527
Other income, net	16	772	2.947
Total revenue and income		160.913	113.693
Raw material and energy expense	17	102.523	69.848
Employee benefit expense	18	23.176	13.285
Depreciation, amortization and impairment	19, 20	7.369	6.162
Other	21, 22	19.324	12.209
Total expenses		152.391	101.504
Earnings before financial items and tax	7	8.522	12.189
Finance income	23	255	481
Finance expense	23	(2.315)	(1.596)
Finance income (expense), net		(2.060)	(1.114)
Income before tax		6.462	11.075
Income taxes	24	(2.139)	(1.891)
Net income		4.323	9.184
Net income attributable to non-controlling interests		67	401
Net income attributable to Hydro shareholders		4.256	8.783
Basic and diluted earnings per share attributable to Hydro shareholders	38	2,08	4,30

Table 9

Period Ending:	2020 31/12	2019 31/12	2018 31/12	2017 31/12
Total Current Assets	60055	53665	54998	54631
Cash and Short Term Investments	22199	13890	7771	13937
Cash	-	-	-	-
Cash & Equivalents	17638	12286	5995	11828
Short Term Investments	4561	1604	1776	2109
Total Receivables, Net	18364	18959	20744	19983
Accounts Receivables - Trade, Net	15274	14831	16996	16537
Total Inventory	19492	20816	26483	20711
Prepaid Expenses	-	-	-	-
Other Current Assets, Total	-	-	-	-
Total Assets	164408	164401	164928	163273
Property/Plant/Equipment, Total - Net	64245	74243	74369	72933
Property/Plant/Equipment, Total - Gross	139426	146002	138840	134528
Accumulated Depreciation, Total	-75182	-71759	-65912	-61595
Goodwill, Net	5029	6551	6584	7269
Intangibles, Net	4328	4949	4859	5443
Long Term Investments	18729	12865	13511	12727
Note Receivable - Long Term	692	880	866	957
Other Long Term Assets, Total	11330	11248	9741	9313
Other Assets, Total	-	-	-	-
Total Current Liabilities	29048	29691	35817	33337
Accounts Payable	14457	14432	16360	15195
Payable/Accrued	-	-	-	-
Accrued Expenses	5547	5402	5172	5424
Notes Payable/Short Term Debt	1589	3808	5730	7872
Current Port. of LT Debt/Capital Leases	3159	2349	3643	373
Other Current liabilities, Total	4296	3700	4912	4473
Total Liabilities	90129	84468	79108	76242
Total Long Term Debt	24811	18858	9342	9012
Long Term Debt	24811	18858	9342	9012
Capital Lease Obligations	-	-	-	-

Deferred Income Tax	3059	3132	3031	3501
Minority Interest	3165	4148	4936	5178
Other Liabilities, Total	30046	28639	25982	25214
Total Equity	74279	79933	85820	87031
Redeemable Preferred Stock, Total	-	-	-	-
Preferred Stock - Non Redeemable, Net	-	-	-	-
Common Stock, Total	2272	2272	2272	2272
Additional Paid-In Capital	29106	29123	29126	29097
Retained Earnings (Accumulated Deficit)	52028	52745	57114	56452
Treasury Stock - Common	-662	-711	-756	-810
ESOP Debt Guarantee	-	-	-	-
Unrealized Gain (Loss)	-	-	-	-
Other Equity, Total	-8465	-3496	-1936	20
Total Liabilities & Shareholders' Equity	164408	164401	164928	163273
Total Common Shares Outstanding	2049.12	2047.65	2046	2044.7
Total Preferred Shares Outstanding	-	-	-	-

* In Millions of NOK (except for per share items)

Table 10

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

(in millions of Euros)	Notes	At December 31, 2018	At December 31, 2017
Assets			
Current assets			
Cash and cash equivalents	13	164	269
Trade receivables and other	14	587	419
Inventories	15	660	643
Other financial assets	22	30	69
		1,441	1,400
Non-current assets			
Property, plant and equipment	16	1,666	1,517
Goodwill	17	422	403
Intangible assets	17	70	68
Investments accounted for under the equity method	18	1	1
Deferred income tax assets	19	163	164
Trade receivables and other	14	64	48
Other financial assets	22	74	110
		2,460	2,311
Total Assets		3,901	3,711
Liabilities			
Current liabilities			
Trade payables and other	20	968	930
Borrowings	21	57	106
Other financial liabilities	22	60	23
Income tax payable		8	11
Provisions	25	46	40
		1,139	1,110
Non-current liabilities			
Trade payables and other	20	27	54
Borrowings	21	2,094	2,021
Other financial liabilities	22	29	43
Pension and other post-employment benefit obligations	24	610	664
Provisions	25	94	113
Deferred income tax liabilities	19	22	25
		2,876	2,920
Total Liabilities		4,015	4,030
Equity			
Share capital	27	3	3
Share premium	27	420	420
Retained deficit and other reserves		(545)	(750)
Equity attributable to equity holders of Constellium		(122)	(327)
Non-controlling interests		8	8
Total Equity		(114)	(319)
Total Equity and Liabilities		3,901	3,711

Table 11

CONSOLIDATED STATEMENT OF CASH FLOWS

<i>(in millions of Euros)</i>	Notes	Year ended December 31, 2018	Year ended December 31, 2017	Year ended December 31, 2016
Net income / (loss)		190	(31)	(4)
Adjustments				
Depreciation and amortization	16, 17	197	171	155
Finance costs – net	10	149	260	188
Income tax expense	11	32	80	69
Share of loss of joint-ventures	18	33	29	14
Unrealized losses / (gains) on derivatives – net and from remeasurement of monetary assets and liabilities – net		86	(54)	(74)
(Gains) / losses on disposal	8	(186)	3	10
Other – net		14	7	(14)
Interest paid		(129)	(185)	(174)
Income tax paid		(23)	(18)	(14)
Change in trade working capital				
Inventories		(9)	(99)	(42)
Trade receivables		(145)	(91)	28
Trade payables		(27)	124	(18)
Margin calls		(5)	-	-
Change in provisions and pension obligations		(58)	(24)	(26)
Other working capital		(53)	(12)	(10)
Net cash flows from operating activities		66	160	88
Purchases of property, plant and equipment	4	(277)	(276)	(355)
Acquisition of subsidiaries net of cash acquired		-	-	21
Proceeds from disposals net of cash		200	2	(5)
Equity contribution and loan to joint-ventures		(24)	(41)	(37)
Other investing activities		10	23	11
Net cash flows used in investing activities		(91)	(292)	(365)
Net proceeds received from issuance of shares		-	259	-
Proceeds from issuance of Senior Notes	21	-	1,440	375
Repayment of Senior Notes	21	-	(1,559)	(148)
(Repayments) / proceeds from revolving credit facilities and other loans	21	(68)	29	(69)
Payment of deferred financing costs and exit fees		-	(118)	(19)
Transactions with non-controlling interests		-	-	(2)
Other financing activities		(14)	10	8
Net cash flows (used in) / from financing activities		(82)	61	145
Net (decrease) / increase in cash and cash equivalents		(107)	(71)	(132)
Cash and cash equivalents – beginning of year		269	347	472
Cash and cash equivalents classified as held for sale – beginning of year		-	-	4
Effect of exchange rate changes on cash and cash equivalents		2	(7)	3
Cash and cash equivalents – end of year	13	164	269	347

Table 12

CONSOLIDATED STATEMENT OF FINANCIAL POSITION (UNAUDITED)

<i>(in millions of Euros)</i>	At December 31, 2020	At December 31, 2019
Assets		
Current assets		
Cash and cash equivalents	439	184
Trade receivables and other	406	474
Inventories	582	670
Other financial assets	39	22
	1,466	1,350
Non-current assets		
Property, plant and equipment	1,906	2,056
Goodwill	417	455
Intangible assets	61	70
Investments accounted for under the equity method	1	1
Deferred tax assets	193	185
Trade receivables and other	67	60
Other financial assets	18	7
	2,663	2,834
Total Assets	4,129	4,184
Liabilities		
Current liabilities		
Trade payables and other	905	999
Borrowings	92	201
Other financial liabilities	46	35
Income tax payable	20	14
Provisions	23	23
	1,086	1,272
Non-current liabilities		
Trade payables and other	32	21
Borrowings	2,299	2,160
Other financial liabilities	41	23
Pension and other post-employment benefit obligations	664	670
Provisions	98	99
Deferred tax liabilities	10	24
	3,144	2,997
Total Liabilities	4,230	4,269
Equity		
Share capital	3	3
Share premium	420	420
Retained deficit and other reserves	(538)	(519)
Equity attributable to equity holders of Constellium	(115)	(96)
Non-controlling interests	14	11
Total Equity	(101)	(85)
Total Equity and Liabilities	4,129	4,184

Table 13

CONSOLIDATED INCOME STATEMENT (UNAUDITED)

<i>(in millions of Euros)</i>	Three months ended December 31, 2020	Three months ended December 31, 2019	Year ended December 31, 2020	Year ended December 31, 2019
Revenue	1,243	1,372	4,883	5,907
Cost of sales	(1,109)	(1,241)	(4,393)	(5,305)
Gross profit	134	131	490	602
Selling and administrative expenses	(59)	(72)	(237)	(276)
Research and development expenses	(10)	(12)	(39)	(48)
Other gains and losses - net	(9)	8	(89)	(23)
Income from operations	56	55	125	255
Finance costs - net	(35)	(40)	(159)	(175)
Share of (loss) / income of joint-ventures	—	(3)	—	2
Income / (loss) before income tax	21	12	(34)	82
Income tax benefit / (expense)	5	10	17	(18)
Net income / (loss)	26	22	(17)	64
Net income / (loss) attributable to:				
Equity holders of Constellium	24	20	(21)	59
Non-controlling interests	2	2	4	5
Net income / (loss)	26	22	(17)	64

References

- Ajuha, J. (2020). Global Aluminum Market. Global Market Insights
- Akpanuko, Essien Ekerette, and Ntiedo John Umoren. (2018). The influence of creative accounting on the credibility of accounting reports. *Journal of Financial Reporting and Accounting* 16: 292–310.
- Balakrishna A and Brown S. 1996. Process Planning for Aluminium- Tubes: An EngineeringOperatives Perspective. *Operations Research* vol. 44 No. 1, pp 7-20
- Barth, M., Landsman, W., Lang, M. & Williams, C. (2006). Accounting Quality: International Accounting Standards and US GAAP. Working paper series.
- CFA (2009). Financial Reporting Analysis. Prentice Hall Publications.
- Broch, D. (2020). The Aluminium Industry: A Review on State-of-the-Art Technologies, Environmental Impacts and Possibilities for Waste Heat Recovery. *International Journal of Thermofluids* 1-2
- Duta, G., Apujani, P. and Gupta, N. (2016). An Introduction to the Aluminum Industry and Survey of OR Applications in an Integrated Aluminum Plant. Indian Institute of Managemnt Ahmebahad
- Maines, L. & Wahlen, J. (2006). The Nature of Accounting Information Reliability: Inferences from Archival and Experimental Research. *Accounting Horizons*, 20(4), 399-425.
- Liu K. (2016). Limitations and Solutions of Enterprise Financial Statement Analysis. *Time Finance*, 2016 (30): 205-210
- Penman, S. (2005). Discussion of ‘On Accounting-Based Valuation Formula’ and ‘Expected EPS and EPS Growth as Determinants of Value’. *Review of Accounting Studies* Vol. 10.
- Tzortzakis, K. (2010). Principal of Marketing. Rossili Publications
- Wzorek, A. (2017). Analysis of the factors influencing the price of aluminum on the world market. *MECHANIK NR.*
- Website of capital (2019). How Elval managed to respond to the crisis. Access 02-05-2021.
- Protonariou, M. (2019). Vioxalco’s prospects of expanding in the foreign market. Available at <https://www.mononews.gr/business/viochalko-stratigiki-epiviosis-ke-prooptikes-anaptixis-stin-evmetavliti-diethni-agora>. Access at 24 -05-2021
- Website of Elvalhalcor <https://www.elvalhalcor.com/who-we-are/overview>. Access at 24-05-2021

- Website of Hydro <https://www.hydro.com/en/investors/reports-and-presentations/annual-reports/>
Access at 24-05-2021
- Website of Constellium https://www.constellium.com/sites/default/files/constellium_reports_fourth_quarter_and_full_year_2020_results_-_press_release.pdf
Access at 24-05-2021
- Website of Elvalhalcor <https://www.elvalhalcor.com/sustainability/strategy>.
Access at 24-05-2021

Author's Statement:

I hereby expressly declare that, according to the article 8 of Law 1559/1986, this dissertation is solely the product of my personal work, does not infringe any intellectual property, personality and personal data rights of third parties, does not contain works/contributions from third parties for which the permission of the authors/beneficiaries is required, is not the product of partial or total plagiarism, and that the sources used are limited to the literature references alone and meet the rules of scientific citations.