Open University of Cyprus

Faculty of Economics and Management

Postgraduate (Master's) Programme of Study

MBA Master In Business Administration

Postgraduate (Master's) Dissertation

Accounting and Financial Analysis of Business Groups with an example of J&P-AVAX S.A

Stefania Kongorozi Karadimou

Supervisor

Antonios Georgopoulos

December 2019

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fulfilment of the requirements for the postgraduate degree
in Master and Business Administration
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Abstract

Mergers and acquisitions, have led to the rapid development of big groups of firms driven by the global competition and the rapid liberalization forces. These groups consist of a parent company and a number of individual subsidiaries.

The economic recession, which appears in Greece in 2008, affected the performance of the Groups and especially the Groups in construction sector. In this Master's dissertation, we test the hypothesis that in recent period of economic recession, the financial crisis has affected business performance and the overall economic health of business groups and its subsidiaries. The investigation is made by reviewing the financial statements, using the relevant ratios and presenting the results of the construction company J&P-AVAX S.A. and its subsidiaries.

Through this analysis, we found that the financial crisis affected the Group's performance as well as its subsidiaries' performance. The subsidiaries from the unrelated diversification strategy of the group appeared better results during the economic recession. Some of the subsidiaries seems to recover during the period 2017-2018 but the possible positive effect to the Group's performance in the future is a matter for further study.

Recommendations for better construction companies' performance are cited. More aggressively, occupation abroad and turn to other business activities may boost the efficiency and effectiveness of enterprises in the effort of rebuilding the Greek economy.

Περίληψη

Οι συγχωνεύσεις και οι εξαγορές έχουν οδηγήσει στην ταχεία ανάπτυξη μεγάλων ομίλων επιχειρήσεων που οδηγούνται από τον παγκόσμιο ανταγωνισμό και τις δυνάμεις ταχείας απελευθέρωσης. Αυτές οι ομάδες αποτελούνται από μια μητρική εταιρεία και μια σειρά μεμονωμένων θυγατρικών.

Η οικονομική ύφεση, η οποία εμφανίζεται στην Ελλάδα το 2008, επηρέασε την απόδοση των Ομίλων και ιδιαίτερα των Ομίλων στον κατασκευαστικό τομέα. Στη μεταπτυχιακή διατριβή αυτή, δοκιμάζουμε την υπόθεση ότι κατά την πρόσφατη περίοδο οικονομικής ύφεσης, η χρηματοπιστωτική κρίση έχει επηρεάσει τις επιχειρηματικές επιδόσεις και τη συνολική οικονομική υγεία των επιχειρηματικών ομίλων και των θυγατρικών της. Η έρευνα γίνεται με ανασκόπηση των οικονομικών καταστάσεων, χρησιμοποιώντας τους σχετικούς δείκτες και παρουσιάζοντας τα αποτελέσματα της κατασκευαστικής εταιρείας J&P-AVAX S.A. και των θυγατρικών της.

Μέσα από αυτή την ανάλυση, διαπιστώσαμε ότι η χρηματοπιστωτική κρίση επηρέασε την απόδοση του Ομίλου καθώς και τις επιδόσεις των θυγατρικών του. Οι θυγατρικές που προήλθαν από τη στρατηγική του Ομίλου της μη συσχετισμένης διαφοροποίησης εμφάνισαν καλύτερα αποτελέσματα. Ορισμένες από τις θυγατρικές φαίνεται να ανακάμπτουν κατά την περίοδο 2017-2018, αλλά η πιθανή θετική επίδραση στις επιδόσεις του Ομίλου στο μέλλον είναι θέμα περαιτέρω μελέτης.

Γίνονται προτάσεις για την καλύτερη επίδοση των κατασκευαστικών εταιρειών. Η στροφή στο εξωτερικό και σε άλλες επιχειρηματικές δραστηριότητες μπορεί να ενισχύσει την αποδοτικότητα και την αποτελεσματικότητα των επιχειρήσεων στην προσπάθεια ανοικοδόμησης της ελληνικής οικονομίας.

Acknowledgements

I wanted to thank my family, especially my wonderful husband, Markos, and children- Nepheli and Pavlos- for their patience and support.

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Table of Contents

Chapter 1
Introduction

Mergers and acquisitions, have led to the rapid development of big groups of firms driven by the global competition and the rapid liberalization forces. These groups consist of a parent company and a number of individual subsidiaries. The parent company governs the group and allocates resources and capital. The economic recession appears in Greece in 2008 and affected the performance of the Groups and especially the Groups in construction sector. This Master's dissertation concerns the accounting and financial analysis of these groups, with the example of the construction company J&P-AVAX S.A. and presents the performance of the Group and its subsidiaries in the period of financial crisis. An analysis by using the accounting statements and the accounting ratios will be undertaken.

Many authors illustrate the definition of the Groups and its performance. Many studies were written regarding the impact of financial crisis in construction sector in different countries such as India, Italy and Greece. No one though explore the impact of economy recession in Group's performance and its subsidiaries' performance in Greece by comparing the performance during the period before crisis, during the recession period and during the period of the first years of recovery.

The reason of this Master's dissertation is to test the hypothesis that in recent years economic recession has affected business performance and the overall economic health of business groups. We examine the specific hypothesis through a systematic analysis of J&P-AVAX S.A. and its main subsidiaries. The financial situation and the productivity of the specific group will be investigated by reviewing the financial statements and presenting the results.

Through the analysis of the financial ratios of AVAX S.A and its subsidiaries in the period before crisis , during the period of the crisis and the two first years of economic recovery, it is obvious that the financial crisis affected the Group's performance as well as its subsidiaries' performance. The subsidiaries from the unrelated diversification strategy of the group appeared better results during the economic recession with a contribution to the Group's performance. Some of the subsidiaries seems to recover during the period 2017-2018 but the possible positive effect to the Group's performance in the future is a matter for further study.

The results of this Master's dissertation arise from the ratio analysis of the financial statements of the Group and its main subsidiaries. Ratios though, are based on accounting figures given in the financial statements. These figures are a subject to deficiencies, approximations, diversity in practice or even manipulation to some extent. Management can change assumptions potentially and manage their ratios by changing accounting assumptions from period to period which could impairs the comparability of financial ratios. Economic conditions, size of firm, diversity of activities can make the business enterprises completely dissimilar and thus affect the computation of accounting ratios. Therefore, the results are subject for further investigation using the information from the notes included in the financial statements.

The key complementary method for analyzing the financial statements of J&P AVAX S.A is the use of financial ratios. In this Master's dissertation, ratios are calculated using the relative data retrieved by the annual published financial statements of the Group and its main subsidiaries for the period 2005-2018. These ratios examine the Group's performance as also its main subsidiaries' performance from the aspect of liquidity, efficiency, profitability and leverage. The results are presented in graphs for each examined ratio of the Group and its main subsidiaries divided in three periods, i.e. 2005-2009, 2010-2016 and 2017-2018.

The content of the Master's dissertation is as follows:

Chapter 1: Introduction. It describes in summary the theme of this Master's dissertation , its scope, the results that occurred, the used methodology, its limitations and the content of the Master's dissertation.

Chapter 2: Business Groups. The definition of the Business Groups, the scope of their creation , their size and their diversification are illustrating in this chapter. A small historical review is mentioned.

Chapter 3: Construction Sector and the Financial Crisis. A description of construction sector in Greece and the impact of financial crisis according to iobe is demonstrating. Additionally, a review of financial crisis is presented.

Chapter 4: Accounting and Financial Analysis of Business Groups. The definition of the ratios are used is presented.

Chapter 5: Avax S.A. Group. The profile, the history of the group, its growth strategy and its subsidiaries are described in this chapter. The information about the group are retrieved from AVAX website.

Chapter 6: Financial Analysis of AVAX S.A Group and its subsidiaries. In this chapter, the financial analysis of the group and its subsidiaries with the use of ratios is presented. A comparison of the ratios during the period 2005-2009, 2010-2016 and 2017-2018 for both Group and subsidiaries are presented in tables and graphs.

Chapter 7: Conclusion. The chapter describes the results from the financial analysis a proposal for better performance of the construction companies during the recovery years.

Chapter 8: References: This chapter includes all the references used for the implementation of this Master's dissertation.

Chapter 2
Business Groups

This chapter illustrates the literature review regarding Business Groups.

2.1 Definition of Business Groups

Mergers and acquisitions, and in general concentration trends of business, have led to the rapid development of big groups of firms that co-exist with small and medium-sized enterprises.

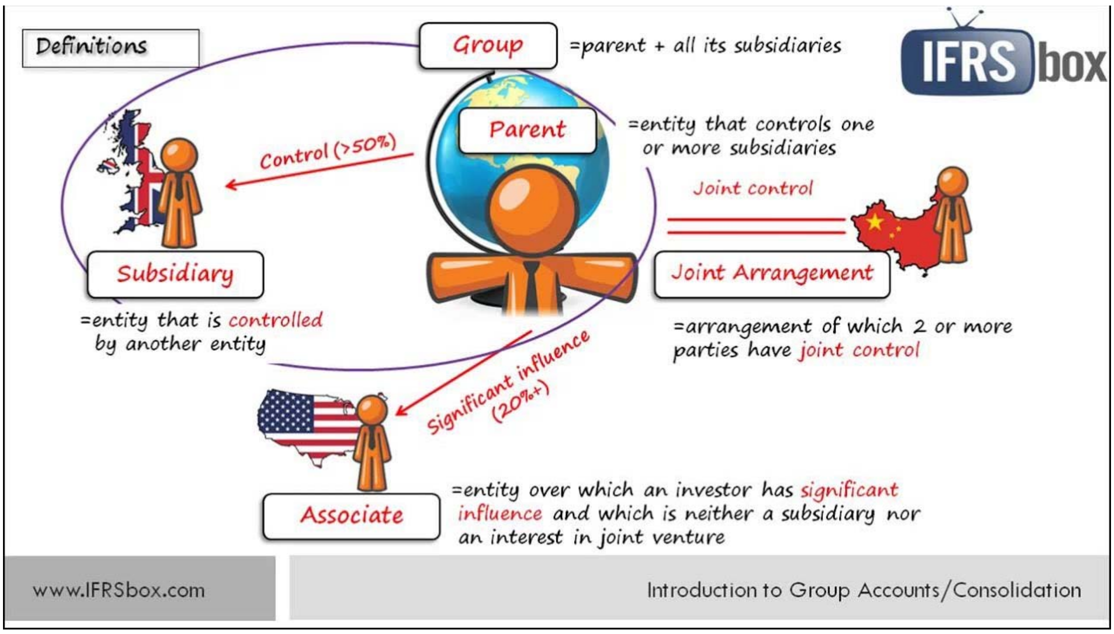
Many authors have arguments concerning the definition of business groups and its legal independence.

Business group as Khanna and Rivkin (2001) mentioned is a set of firms, which, though legally independent, are bound together by a constellation of formal and informal ties and are, accustomed to taking coordinated action. Leff (1978) defines a business group as "a group of companies that does business in different markets under a common administrative or financial control" and that are "linked by relations of interpersonal trust, on the basis of a similar personal, ethnic or commercial background Although the companies, both mother company and subsidiaries, have legal entity, the group does not have.

Powell and Smith-Doerr (1994) state that a business group is a network of firms that regularly collaborate over a long period. Granovetter (2010) argues that business groups refers to an intermediate level of binding, excluding on the one hand a set of firms bound merely by short-term alliances and on the other a set of firms legally consolidated into a single unit. In the United Arab Emirates, a business group can also be known as a trade association with typical examples of Adidas Group.

Petrin and Choudhury (2018) mention that corporations have separate legal personality and limited liability, therefore a parent company is normally not liable for legal infractions and unpaid debts of its subsidiaries. The principles of corporate law are increasingly subject to criticism therefore, courts have developed new approaches to holding parent companies liable such as holding the parent directly liable. For example, Germany has created affiliated enterprise law, which provides situations in which one company is liable for the debts of another company. In New Zealand, the Companies Act provides that the assets of related companies may be pooled to pay the creditors if one of the companies is liquidated. Despite the above-mentioned concerning legal independency, the parent company is obliged to prepare consolidated financial statements.

As mentioned above, the group of companies is comprised of the parent company and one or more subsidiaries.



Source: IFRSbox

2.2 Scope of Groups' creation

The reason of Business Group's creation according to Kock and Guillén (2001) is, firstly, the selection environment at the beginning of economic development in late-industrializing countries, when the ability to use contacts outweighs other capabilities in importance. Expanding businesses based on this core capability leads to unrelated diversification in terms of products and technological and organizational capabilities, as well as a loose organizational structure. Secondly, the selection environment in late-industrializing countries changes systematically over time, altering the reasons underlying the continued existence and creation of business groups.

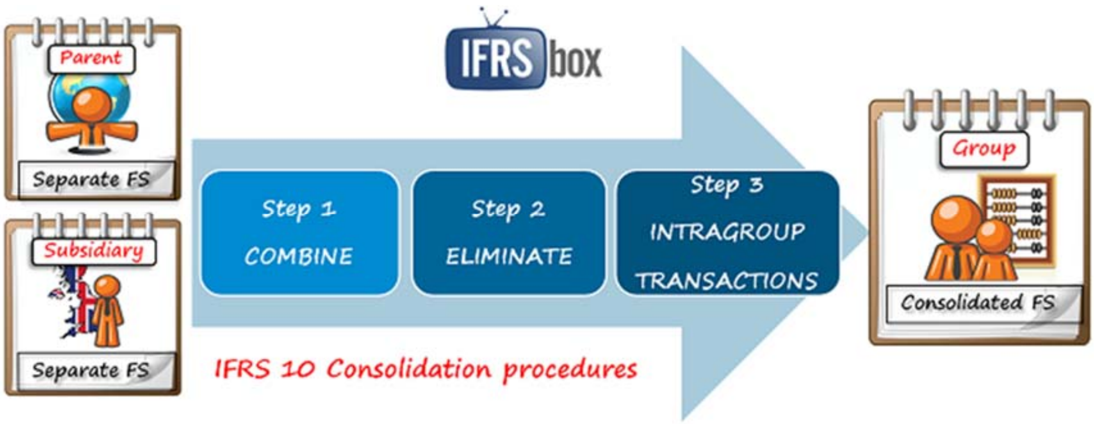
We can say that the scope of Groups' creation is either financial or business. Looking at the banking groups, we observe that they usually consist of companies that complement their parent company, as well as the other companies in the group, so that they can cover the full range of financial products, thereby providing complete services to their clients and avoiding internal competition.

The companies included in the industrial groups are mainly active around the core of their group. This, of course, does not mean that there are no groups that they also include service providers, which, by their operation, assist in the overall operation of the group.

In the case that groups are created for financial purposes, a company acquires equity in other companies, with the ultimate goal of making a profitable long-term investment of its capital. General Electric, for example, in 1986 acquired one of the largest US television networks, NBC.

The financial transactions carried out daily by the group companies are either with each other or with third parties that do not belong to the group. Intercorporate transactions affect the balance sheets and accounts of these companies.

As a result, companies do not present the proper financial position of their companies, the simple individual publication of their annual financial statements. In order to understand how the accounting classification affects a company's financial statements, an important part of financial analysis, states usually legislate to enable companies to draw up a single financial statement of the group, which treats all of its companies as one single enterprise. In European Union the parent companies are obliged to prepare consolidate and separate financial statements (Müller, 2011). The preparation of such statements is done by consolidating the individual annual financial statements of the companies included in the group. The Consolidated financial statements present the assets, liabilities, equity, income, expenses and cash flows of a parent and its subsidiaries as those of a single economic entity (IFRS 10). They include the balance sheet, income statement, statement of cash flows, statement of changes in equity and are called consolidated financial statements.



Source: IFRSbox

The purpose of consolidated statements according to FASB is to present, primarily for the benefit of the shareholders and creditors of the parent company, the results of operations and the financial position of a parent company and its subsidiaries essentially as if the group were a single company with one or more branches or divisions. There is a presumption that consolidated statements are more meaningful than separate statements and that they are usually necessary for a fair presentation when one of the companies in the group directly or indirectly has a controlling financial interest in the other companies.

2.3 Group Size and diversification. The impact of diversification in Group's performance

According to the article 31 of PD 4308/2014, the Business Groups regarding their size are classified as following:

Group Size	Trial Balance (Assets)	Turnover	Number employees
	Amounts in Euro		
Small	4.000.000	8.000.000	10-50
Medium-sized	20.000.000	40.000.000	50-250
Large	20.000.000	40.000.000	>250

In an environment, that financial crisis exists and threaten the companies' performance, the companies obtain one of the management strategies such as merger and acquisition, internal start – up, Joint – Venture and diversification. Hitt et al. (1997) indicated that firms can achieve synergies by an integration of product and international diversification. Kim et al. (1989) also found that a combination of related-product as well as international diversification strategy helps the firm to achieve profit stability.

In practice there are two types of differentiation strategies Schommer et.al.(2019):

- related diversification and
- unrelated diversification.

The related diversification is the result of business expansion into similar industries whose products have many similarities in technology, production methods, etc. Key incentives are the ability to transfer skills from one industry to another, economies of scale and synergy, and increasing market power It provides also, lower cost, common brand names, and stronger competitive capabilities over a broad business phase. It also provides sharper focus for managing diversification and a useful degree of strategic unity across the company's various business activities (Paulraj and Saravanan, 2012).

Unrelated diversification concerns expansion to non-related industries and aims to reduce risk through the diversification of investment in heterogeneous activities, as there may be great uncertainty about the future course of a particular industry.

Erica Olsen (2011) in her book summarizes the reasons for related and unrelated diversification in the following table:

RELATED DIVERSIFICATION	UNRELATED DIVERSIFICATION
Sharing skills and competencies	Interest to the owners or executives
Leveraging a brand name	Reducing risk by operating in various markets and product lines
Using shared marketing skills and knowledge	Refocusing the company
Using sales and distribution capacity	Tax benefits
Exchanging manufacturing skills and know-how	Defending against a takeover
Access to research and development and new product capabilities	Obtaining liquid assets or other assets needed by the main company
Realizing economies of scale	Defending against a takeover

Source:www.dummies.com

According to Paulraj and Saravanan (2012), diversify a company with related or unrelated business activities is a very complex task and they proposed that depending on the focus of the company on growth, profit or both the management should select related, unrelated or even a mixed diversification strategy.

The diversification strategy was popular in the United States and Europe in the late 1960s to 1980s where large corporations sought to expand their empires through acquisitions and mergers (Mashiri and Favourate, 2014.). Johnson et al. (2006) suggest that the narrower diversification has been driven by a growing preference to gear diversification around creating strong competitive positions in few well-selected industries as opposed to scattering corporate investments across many industries. Mashiri and Favourate (2014) mentioned that this may arose because of many companies making strategic mistakes such as making acquisitions in new fields where value is not added to group performance or there are no operating synergies.

Kabeyi (2018), states in his article that in order to be successful, organizations should operate with a well thought and developed corporate strategy. Diversification has proved to be a very popular strategy for organizations seeking growth, higher profitability and stability hence a competitive advantage. However, researchers continue to find conflicting effects of diversification on performance of diversified organizations. The institutional environment of a country whether as developed or developing economy has an important impact on strategic choices of its firms in general and on the spread of diversification strategies in particular with related diversification being more successful in developed and highly competitive economies and unrelated diversification being more popular and successful in developing economies. His article demonstrated that the level of diversification does not necessarily guarantee successful diversification, Cisco had a successful diversification instead of Burns Philp which failed in diversification as the diversification put financial strain on the company, as nearly all of the companies in the group were not profitable. (Kabeyi, 2018).

On the other hand, the results of the study of Iqbal et al(2012), showed that there is no positive relationship between diversification and firms' performance. All firms are performing equally, whether they are highly diversified firms, moderately diversified firms or less diversified firms with respect to their return and risk dimensions.

Schommer et al. (2018), after review of the strategy and the finance literatures on the diversification–firm performance relationship they mention that the traditional view has been that low levels and related types of diversification have positive firm performance consequences, whereas high levels and less related types of diversification strategies have negative performance effects. However, there is considerable variation in the performance effects of both related and unrelated diversification across firms. They also mention that recently authors cast doubt on whether higher levels and unrelated types of diversification are necessarily detrimental to performance.

Finally, George and Kabir (2011), by using a sample of firms from India, they find some evidence that for firms affiliated to larger business groups, corporate diversification enhances firm performance. Ramaswamy et al. (2017), through their study for groups in India, explore that unrelated diversification resulted in poorer performance than related one.

Therefore, still there are arguments how the type of the diversification strategy affects group's performance.

2.4 A brief historical review

According to Edwards (2015) the first group of companies was established in 1832 in the USA. However, the first publication of consolidated financial statements by entities was in the 1890s. In 1900, US Steel Company in 1900, set the procedures for preparing consolidated financial statements which summarized both the assets and liabilities of the parent company and its subsidiaries.

In the United Kingdom, the Pearson & 5 Knowles Coal and Iron Co was the first example that presented consolidated financial statements (Walker, 2006). In 1923, Sir Gilbert Garnsey publishes the first book on consolidated balance sheets ("Holding Companies and Their Published Accounts"). However, due to the lack of specialization in this area, the conservatism of the accounting profession and commercial law, the dissemination of the consolidated financial statements, has been relatively slow. In addition, from 1939, those groups of companies that wanted to be listed in The London Stock Exchange had to issue their consolidated balance sheets and the income statement to the shareholders.

In the rest of Europe, the dissemination of consolidate financial statements took place at an even slower pace (Taylor, 1996). Until 1965, German companies were not required to draw up consolidated balance sheets. In France, by contrast, by 1967 only 22 companies had published consolidated balance sheets. The general guidelines for the preparation of the consolidated financial statements were set out in the 7th Directive of the European Commission. Its incorporation into the national laws of the Member States of the European Union had for the first time legislated the quantitative methods for the preparation of the consolidated financial statements and their content.

Greek legislation has been adapted to the 7th European Union Directive by the Presidential Decree no. 498/1987 . On the PD 498/1987, Law 2190/20 on "Société Anonyme" added a new chapter on "Consolidated Accounts or Consolidated Financial Statements" (articles 90 - 103). Under this new chapter, from 1.7.1990, the parent companies are required to prepare consolidated financial statements. On the way, with the PD. 367/1994 to Law 2190/20, was added Article 130 regarding the preparation of consolidated financial statements by banks. Prior to the issuance of the above PDs, consolidated financial statements were only published by certain groups of companies, which voluntarily published them and based on the accounting standards of international audit firms.

Finally, from 1.1.2005 the heads of business groups listed on the Athens Stock Exchange were obliged by article 13 of Law 3229 / 2004 to publish annual and consolidated financial statements, which must have been prepared in accordance with International Accounting Standards.

Chapter 3

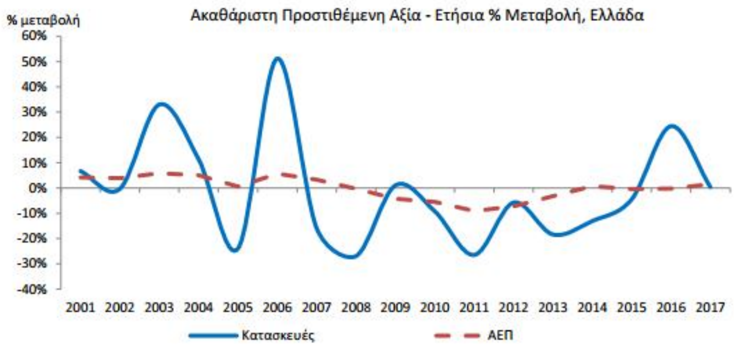
Construction Sector – Financial crisis

The current chapter describes the construction sector in Greece and he impact of financial crisis .

3.1 Construction Sector

The construction is one of the important sectors of the Greek economy. The interconnection of construction activity with the construction industry and other materials used in construction, spatial / architectural activities and commerce, as well as the substantial support it provides, for the implementation of investment projects in areas such as tourism, industry as well as in residential / urban development, make Construction a particularly important sector for the development of the Greek economy (IOBE, 2015). The construction sector includes the construction of buildings, roads, demolitions, bridges, tunnels and other relevant activities.

The financing of the projects of the above table is coming either by the private sector, either be the public sources or by the European Union's sources. The Construction in Greece recorded much more negative (and positive) fluctuations than the economy as a whole, even in the period before the financial crisis. Implementation of the Olympic projects and arrangements affecting the housing market (introduction of VAT on construction for licenses issued since 2006) had a significant impact on construction activity and explain part of the observed variation. Subsequent fluctuations were as we have reported negative, affected by a positive case from the re-start and completion of some major road construction projects.



Source: IOBE,2019

As it is illustrated in the above figure ,the financial recession effected the construction. The number of the enterprises that are occupied with the construction decreased approximately 39.000 between the years 2009 and 2017(IOBE,2019). In combination with the financial crisis, the announcement of tenders of big projects stopped, the private sectors stopped to finance construction of projects because of the lack of bank loans and the public sector paid with big delays their liabilities to the construction companies.

Businesses that suspended their operations during the period 2009-2012 were 26,079 (Hellenic Statistical Authority 2009-2012), businesses that survived, either recorded colossal losses or spent a significant portion of their equity to continue to operate or have been forced to merge with other businesses. The above affected also the employment sector as, in the period 2009-2012 (Hellenic Statistical Authority 2009-2012), respectively, 87,747 construction workers lost their jobs and were unemployed.

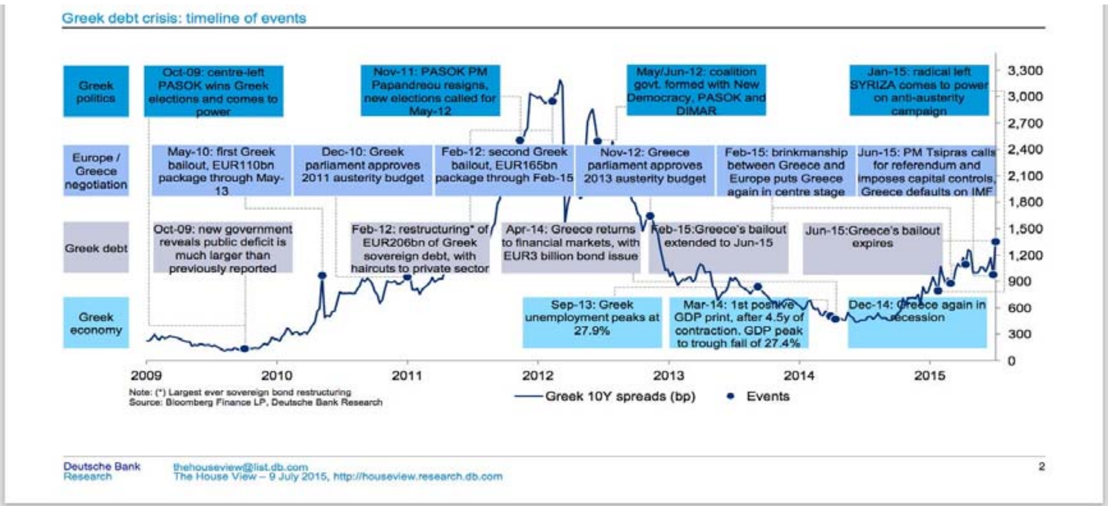
One of the big construction group of companies in the country that has been affected by the crisis is the one that we analyze in this master thesis.

3.2 Financial Crisis

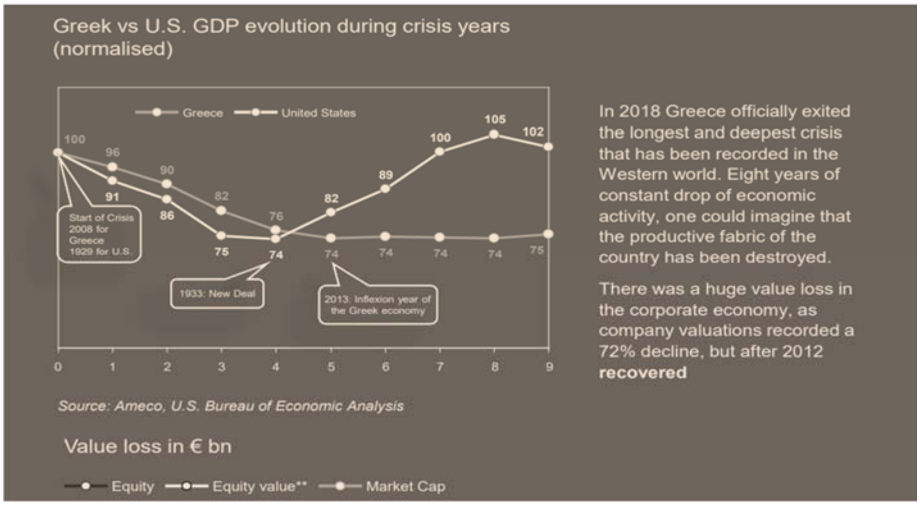
The financial crisis that started in 2007 in the U.S. , became global and severely affected many developed and developing countries. According to Rosenthal, Charles, and Hart (1989), the financial crisis poses a serious threat to the basic principles of the economic system and, therefore, immediate decision-making in an unfavorable economic and social environment is deemed necessary. Sharpe (1963) argues that during a financial crisis there is a significant decline in the market, while the causes of the above may be some unexpected events, such as administrative problems, corruption, debt payment problems among others.

The above-mentioned crisis triggered a debt crisis in Greece. Gibson, Heather D., Stephen G. Hall and George S. Tavlas (2012) discussed the origins of the Greek financial crisis as a result of the increasing fiscal deficits since the country's entry in the Euro area in 2001.

In late 2009 the most important rating agencies (Fitch, Standard and Poor's, Moody's) started rapidly to downgrade the country and the private foreign flows stopped (Hyppolite 2016, p. 58). Due to gradual deterioration of greek economy since then , the global banking system was reluctant to continue lending money to the country .Without easy access to the traditional capital markets, a veil of uncertainty covered the Greek economy (Nelson et al. 2017).At the same time, interest rates were too high and the Greek/German 10-year debt yield spread surpassed 1000 basis points (Nelson et al. 2017).



Source:Bloomberg

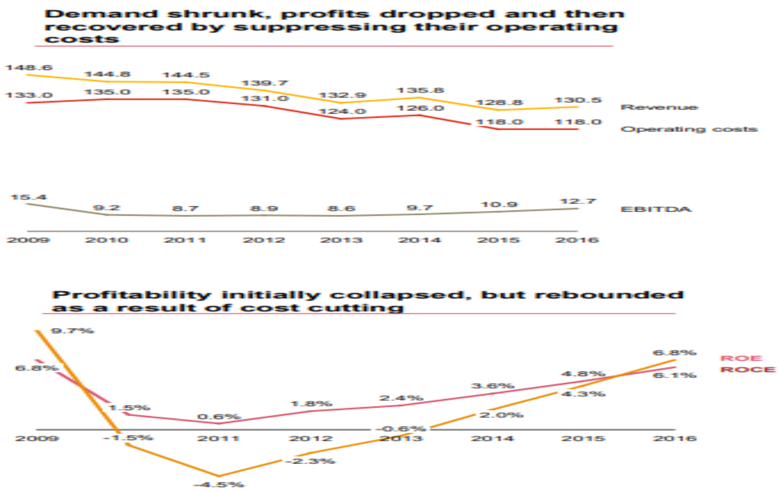


Source:PWC

Businesses that act decisively and strategically and respond early to the crisis usually do better than those who are paralyzed or panic-stricken (Branstad, Jackson, & Banerji, 2009).

Indeed, how quickly and effectively a business responds to the crisis affects its reputation, its credibility, the integrity of its operations, and its market performance (Calloway & Keen, 1996). According to Togni et al,(2010) the markets had predicted the crisis, not in the extend that was finally spreaded , but had enough signs and time to get ready. As Penn et al., (2009) indicate, a 53% of corporates actually had a business plan, although proved that it was ineffective in some cases.

Among the effects of the crisis is the reduction of demand for services and products (Srinivasan et al., 2005) due to unemployment and low income together with limited availability to credit(Gertler, Kiyotaki, & Queralto, 2010; Hall, 2005) .

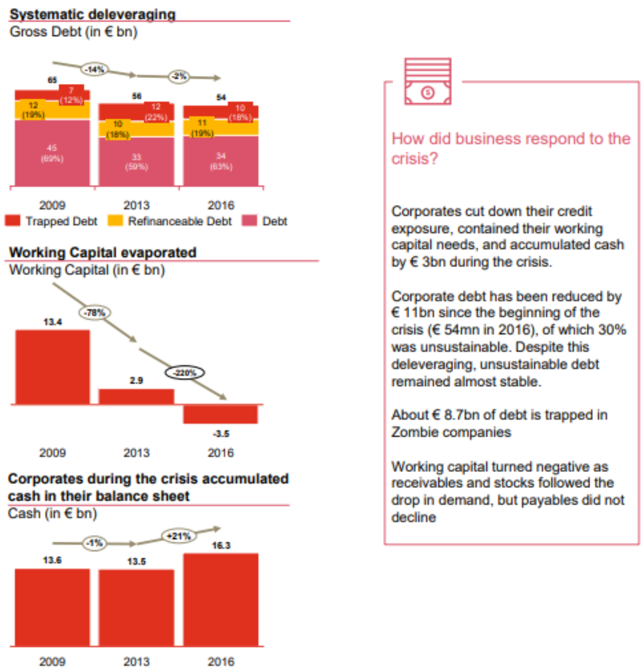


Source:PWC

Therefore, firms should adapt to the changing market conditions(Grewal & Tansuhaj, 2001) . Another effect is the increased competition (Geroski & Gregg, 1997) due to necessity for lower prices that increases rivalry between competitors (Porter, 1979).

As a result of the above effects, together with the inability of the firms to foresee how drastically these will affect the external environment (Bromiley et al., 2008; Zarnowitz, 1985), crisis brings uncertainties (Parnell et al., 2012).

The following diagram present the impact of financial crisis:



Source:PWC

Chapter 4
Accounting
and
Financial Analysis
Of Business Groups

The methods that are usually used in analyzing financial statements are presented in this chapter.

4.1 Introduction

There are two key complementary methods for analyzing financial statements. The first method is the use of horizontal and vertical analysis. Horizontal analysis is the comparison of financial information over a series of reporting periods, while vertical analysis is the proportional analysis of a financial statement, where each line item on a financial statement is listed as a percentage of another item.

The second method for analyzing financial statements is the use of financial ratios. Ratios are used to calculate the relative size of one number in relation to another. After a ratio is calculated, you can then compare it to the same ratio calculated for a prior period, or that is based on an industry average, to see if the company is performing in accordance with expectations.

4.2 Horizontal Analysis

Horizontal analysis compares financial results over time. A financial statement analyst compares income statements or balance sheets for subsequent years to uncover trends or patterns. Horizontal analysis though has some drawbacks, as it does not provide you with answers why some expenses are increased and some others are decreased (Harisson and al., 2011).

4.3 Vertical Analysis

Vertical Analysis or component analysis, as Harisson and al. (2011) describe it, shows the relationship of financial statement items relative to a total, which is the 100% figure. All items on the particular of financial statements financial statement are reported as a percentage of the base. For the income statement, total revenue (sales) is usually the base. This analysis helps to make it easier to compare the financial data of a company or multiple companies over a period.

4.4 Ratio Analysis

There are several general categories of ratios, each designed to examine a different aspect of a company's performance such as:

- Liquidity ratios- This is the most fundamentally important set of ratios, because they measure the ability of a company to remain in business.
- Activity ratios or Efficiency ratios- These ratios valuate how well the company uses its assets and liabilities to generate sales and maximize profits.
- Profitability ratios-These ratios measure how well a company performs in generating a profit.
- Leverage ratios -These ratios compare a company's debt levels with its assets, equity, and earnings to evaluate whether a company can stay afloat in the long-term by paying its long-term debt and interest on the debt.

4.4.1 Liquidity Ratios

The liquidity ratios that will be examined are:

- **Current Ratio**

Current ratio measures the ability to pay current liabilities with current assets (Harison and al., 2011). If current ratio is bigger than one (1) is satisfactory. The disadvantage of this ratio is that a big number of inventories show that a company has good liquidity but the inventories cannot radically change in money in short time (Bragg, 2002).

- **Net Working Capital**

Net Working Capital can act as a reserve of liquidity because of their reversibility, unlike for fixed assets (Baños-Caballero et al., 2019). It is the difference between current assets and current liabilities. Working capital is a measure of a company's liquidity and its short-term financial health. If the ratio is positive there is the potential the company to invest and grow. If the ratio is below zero then there is the possibility the company to have trouble growing or paying back creditors, or even go bankrupt.

4.4.2 Activity Ratios or Efficiency Ratios

The activity ratios which will be examined are:

- **Total Assets Turnover Ratio**

The asset-turnover ratio shows the efficiency in using capital. The higher the asset-turnover ratio, the more efficient assets are used. (Zorn, et al., 2018)

- **Sales to equity ratio**

The sales to equity ratio determine how efficient a company is in utilizing its shareholders' capital to generate sales. It determines the amount of the company's capital that should be retained or kept within a business as sales volumes fluctuate.

4.4.3. Profitability Ratios

The following profitability ratios will be examined:

- **Rate of return on net sales (net profit margin)**

It shows the margin of profit. It is the percentage of each sales dollar earned as net income (Harison and al.,2011). The higher the ratio is the better for the company.

- **Rate of return on assets - ROA**

Return on assets (ROA) is an indicator of how profitable a company is relative to its total assets. This ratio measures the ability of a company to use its assets to earn profit (Harison and al.,2011).

- **Rate on return on ordinary shareholders' equity- ROE**

Return on equity (ROE) shows the amount of income returned as a percentage of shareholders equity. It shows the income earned with the money shareholders have invested (Harison and al.,2011).

4.4.4. Leverage Ratios

The following leverage ratios will be examined:

- **Equity to Non-current asset ratio**

It shows the ability of the company to finance its asset by using its equity (Hays,2009). If the ratio is bigger than 1 it shows that part of the financing is coming from the equity, if it is smaller than 1 it shows that part of the financing is coming from loan as well.

- **Equity to Liabilities ratio**

It show if the company uses loan. The bigger the ratio the better for the company.

- **Equity-to-Total Capitalization Ratio**

Its high value is predisposed to liquidity in the coming years since the cash outflows will be manageable. It points also the image autonomy of the company and its independence from loan funds and other creditors.

Chapter 5
AVAX S.A -Group

5.1 Group Profile

AVAX Group is one of the largest construction Groups in Greece. The company listed in the main market of the Athens Exchange since 1994 and has a considerable presence in the larger projects of the county and the international market.

The group's activities in all aspects of construction projects, such as civil engineering, building, port and road works, electromechanical, energy, pipeline networks and natural gas helped it to achieve international recognition and to become a serious and accountable partner in co-operations with international institutions and the largest construction companies internationally.

A considerable part of the Group's activities is the concession contracts and projects in other countries such as Cyprus, Croatia, Bulgaria, Romania, Poland Iraq, Lebanon, Albania, UAE, Qatar and Saudi Arabia.

5.2 Group History

J&P-AVAX has evolved out of the merger of large Greek construction companies in 1999 and 2000, as well as a strategic acquisition in 2007, with an eye on growing requirements for capital base, effective business structure and credibility linked to the construction of larger and technically complex projects.

The entity listed since 1994 on the Athens bourse's main market is former AVAX SA, which incorporated the private enterprises of Konstantinos Kouvaras, Nicholas Gerarhakis and Anthony Sgardelis. In June 1999 AVAX SA clinched a strategic and shareholding deal with J&P (Hellas) SA, the local construction arm of international group “Joannou & Paraskevaides”. The J&P Group has substantial expertise in civil engineering, energy and petrochemical projects in various markets of the Middle East, Northern Africa, Easter Europe and the Balkans.

In April 2000, the newly formed AVAX – J&P Hellas group struck another deal with ETETH SA, owned by the Mitzalis family and run by Konstantine Mitzalis and Konstantine Lysaridis. The company is based in Thessaloniki and has a long track record, with a strong exposure in Northern Greece.

In 2002, AVAX SA took over J&P Hellas and its subsidiary ETEK SA and was subsequently renamed into J&P-AVAX SA, whereas ETETH SA absorbed its subsidiary AIHMI SA. In response to sector-specific legislation, J&P-AVAX SA was awarded the top-class (7th) certification for public works, while ETETH SA was certified for 6th–class public works and smaller subsidiary PROET SA received a 3rd-class works certificate, which was upgraded to 4th–class in 2005.

In 2007, J&P-AVAX SA struck another strategic deal with Athens-listed ATHENA SA, holder of a 7th-class construction certificate. J&P-AVAX SA controlled 80.5% of ATHENA SA as of the end of 2007 following the purchase of shares previously owned by ATHENA SA's major shareholders and a public tender.

In November 2017, J&P AVAX submitted a public offering to acquire all of Athena Construction's shares, at a price of € 0.70 per share. The aim was the complete absorption of Athena by the J&P AVAX Group and the delisting of the shares of the construction company from ATHEX.
In March 2019, J&P AVAX announced that its corporate name will change into “AVAX SOCIETE ANONYME – CONTRACTING – TOURISTIC – COMMERCIAL – INDUSTRIAL - BUILDING MATERIALS AND EQUIPMENT“, abbreviated into “AVAX SA”. Also it announced the Election of new Board of Directors and the increase of the share capital of the Company up to the amount of twenty million euro

(€20,000,000.00) through a cash issue offering rights of participation to all its shareholders.

In June 2019, AVAX SA announces that following a competitive process, the Joint Liquidators of Joannou & Paraskevaides (Overseas) Limited, of Alvarez & Marsal Europe LLP, have selected AVAX SA as the Buyer of the shares that J&P (Overseas) Ltd held in the following companies: 100% of Conspel Construction Specialist (Isle of Man) Limited, 49% of J&P Qatar WLL and 49% of Abu Dhabi J&P LLC.

The acquiring legal entity is AVAX MIDDLE EAST Ltd, a newly established Cypriot company, with AVAX SA as its ultimate parent company.

The acquisition of the three companies demonstrates AVAX's commitment in remaining an active participant in Qatar, a market in which AVAX has operated for more than a decade through a combination of works (roads, public works and technical projects). It also offers positive prospects to AVAX for future growth in a region with steady flow of procurement for large-scale electromechanical and plumbing works.

Furthermore, the acquisition is supportive to the proper continuation of existing projects together with their associated employees.

AVAX SA announces in July 2019, that the Board of Directors of «AVAX SA» and «J&P Energy & Industrial Works SA», the latter company being 100% subsidiary of the former, decided to commence their merger through the absorption of «J&P Energy & Industrial Works SA» by « AVAX SA».

5.3 Group's Growth Strategy

The Group's Growth Strategy is structured around four pillars and remains focused on them to enhance shareholder value:

1. Concessions

Pursuit of concession works to maintain a large backlog spanning well into the future and ensuring long-term revenues.

Strengthening of the business unit for concession projects and the network of highly specialized external business partners (business development specialists, financial system, legal firms) for effective bidding for concessions.

Set up of a separate entity for financial management of concessions to maximize income and manage the related financial risk.

2. Business Strategy

Development along the lines of large international construction groups, diversifying the revenue through expansion in new areas (environmental projects, facility management, disposal and processing of biologic and other waste, local authority activities such as road cleaning, maintenance and sign-posting).

Pursuit of synergies and complementary operations among different business entities on a Group level.

3. Real Estate

Selective investment in quality projects offering high aesthetics and status, with a medium-term targeting of residential and vacation housing Development of new markets & products, such as retirement villages.

4. Other activities

Participation in BOT infrastructure projects and reconstruction of neighboring countries and regions (Eastern & SE Europe, Middle East, North Africa) jointly with J&P Group and other international partners.

5.4 Subsidiaries

According to the Group's website, the companies that belong to the Group are ETETH S.A., ERGONET S.A., J&P Development S.A., ELVIEX S.A., AUTECO (J&P AVAX IKTEO S.A.), TASK J&P AVAX S.A., VOLTERRA S.A., ENERGIAKI KYKLADON and

AKINITA EVIAS. The Group includes more specifically companies that hold 7th, 6th and 3rd grade certificates for Public Works, along with companies of complementary activities such as Real Estate, Vehicles Inspection Centers, Construction – Management and Operation of Parking Areas, Facilities Management, Management of Projects and Contracts, Wood Processing, Operation of Renewable Energy Recourses, Development of Wind and Solar parks, etc.
Until the current year, Athina S.A. was a subsidiary company of the group also but now it is totally absorbed.

- **ETETH S.A**

Based in the city of Thessaloniki, ETETH S.A. (Thessaloniki Technical Works Company) was founded in 1961 and has been a member of the J&P AVAX Group since 2001. It holds a 6th grade General certificate for Public works, covering the entire spectrum of projects, whether specified by category, nature or sort. | For the past 5 decades, it has constructed in many important projects for both the public and private sectors. ETETH takes pride in being innovative, having completed the first self-financed projects in Greece while owning capital in the Greek Public domain since the beginning of the 1970s, as well as in a number of special projects, such as the construction of waste processing plants, by importing and applying technical know-how since 1985. By applying a unique, fully computerized system throughout the monitoring and construction process, ETETH executes the respective contracts with exceptional quality and speed. In 1968, it founded ELVIEX, a subsidiary with wholly owned, wood impregnation facilities to meet the demands of DEH (Public Electricity Company), OTE (Greek Telecommunications Organization) and OSE (Greek Railroad Organization).

- **J&P Development S.A**

J&P Development S.A. was founded in 1990 and belongs to the J&P AVAX Group. It is a Real Estate development and investment company, operating in Greece and South-Central Europe with the goal to develop high-spec projects and create unearned increments in developing markets. Its projects focus primarily on residential development-urban and country/holiday homes-while also invest in selected commercial Real Estate. J&P Development applies its technical expertise to non-proprietary works, offering managerial and development services to selected Real Estate projects. | Its extensive experience and exploratory nature allows it to seek and evaluate the investment potential in real estate in new markets with the goal to turn them into highly developed, profitable projects. For the successful performance of its activities, it employs professionals who are highly qualified in the technical, commercial and financial sectors. The prestige derived from being a member of one of Greece's largest construction groups. J&P Development follows a continuously upward route investing in quality and innovation which, in turn, guarantee its clients' complete satisfaction.

- **TASK J&P AVAX S.A**

TASK J&P AVAX S.A. was founded in 2000. Originally, its name was 3T A.E. and it was renamed in 2009. It belongs to J&P AVAX Group and specializes in the technical administration and maintenance of buildings and facilities offering the following services:

1) Cleaning and disinfection,

2) Inspection,

3) Routine, preventive and corrective maintenance,

4) Heavy maintenance (Life Cycle Cost),

5) Day-to-day technical operation,

6) Day-to-day technical administration and supervision of systems pertaining of the facility's or building's infrastructure, including their external areas,

7) Supervision of the operation of all high and low voltage electrical installations, air-conditioning, elevators, security and CCTV systems, and BMS.

By adhering to certified procedures and by using certified procedures, TASK offers J&P AVAX a series of high-quality services, which satisfy specific needs and requirements. It holds a wide variety of contracts for technical and cleaning projects, including a 4-year contract with the "EL. VENIZELOS" airport.

- **AUTECO**

The J&P AVAX Group founded Auteco in 2006 and by offering a series of innovative services improved the standards in the vehicle technical inspection sector. Auteco is one of the best companies of its kind worldwide and operates since 2007 the three largest and most technically advanced vehicle inspection stations in Greece. Its methods regarding vehicle testing offer a glimpse of the future and it continually strives for innovation in the areas of driver safety, environment protection and financial efficiency through proper vehicle use. It fully supports and endorses the importance of KTEO (Vehicle Technical Inspection Centers). Company's philosophy is to offer reliable measurements for all vehicle systems along with friendly and efficient customer service at a price that represents true value-for-money. Auteco goes beyond the mandatory vehicle inspection norms by offering owners the opportunity to have their vehicle inspected whenever they like in order to ensure that it operates in a safe, efficient and environment-friendly manner. Service stations: Auteco operates state-of-the-art facilities at the following locations: 1) ATHENS: 107 Athinon Avenue (across from the Athens Stock Exchange), 2) PIREAUS: 88 Kifissou Avenue (Piraeus exit towards Lamia), 3) THESSALONIKI: 13 Agias Anastasias, Pylea, near Mediterranean Cosmos. Auteco Services: 1) Vehicle Technical Inspection, 2) Exhaust Inspection certificates, 3) Total or partial vehicle check-up (New, preventive inspection service).

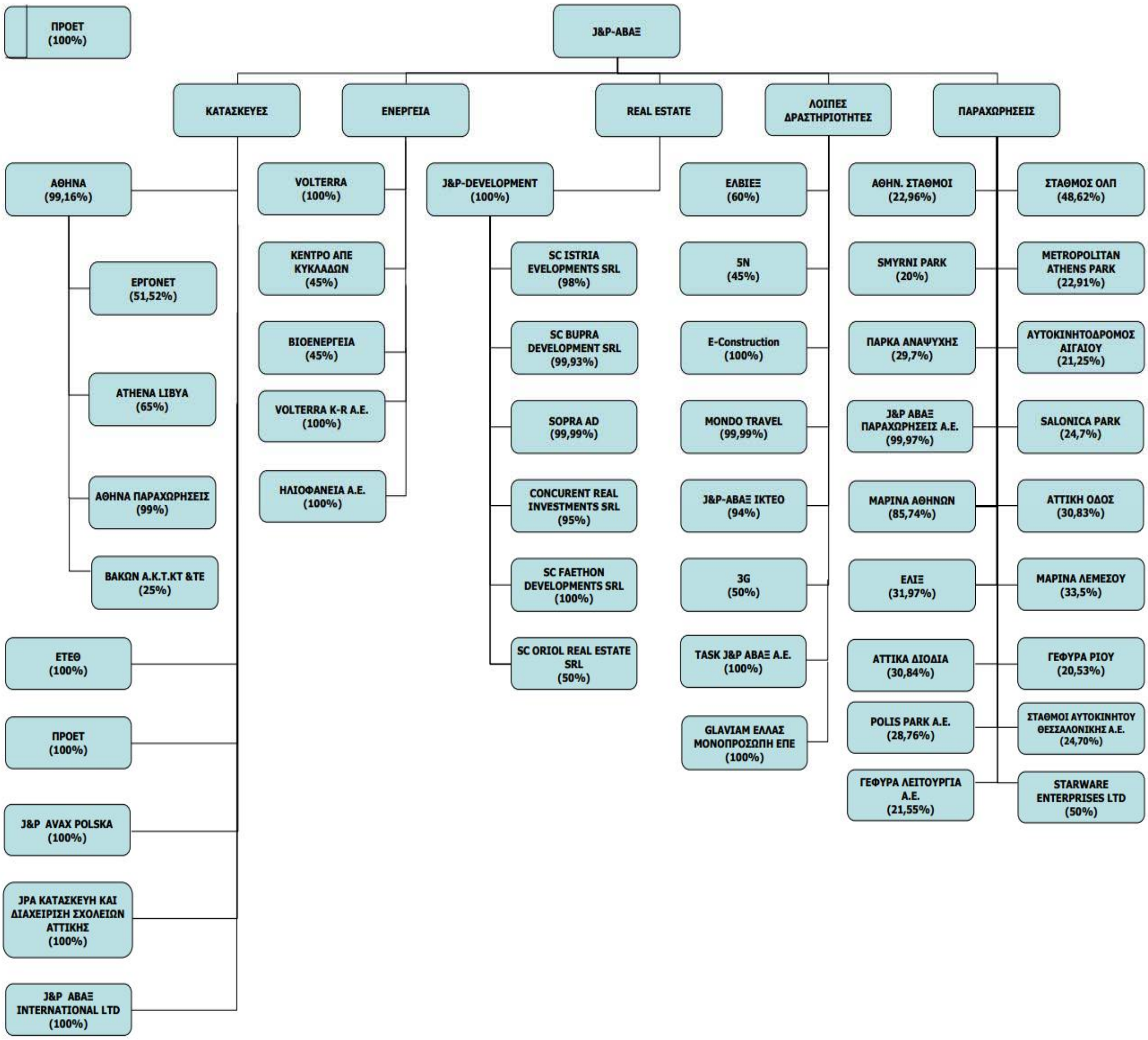
- **ERGONET S.A.**

ERGONET S.A. was founded in 2005. | The company is a development of ERGONET S.A. which was founded in 1991 and was acquisitioned by ATHENA S.A. in 2002. ERGONET holds a 3rd grade General Certificate for public works, specializing primarily in railroad projects for which is co-operating with the French company TSO S.A. Since becoming a member of the J&P AVAX Group in 2007, ERGONET has been operating according to the organization, systems and philosophy of the Group, participating and constructing projects where quality, adhesion to strict timetables and employee safety are of paramount importance. The company employs highly capable and knowledgeable professionals who are experienced in handling large projects in the Middle East (Saudi Arabia, United Arab Emirates etc).

- **VOLTERRA**

Volterra A.E. was created in 2010 and was the result of the 50:50 strategic partnership of the SORGENIA SpA Group - Italy's largest private energy company - and J&P AVAX SA. (now AVAX SA). Volterra was the vehicle through which the two groups aimed to develop their energy market in Greece, the Balkans and the wider SE Mediterranean region. The company was involved in all forms and ways of power generation, with the priority being the development of Renewable Energy (RES) plants.
VOLTERRA A.E. is active in the production, marketing and supply of electricity in the Greek and Southeast European markets.

ΔΙΑΡΘΡΩΣΗ ΟΜΙΛΟΥ - ΘΥΓΑΤΡΙΚΕΣ ΕΤΑΙΡΙΕΣ ___/___/___



Source: AVAX S.A

Chapter 6
Ratio Analysis of the Group AVAX S.A and its subsidiaries

In this chapter, we will calculate and analyze the above-mentioned ratios of the group and its subsidiaries.

6.1 AVAX S.A. Group

In this chapter, we will analyze the above-mentioned ratios of the group.
The following tables indicate the data as they occurred from the financial statements existing in the website of the group.

AVAX S.A	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
	x100.000.000						x100.000.000							
NON CURRENT ASSETS	1,56	1,76	3,58	4,41	4,84	5,72	5,79	5,84	5,6	5,56	5,31	5,41	5,7	5,88
CURRENT ASSET	2,98	3,58	5,96	8,48	8,94	7,63	7,12	7,17	7,27	8,36	7,8	7,64	6,68	5,28
TOTAL ASSETS	4,53	5,34	9,54	12,89	13,78	13,35	12,91	13,01	12,87	13,92	13,11	13,05	12,38	11,16
CURRENT (SHORT-TERM) LIABILITIES	2,7	3,17	4,62	7,22	8,28	6,91	6,6	6,42	6,69	6,55	6,29	6,79	5,84	4,86
SHAREHOLDERS EQUITY	1,79	1,9	2,41	2,55	2,75	3,42	3,23	3,07	2,39	2,17	1,77	1,16	1,1	0,87
SHAREHOLDERS LIABILITIES	2,74	3,44	7,04	10,34	11,03	9,93	9,68	9,94	10,48	11,75	11,34	11,89	11,28	10,29
TOTAL SHAREHOLDERS EQUITY AND LIABILITIES	4,53	5,34	9,54	12,89	13,78	13,35	12,91	13,01	12,87	13,92	13,11	13,05	12,38	11,16
SALES	3,58	3,6	6,83	9,91	9,46	7,9	6,94	4,74	4,1	5,18	5	5,41	6,73	5,82
COST OF SALES	3,08	3,16	6,28	9,33	8,71	7,11	6,32	4,28	3,96	4,63	4,59	5,11	6,36	5,5
GROSS PROFIT	0,49	0,45	0,55	0,58	0,75	0,79	0,62	0,46	0,14	0,55	0,41	0,3	0,37	0,32
NET PROFIT BEFORE TAX	0,2	0,28	0,34	0,28	0,35	0,2	0,5	-0,66	-0,71	-0,55	-0,31	-0,58	-0,02	-0,1
NET PROFIT AFTER TAX	0,13	0,19	0,25	0,25	0,27	0,06	-0,03	-0,13	-0,73	-0,4	-0,38	-0,43	-0,11	-0,26

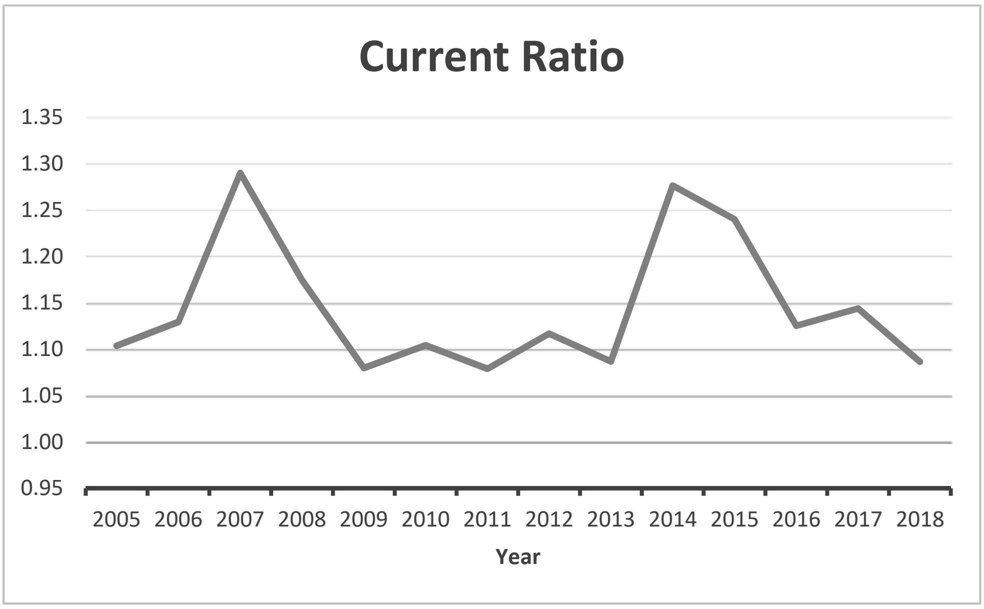
Table 1. Financial Data of AVAX S.A.

6.1.1 Liquidity ratios

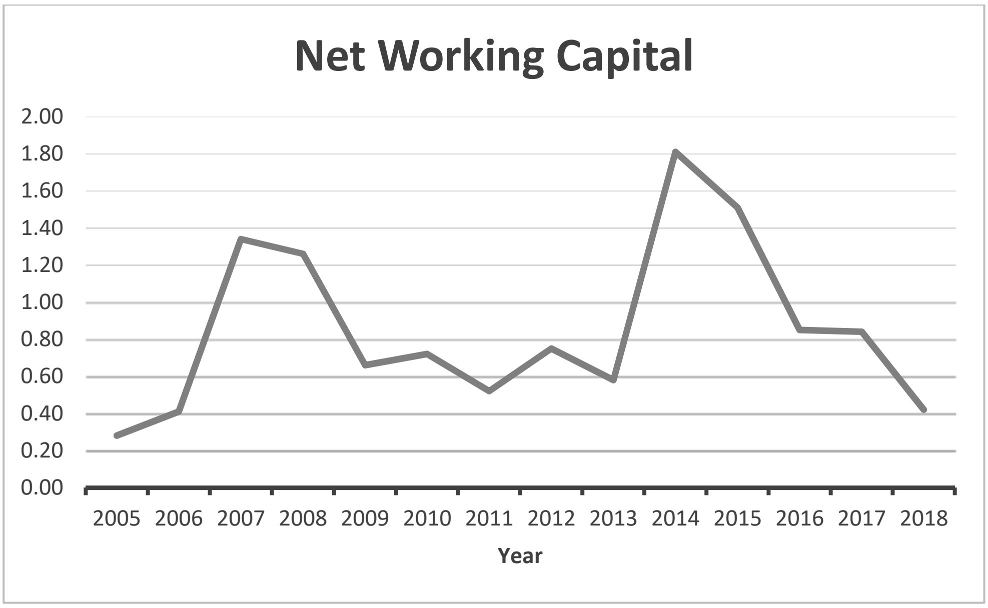
The liquidity ratios of the Group are as follows:

RATIOS/YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Liquidity Ratios														
Current ratio	1,10	1,13	1,29	1,17	1,08	1,10	1,08	1,12	1,09	1,28	1,24	1,13	1,14	1,09
Net Working Capital	0,28	0,41	1,34	1,26	0,66	0,72	0,52	0,75	0,58	1,81	1,51	0,85	0,84	0,42

Table 2. Liquidity Ratios of AVAX S.A



Graph 1.Current Ratio per Year of AVAX S.A



Graph 2. Net Working Capital per Year of AVAX S.A

As we can see from the above charts, the current ratio of the group is above 1 through these years. It is also visible that the trend is around 1.15 except the negative trend from the year 2007 to 2008 and from 2015 to 2016. We should not forget that the period 2007-2008 the financial crisis arise and on 2015 the capital controls appeared and this negative tense indicates that their cash balance is being depleted during these two periods.

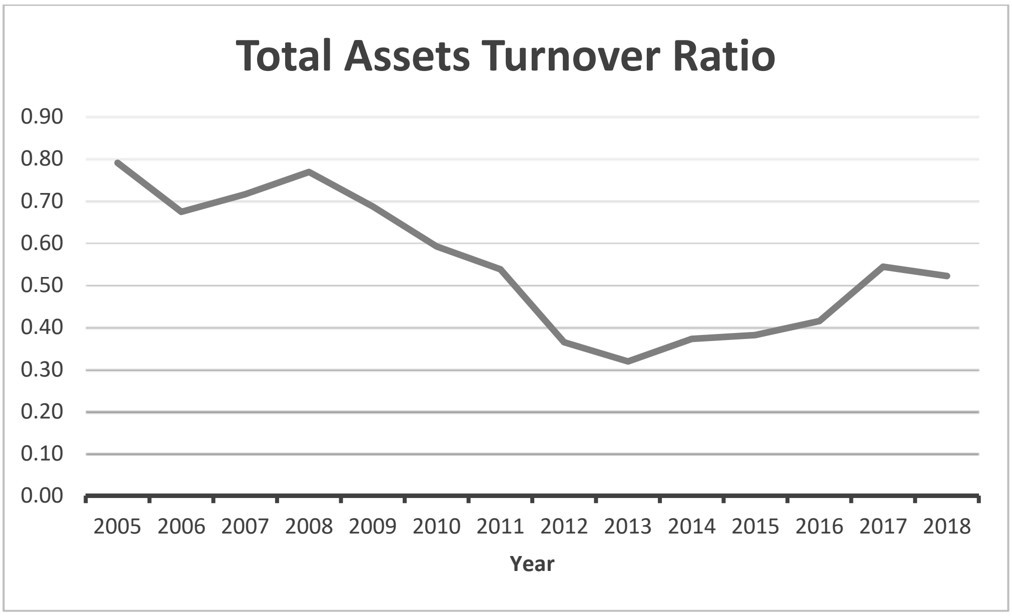
The Net Working Capital is always above zero but it appears significant fluctuations during the period 2008 to 2018. Especially, during the period of financial crisis 2009-2013, the values of the ratio are low.

6.1.2 Activity or Efficiency Ratios

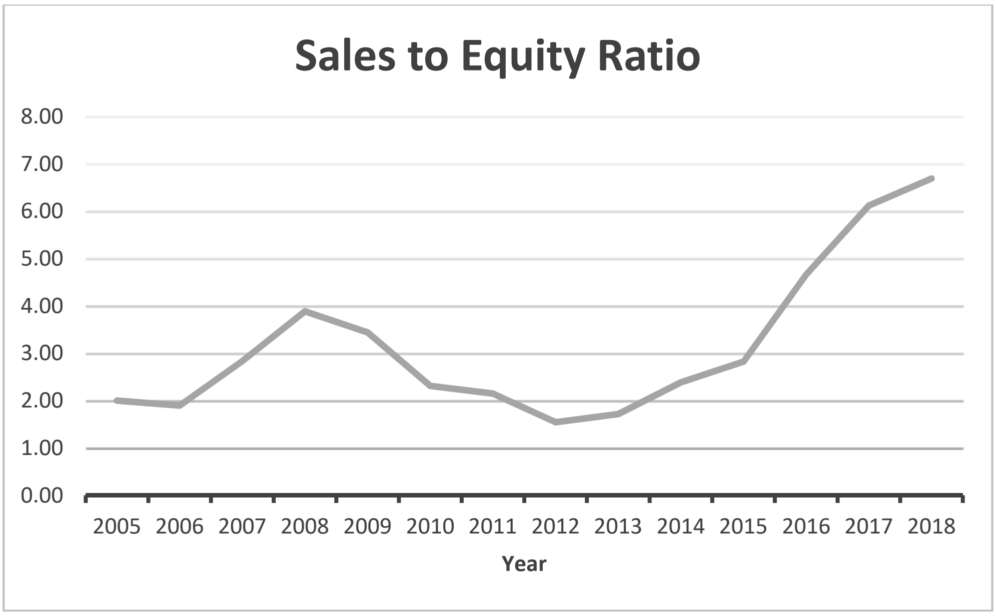
The efficiency ratios of the Group are as follows:

RATIOS/YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Activity or Efficiency Ratios														
Total Assets Turnover Ratio	0,79	0,67	0,72	0,77	0,69	0,59	0,54	0,36	0,32	0,37	0,38	0,41	0,54	0,52
Sales to equity ratio	2,00	1,89	2,83	3,89	3,44	2,31	2,15	1,54	1,72	2,39	2,82	4,66	6,12	6,69

Table 3. Efficiency Ratios of AVAX S.A



Graph 3. Total Assets Turnover Ratio of AVAX S.A



Graph 4. Sales to Equity Ratio per Year of AVAX S.A

The Asset Turnover ratio has negative trend with a small positive trend from 2013. This negative trend is because of the continuous decrease of the turnover of the Group and highlight the effect of the financial crisis to the Group. We have to have in mind that construction companies have low Asset Turnover ratio as they have large asset bases and low asset turnover. In addition, the continuous increase of sales from 2016 is observed as the ratio has positive trend until 2018.

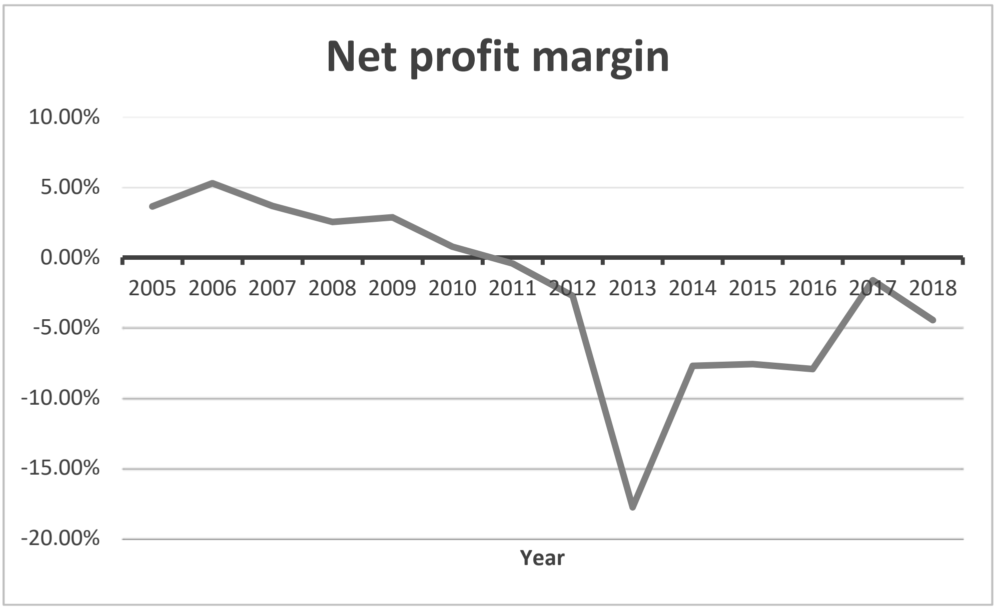
Furthermore, the sales to equity ratio has the same behavior as the asset turnover ratio. From 2008 to 2012 it decreases but the increase in sales from 2012 and the decrease of the shareholders' equity are explored though its positive trend.

6.1.3 Profitability Ratios

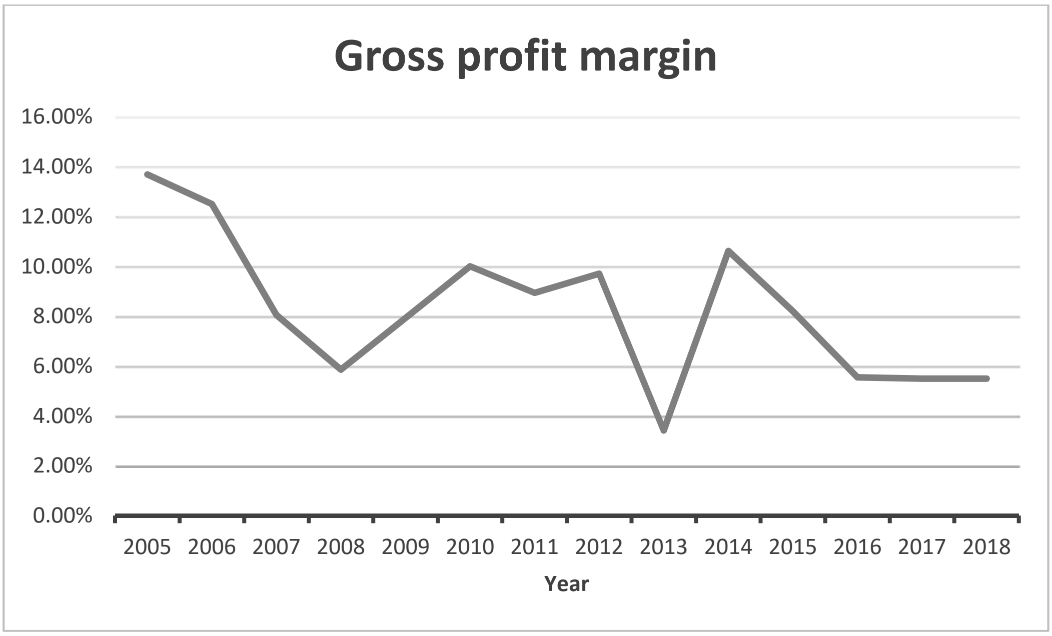
The profitability ratios of the Group are:

RATIOS/YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Profitability Ratios														
Rate of return on net sales (net profit margin) ROS	3,63%	5,28%	3,66%	2,52%	2,85%	0,76%	-0,43%	-2,74%	-17,80%	-7,72%	-7,60%	-7,95%	-1,63%	-4,47%
Gross profit Margin ratio	13,69%	12,50%	8,05%	5,85%	7,93%	10,00%	8,93%	9,70%	3,41%	10,62%	8,20%	5,55%	5,50%	5,50%
Rate of return on assets ROA	2,87%	3,56%	2,62%	1,94%	1,96%	0,45%	-0,23%	-1,00%	-5,67%	-2,87%	-2,90%	-3,30%	-0,89%	-2,33%
Return on shareholders' equity (ROE)	7,26%	10,00%	10,37%	9,80%	9,82%	1,75%	-0,93%	-4,23%	-30,54%	-18,43%	-21,47%	-37,07%	-10,00%	-29,89%

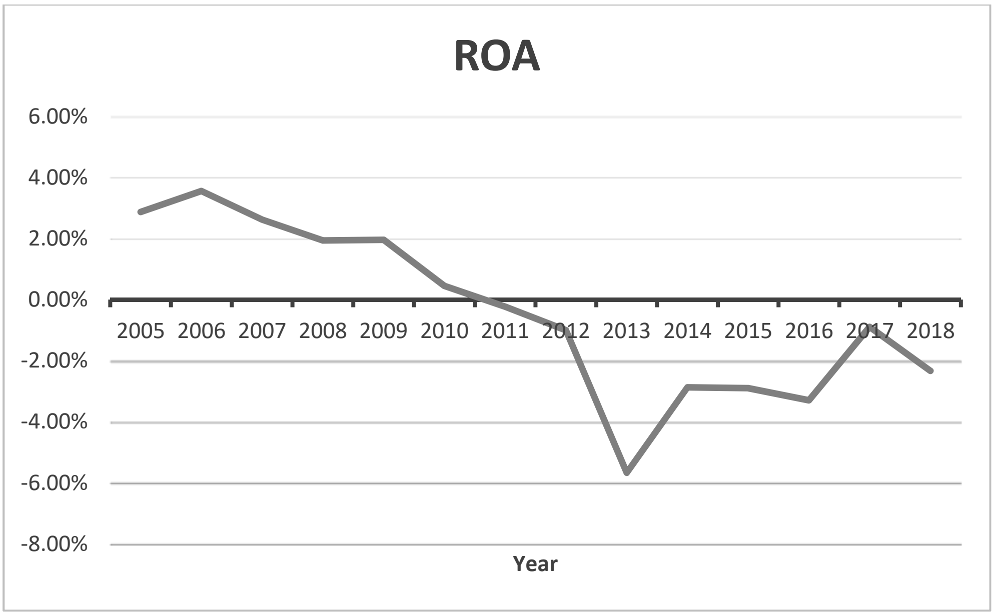
Table 4: Profitability Ratios of AVAX S.A



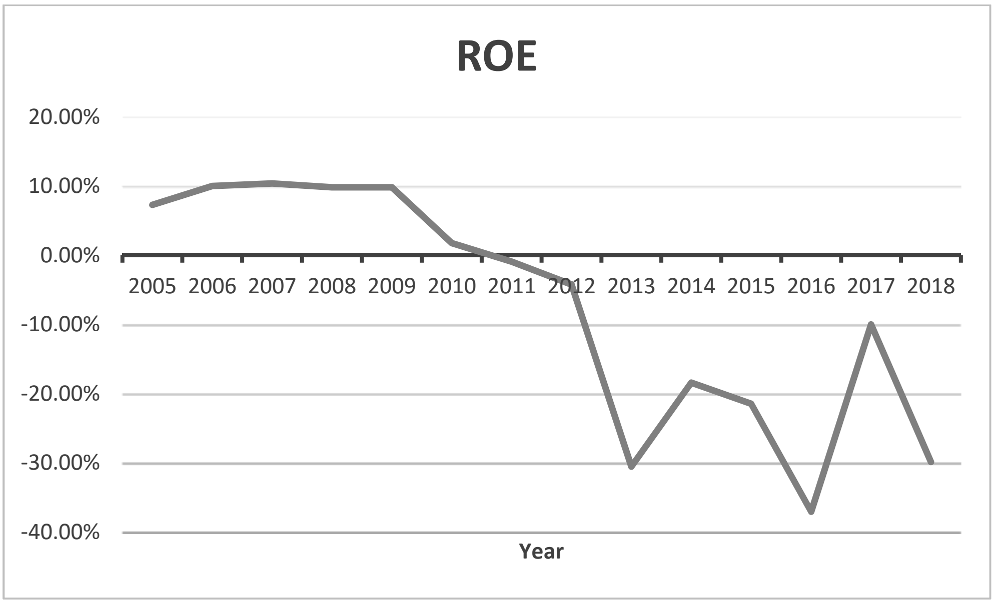
Graph 5. Net Profit Margin per Year of AVAX S.A



Graph 6. Gross Profit Margin per Year of AVAX S.A



Graph 7. Return on Assets Ratio per Year of AVAX S.A



Graph 8. Return on Equity Ratio per Year of AVAX S.A

Regarding the profitability ratios, we can observe from the charts that the ratios have negative trend from 2007.

Net profit margin is negative since 2011 and even though it has an increase since 2014, it is still negative. That indicates that the Group is not generating profit from its sale and again the impact of financial crisis is obvious.

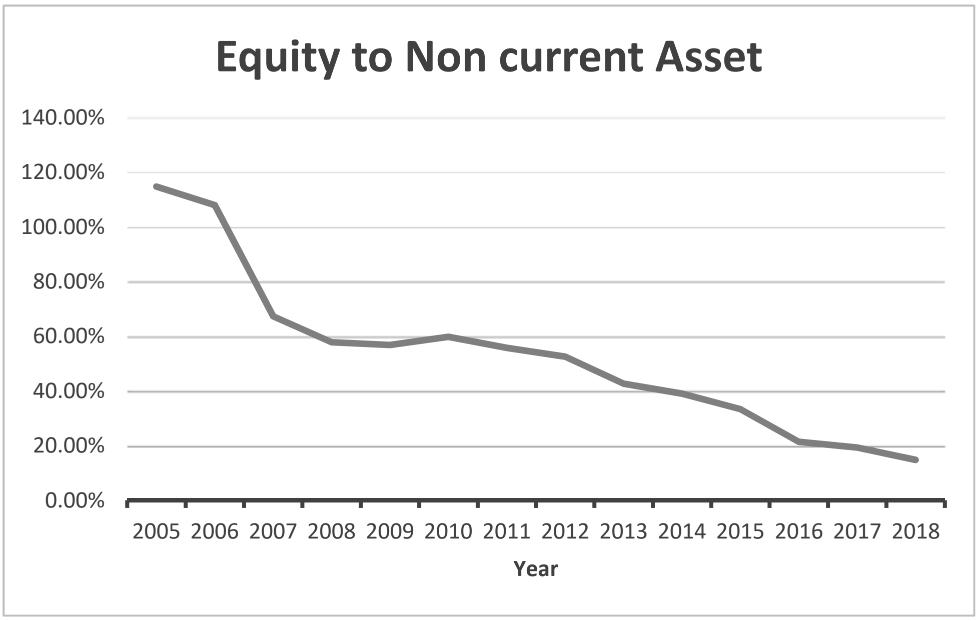
Gross profit margin is decreasing but it is better than the net profit ratio.
ROA has the same negative trend with negative figures since 2011 and reaches to -5.67 in 2013. That indicates that the group does not have profitable assets.
Finally, the negative trend and figures of ROE since 2011 indicate financial problem inside the group and there is not effective use of equity. Even in the first period of 2005-2010 the ratio was not sufficient if we take into consideration that a good ROE is approximately 10% and AVAX appears around 10% only for the period 2006-2009.

6.1.4 Leverage Ratios

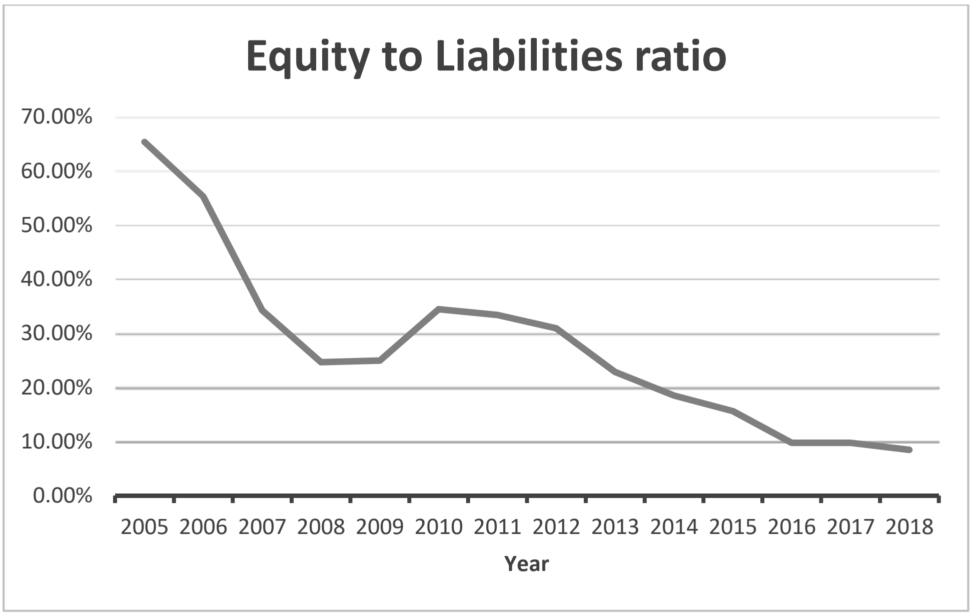
The leverage ratios of the Group are:

RATIOS/YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Leverage Ratios/Capital structure ratios														
Non current asset to equity ratio	114,74%	107,95%	67,32%	57,82%	56,82%	59,79%	55,79%	52,57%	42,68%	39,03%	33,33%	21,44%	19,30%	14,80%
Liabilities to equity ratio	65,33%	55,23%	34,23%	24,66%	24,93%	34,44%	33,37%	30,89%	22,81%	18,47%	15,61%	9,76%	9,75%	8,45%
Equity-to-Total Capitalization Ratio	39,51%	35,58%	25,26%	19,78%	19,96%	25,62%	25,02%	23,60%	18,57%	15,59%	13,50%	8,89%	8,89%	7,80%

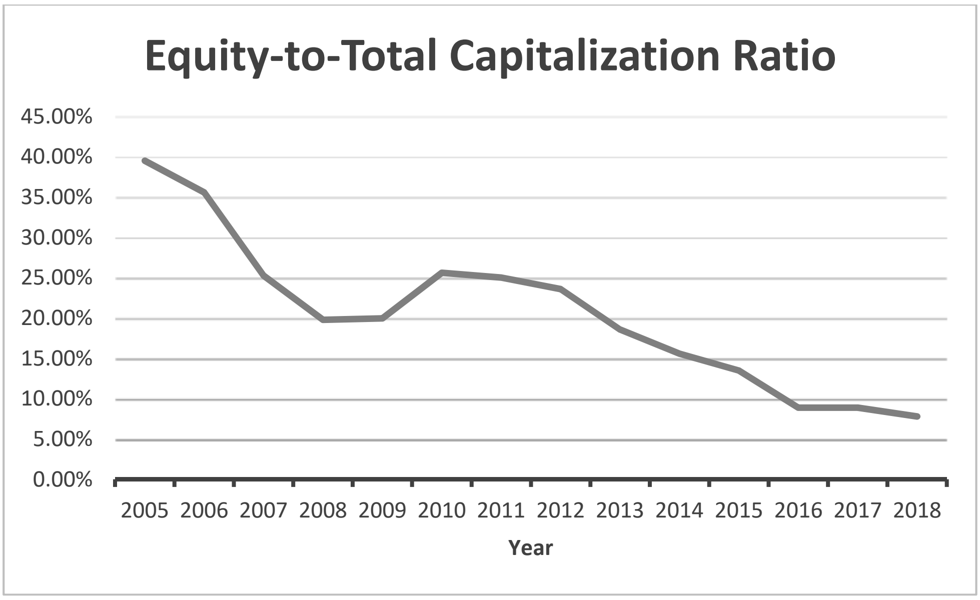
Table 5. Leverage ratios of AVAX S.A



Graph 9. Equity to Non-Current Assets per Year of AVAX S.A



Graph 10. Equity to Liabilities Ratio per Year of AVAX S.A



Graph 11. Equity to Total Capitalization per Year of AVAX S.A

The leverage ratios of the Group and their decrease, indicate the decrease of the shareholders' equity and the increase of the loans. It reflects that shareholder equity does not have the ability to cover all outstanding debts .The equity to total capitalization ratio in 2018 is 7.80% while in 2005 was 39.51%. As we can observe the ratio was higher the period before financial crisis.

6.2. Subsidiaries

In this chapter, we will analyze the above-mentioned ratios of the main subsidiaries of the Group.

6.2.1 ETETH S.A

The following tables indicate the data as they occurred from the financial statements existing in the website of the group for ETETH S.A.

ETETH S.A	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
	x100.000.000						x100.000.000							
NON CURRENT ASSETS	0,24	0,23	1,14	1,22	1,22	1,21	1,21	1,05	1,01	0,96	0,94	0,76	0,73	0,72
CURRENT ASSET	0,21	0,14	0,22	0,36	0,33	0,24	0,22	0,21	0,26	0,41	0,30	0,25	0,26	0,20
TOTAL ASSETS	0,45	0,37	1,36	1,58	1,55	1,45	1,42	1,26	1,27	1,37	1,24	1,01	0,99	0,92
CURRENT (SHORT-TERM) LIABILITIES	0,14	0,07	0,11	0,26	0,22	0,21	0,20	0,20	0,18	0,26	0,27	0,21	0,22	0,22
SHAREHOLDERS EQUITY	0,30	0,29	1,00	1,11	1,11	1,02	1,01	0,88	0,87	0,91	0,76	0,64	0,60	0,51
SHAREHOLDERS LIABILITIES	0,16	0,08	0,35	0,48	0,44	0,43	0,41	0,38	0,40	0,46	0,48	0,37	0,39	0,41
TOTAL SHAREHOLDERS EQUITY AND LIABILITIES	0,45	0,37	1,36	1,58	1,55	1,45	1,42	1,26	1,27	1,37	1,24	1,01	0,99	0,92
SALES	0,14	0,13	0,14	0,32	0,42	0,16	0,05	0,05	0,08	0,18	0,21	0,28	0,26	0,11
COST OF SALES	0,10	0,10	0,13	0,27	0,38	0,17	0,04	0,04	0,11	0,18	0,18	0,23	0,20	0,16
GROSS PROFIT	0,04	0,04	0,01	0,05	0,04	0,00	0,01	0,01	-0,03	0,00	0,03	0,05	0,05	-0,05
NET PROFIT BEFORE TAX	0,07	0,02	0,05	0,06	0,04	-0,04	-0,02	-0,01	0,03	0,08	0,07	0,09	0,08	-0,02
NET PROFIT AFTER TAX	0,07	0,02	0,05	0,05	0,04	-0,04	-0,02	-0,01	0,02	0,10	0,06	0,08	0,07	-0,02

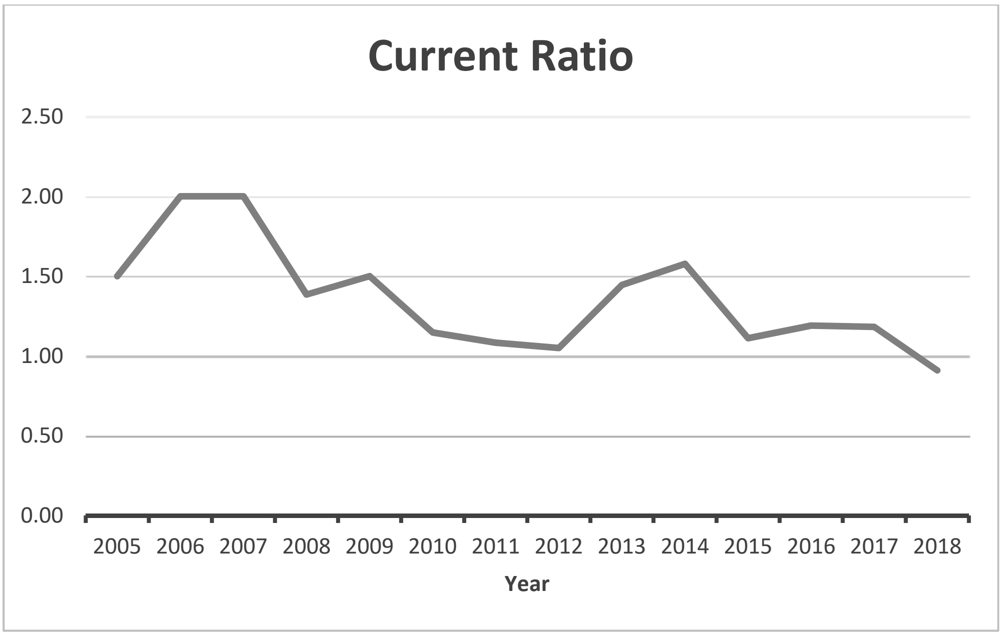
Table 6. Financial Data of ETETH S.A

6.2.1.1 Liquidity ratios

The liquidity ratios are:

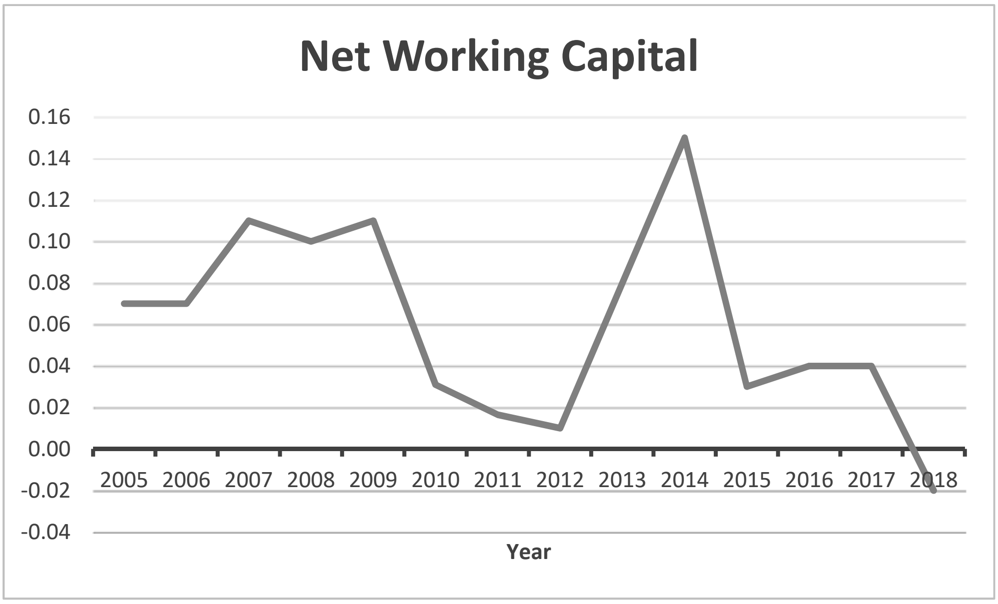
RATIOS/YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Liquidity Ratios														
Current ratio	1,50	2,00	2,00	1,38	1,50	1,15	1,08	1,05	1,44	1,58	1,11	1,19	1,18	0,91
Net Working Capital	0,07	0,07	0,11	0,10	0,11	0,03	0,02	0,01	0,08	0,15	0,03	0,04	0,04	-0,02

Table 7. Liquidity Ratios of ETETH S.A



Graph 12. Current Ratio per Year of ETETH S.A

As we can observe from the above charts the current ratio of ETETH S.A is always above 1 except in 2018 that is below 1. Until 2007 the ratio is high and that shows the capability of the company to pay its obligations. But since 2008 it has negative trend and even it is above 1, the trend of the ratio indicates the impact of the financial crisis to the company. In 2013 and 2014 the ratio is very high again and that is probably because of new contracts. During capital controls in 2015 there is again decrease of the ratio and a small increase since 2016. The ratio below 1 in 2018 is a case for extra investigation.



Graph 13. Net Working Capital per Year of ETETH S.A

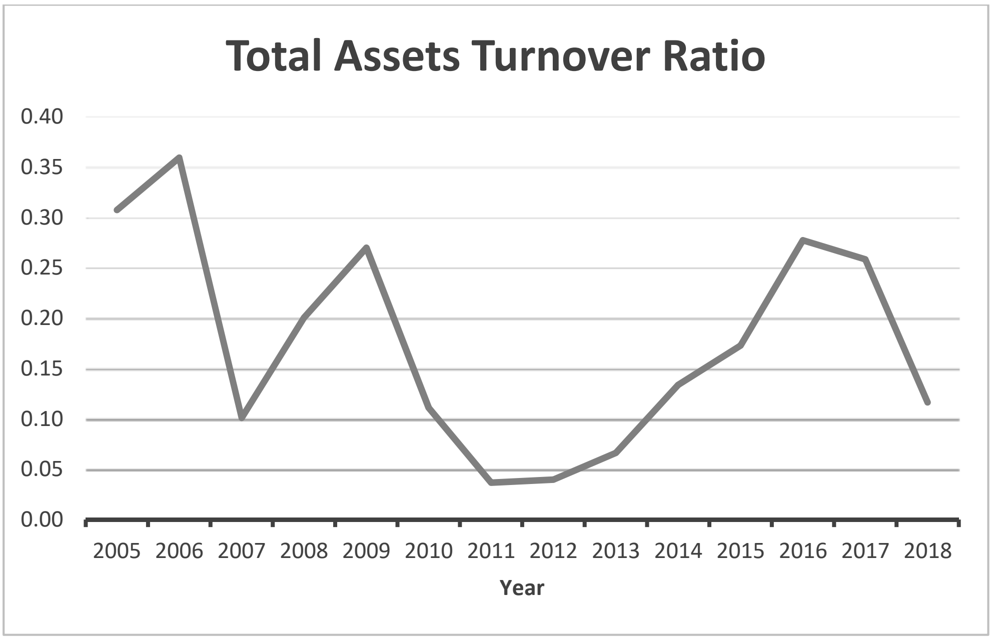
The Net Working Capital is positive but its values are very low close to zero. Since 2009 to 2017 has fluctuations and in 2018 is below zero. That indicates that the company has liquidity problems and it cannot pay its debts.

6.2.1.2 Activity or Efficiency Ratios

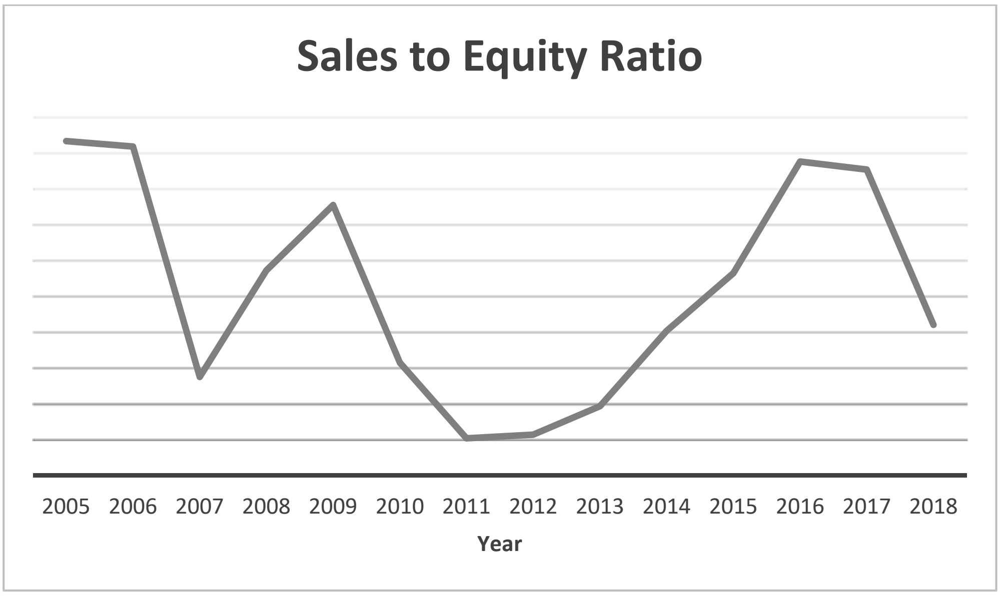
The efficiency ratios of ETETH S.A are as follows:

RATIOS/YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Activity or Efficiency Ratios														
Total Assets Turnover Ratio	0,31	0,36	0,10	0,20	0,27	0,11	0,04	0,04	0,07	0,13	0,17	0,28	0,26	0,12
Sales to equity ratio	0,47	0,46	0,14	0,29	0,38	0,16	0,05	0,06	0,10	0,20	0,28	0,44	0,43	0,21

Table 8. Efficiency ratios of ETETH S.A



Graph 14. Total Assets Turnover Ratio per Year of ETETH S.A



Graph 15. Sales to Equity Ratio per Year of ETETH S.A

The Asset Turnover ratio has positive trend during the periods 2007-2009 and 2012-2016. It is shown that it has negative trend the period of financial crisis 2009-2012. This negative trend is because of the continuous decrease of the turnover of the company and highlight the effect of the financial crisis to the company and it implies that the company is not generating more revenue per euro of assets. We have to have in mind that construction companies have low Asset Turnover ratio as they have large asset bases and low asset turnover.

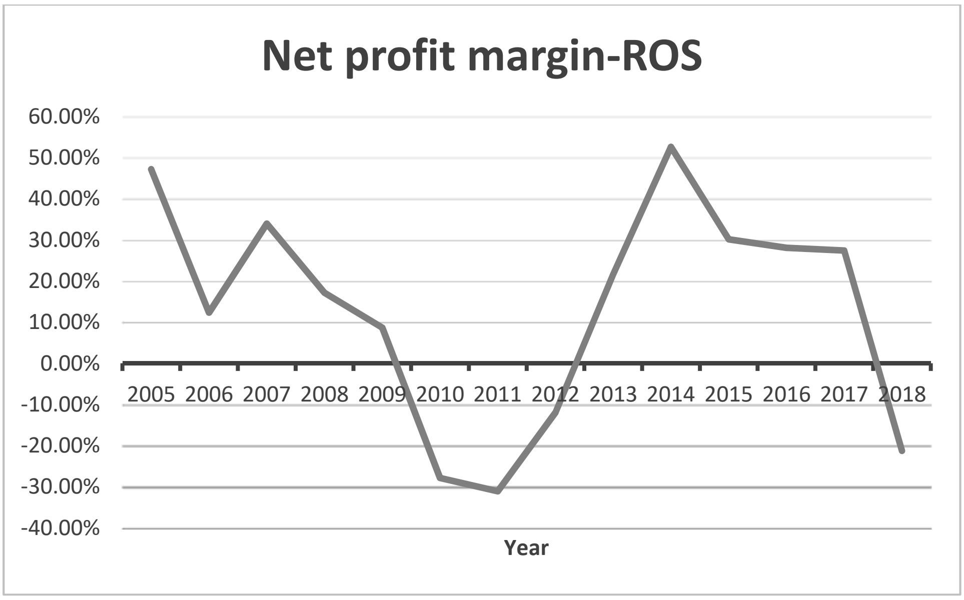
Furthermore, the sales to equity ratio has the same behavior as the asset turnover ratio. During the period 2009 to 20011 and from 2016 to 2018, it decreases but the increase in sales from 2012 and the decrease of the shareholders' equity are explored though its positive trend.

6.2.1.3 Profitability Ratios

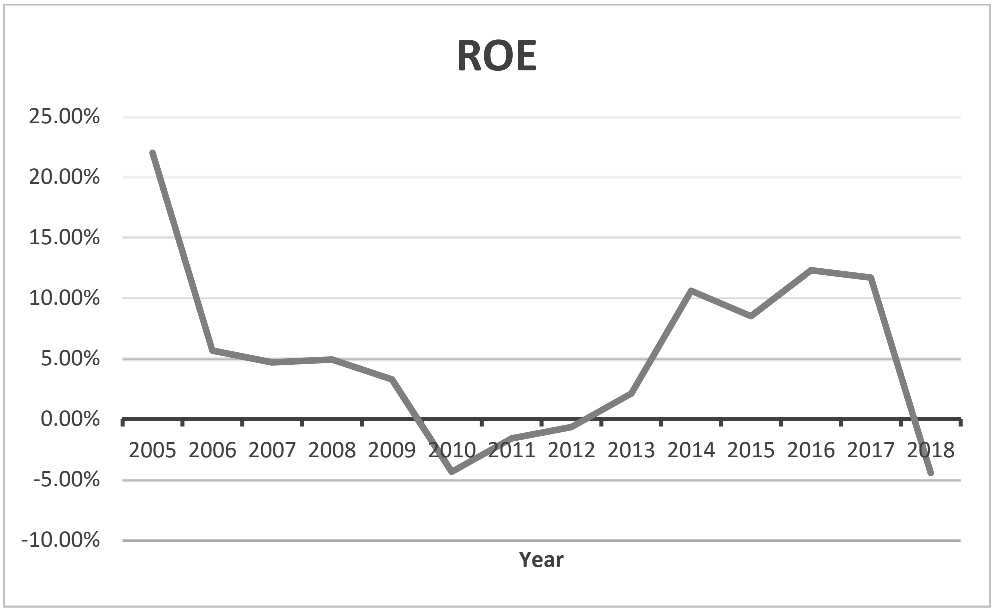
From the financial data of ETETH S.A we present the following profitability ratios:

RATIOS/YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Profitability Ratios														
Rate of return on net sales (net profit margin) ROS	47,17%	12,32%	33,96%	17,15%	8,65%	-27,88%	-31,11%	-11,94%	21,71%	52,60%	30,14%	28,08%	27,40%	-21,28%
Gross profit Margin ratio	26,42%	26,34%	7,66%	15,60%	9,97%	-3,03%	14,35%	16,43%	-32,29%	2,40%	13,68%	17,86%	20,06%	-46,47%
Rate of return on assets ROA	14,50%	4,43%	3,43%	3,44%	2,34%	-3,10%	-1,14%	-0,47%	1,44%	7,04%	5,21%	7,78%	7,08%	-2,48%
Return on shareholders' equity (ROE)	21,99%	5,65%	4,66%	4,90%	3,26%	-4,38%	-1,61%	-0,68%	2,10%	10,59%	8,50%	12,28%	11,68%	-4,47%

Table 9: Profitability ratios of ETETH S.A



Graph 16. Net Profit Margin per Year of ETETH S.A



Graph 17. Return on Equity per Year of ETETH S.A

Regarding the profitability ratios, we can observe from the charts that the ratios ROS, ROA and ROE are negative during the period 2010-2012 and 2018.
Net profit margin has negative trend in general and that indicates that ETETH S.A is not generating profit from its sale and again the impact of financial crisis is obvious. It starts increasing the period 2011 to 2014.

Gross profit margin is decreasing during the periods 2005-2007 and 2008 to 2010. In 2013 and 2018 it has big inclement but on the on the other hand, we can observe that in general the ratio shows the good performance of the company's sales and production.

ROA has the same negative trend with negative figures since 2010 to 2012 and reaches to -8.10 in 2010. That indicates that the group does not have profitable assets.

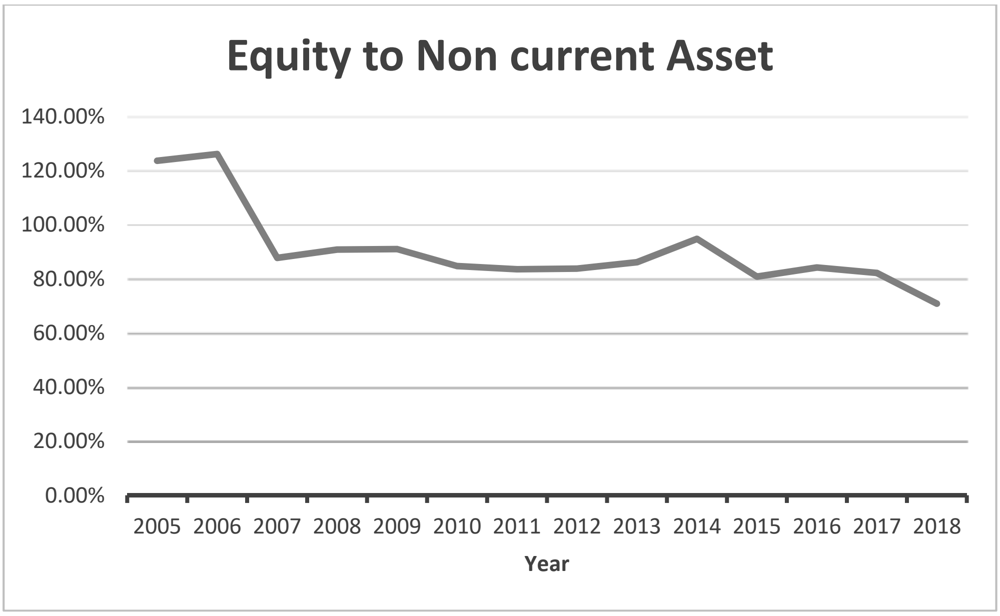
Finally, a good ROE is approximately 10% and ETETH appears around 10% only for the period 2014-2017. It decreases during 2006 to 20010 and since 2011 to 2017, it starts increasing. That means that there is a positive trend concerning the efficiency of the management to use the assets to create profits.

6.2.1.4 Leverage Ratios

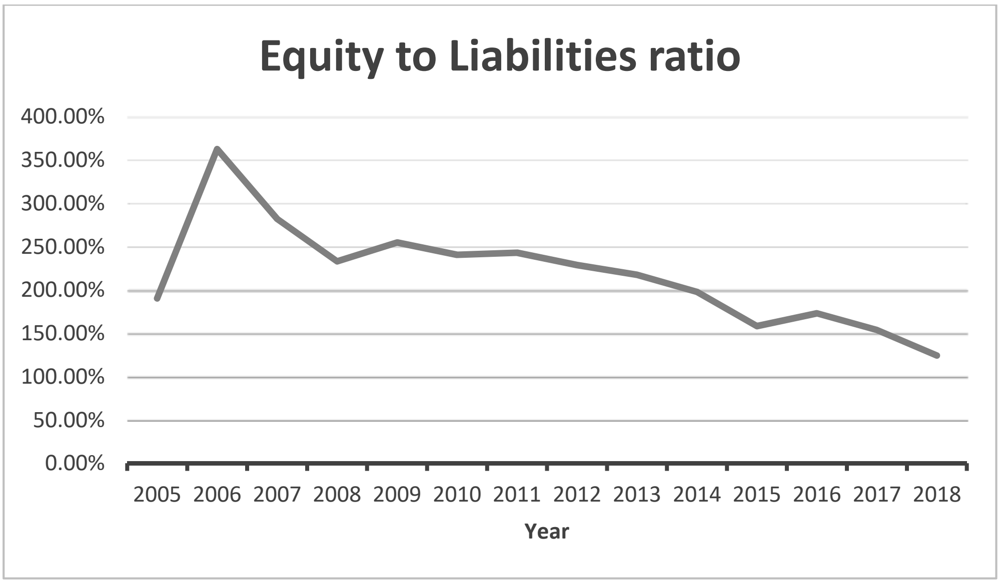
The leverage ratios per year of ETETH S.A are:

RATIOS/YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Leverage Ratios/Capital structure ratios														
Equity to Non current asset ratio	123,63%	126,09%	87,76%	90,80%	90,98%	84,71%	83,55%	83,77%	86,14%	94,79%	80,85%	84,21%	82,19%	70,83%
Equity to liabilities ratio	190,27%	362,50%	281,81%	233,00%	254,86%	240,62%	243,00%	228,73%	217,50%	197,83%	158,33%	172,97%	153,85%	124,39%
Equity-to-Total Capitalization Ratio	65,55%	78,38%	73,81%	69,97%	71,82%	70,64%	70,85%	69,58%	68,50%	66,42%	61,29%	63,37%	60,61%	55,43%

Table 10. Leverage ratios of ETETH S.A



Graph 18. Equity to non-current Asset per Year of ETETH S.A



Graph 19. Equity to Liabilities per Year of ETETH S.A

Graph 20. Equity to Total Capitalization per Year of ETETH S.A

The leverage ratios of the Company and their decrease, indicate the decrease of the shareholders' equity and the increase of the loans. It reflects that shareholder equity does not have the ability to cover all outstanding debts .

The equity to non-current ratio the first two years 2005-2006 is bigger than 1 so the assets are financed by the shareholders.

On the other hand thought, the equity to liabilities ratio is bigger than 1 so the shareholders participate more than its creditors.

Regarding the Equity to Total Capitalization, the values of the ratio and its decrease indicates that the company since 2006 when it was depended on creditors by only 20%, it reached 2018 to be 45% depended.

6.2.2 Task J&P AVAX S.A

The following tables indicate the data as they occurred from the financial statements existing in the website of the group for Task J&P-AVAX S.A.

TASK J&P-AVAX S.A	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
	x100.000.000													
NON CURRENT ASSETS						0,000	0,000	0,001	0,002	0,002	0,002	0,002	0,002	0,002
CURRENT ASSET				0,007	0,011	0,029	0,053	0,083	0,062	0,062	0,092	0,083	0,080	0,060
TOTAL ASSETS	0	0	0	0,007	0,011	0,030	0,054	0,084	0,063	0,064	0,094	0,084	0,082	0,062
CURRENT (SHORT-TERM) LIABILITIES				0,006	0,006	0,021	0,042	0,060	0,035	0,045	0,067	0,055	0,070	0,052
SHAREHOLDERS EQUITY				0,001	0,005	0,008	0,011	0,021	0,027	0,018	0,026	0,028	0,009	0,007
SHAREHOLDERS LIABILITIES				0,006	0,006	0,022	0,043	0,064	0,036	0,046	0,069	0,057	0,073	0,055
TOTAL SHAREHOLDERS EQUITY AND LIABILITIES	0	0	0	0,007	0,011	0,030	0,054	0,084	0,063	0,064	0,094	0,084	0,082	0,062
SALES				0,019	0,043	0,077	0,136	0,122	0,103	0,094	0,101	0,096	0,126	0,084
COST OF SALES				0,023	0,039	0,069	0,125	0,101	0,084	0,073	0,078	0,081	0,111	0,074
GROSS PROFIT	0	0	0	-0,004	0,005	0,008	0,011	0,021	0,019	0,021	0,023	0,015	0,014	0,009
NET PROFIT BEFORE TAX				-0,004	0,004	0,004	0,004	0,013	0,009	0,010	0,011	0,004	0,000	-0,001
NET PROFIT AFTER TAX				-0,004	0,004	0,003	0,003	0,010	0,006	0,007	0,008	0,002	-0,001	-0,002

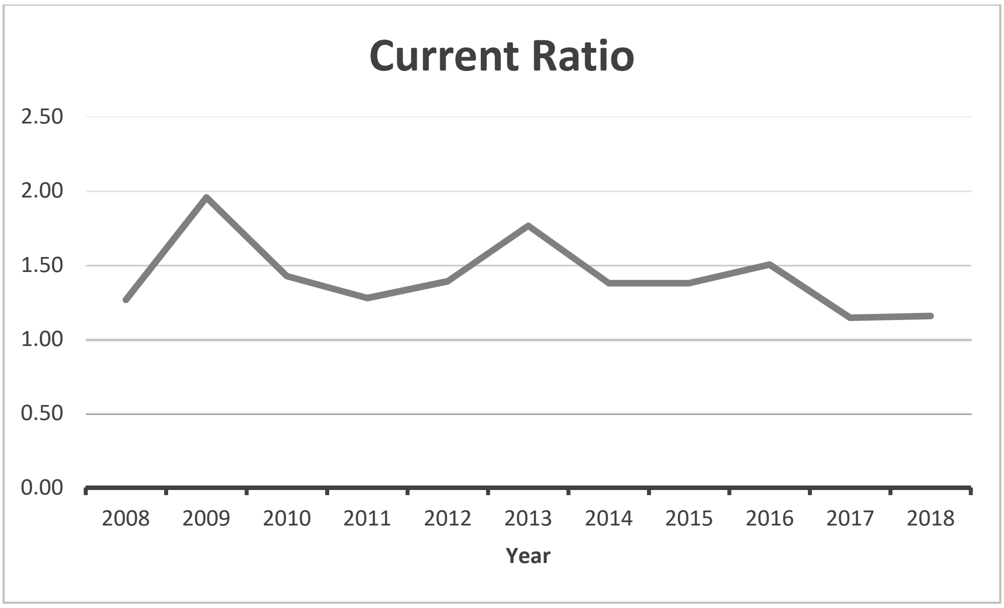
Table 11. Financial data of TASK J&P AVAX S.A

6.2.2.1 Liquidity ratios

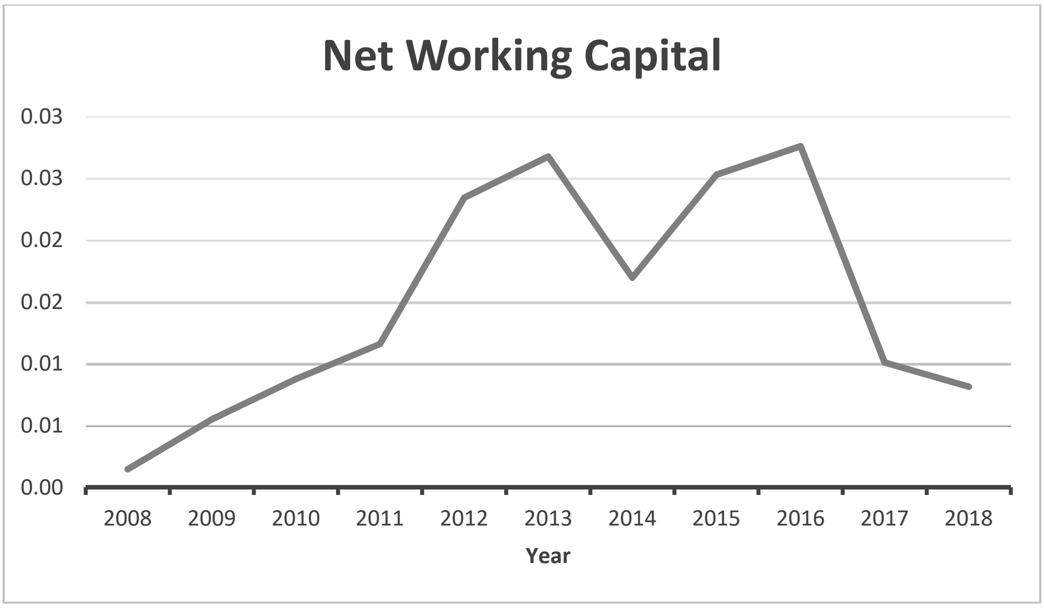
The subsidiary's liquidity ratios are:

RATIOS/YEAR	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Liquidity Ratios											
Current ratio	1,27	1,95	1,43	1,28	1,39	1,76	1,38	1,38	1,50	1,14	1,16
Net Working Capital	0,00	0,01	0,01	0,01	0,02	0,03	0,02	0,03	0,03	0,01	0,01

Table 12. Liquidity ratios of TASK J&P AVAX S.A



Graph 21. Current Ratio per Year of TASK J&P AVAX S.A



Graph 22. Net Working Capital per Year of TASK J&P AVAX S.A

As we can observe from the above charts the current ratio of Task J&P AVAX is always above 1 and in 2009 it even reaches the value of 1.95. There is a decrease during the period of 2010 to 2012, ie. the period of financial crisis but still the ratio is above 1. In 2013 and 2016 the ratio is high but in the interval period the ratio decreases.

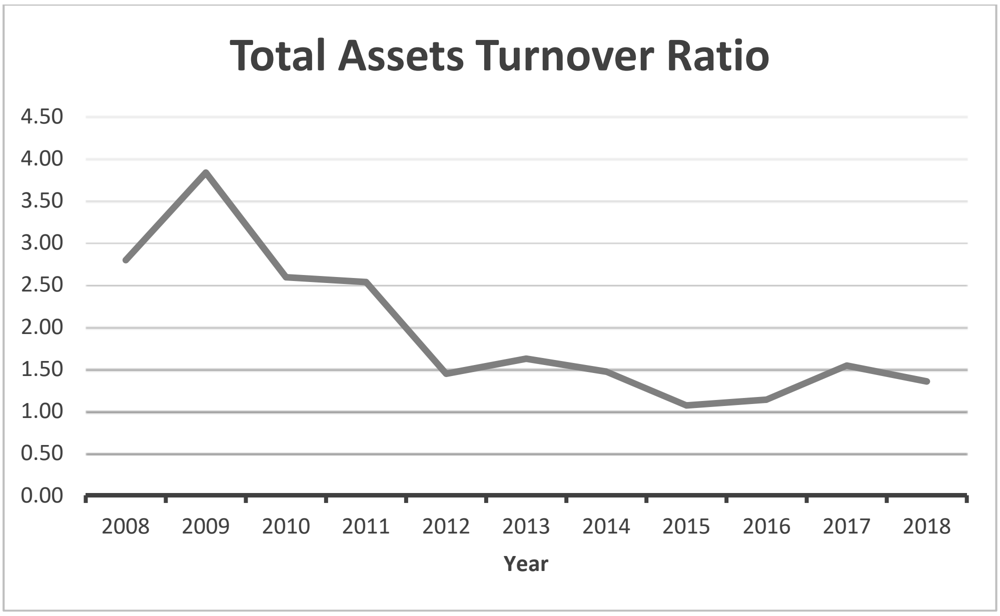
The Net Working Capital is positive but with low prices. It has positive trend since 2008 to 2013 and since 2014 to 2016, but it decreases since 2016.

6.2.2.2 Activity or Efficiency Ratios

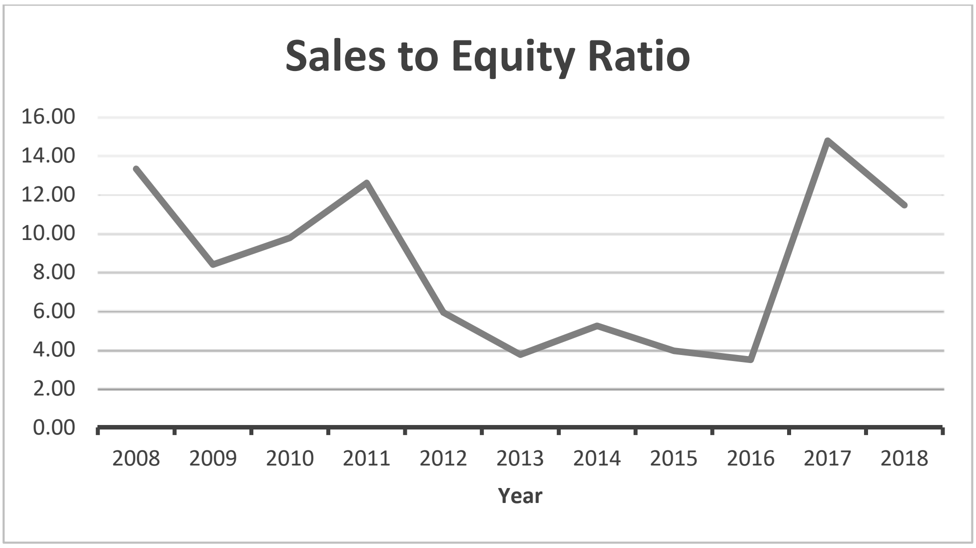
The Efficiency Ratios of the company are as follows:

RATIOS/YEAR	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Activity or Efficiency Ratios											
Total Assets Turnover Ratio	2,79	3,83	2,59	2,53	1,44	1,62	1,47	1,07	1,14	1,54	1,35
Sales to equity ratio	13,32	8,38	9,76	12,59	5,91	3,75	5,23	3,94	3,48	14,76	11,44

Table 13. Efficiency Ratios of TASK J&P AVAX S.A



Graph 23. Total Assets Turnover per Year of TASK J&P AVAX S.A



Graph 24. Sales to Equity Ratio per Year of TASK J&P AVAX S.A

The Asset Turnover ratio has positive trend during the periods 2008-2009 and 2016-2018. It is shown that it has negative trend the period of financial crisis 2010-2015. This negative trend is because of the decrease of the turnover of the company and highlight the effect of the financial crisis and it implies that the company is not generating more revenue per euro of assets.

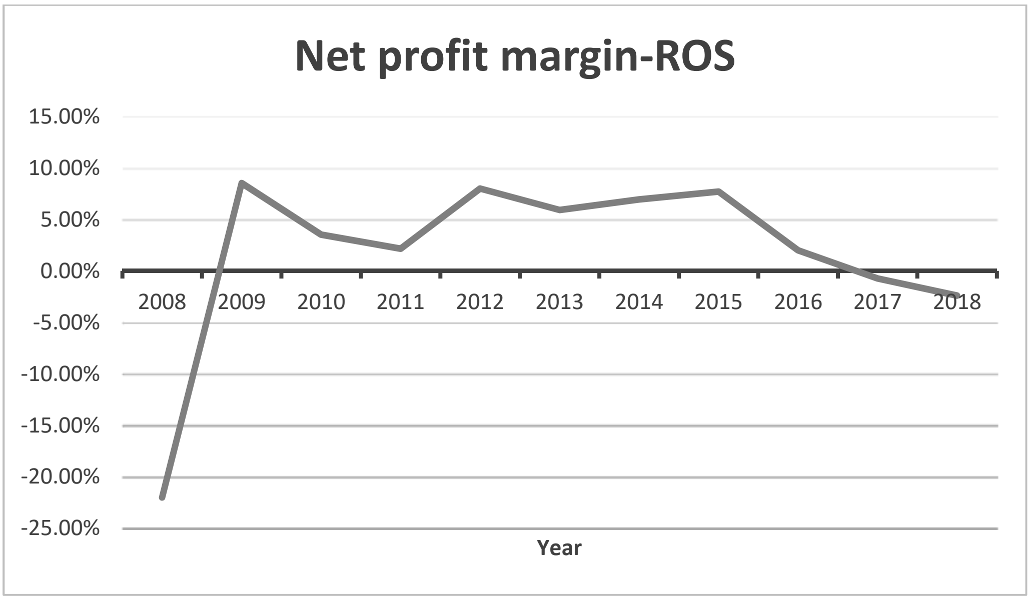
Furthermore, the sales to equity ratio has the same behavior as the asset turnover ratio. During the period 2009 to 2011 and from 2016 to 2017, it increases but the period 2012 to 2016, it has negative trend.

6.2.2.3 Profitability Ratios

The profitability ratios are as follows:

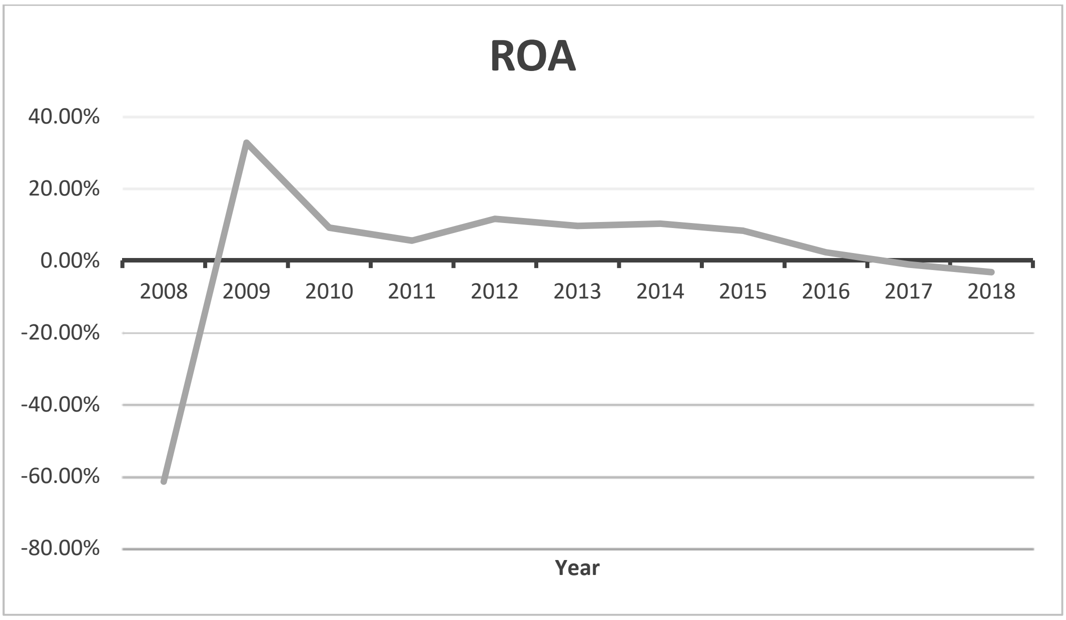
RATIOS/YEAR	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Profitability Ratios											
Rate of return on net sales (net profit margin) ROS	-22,02%	8,55%	3,53%	2,17%	8,01%	5,93%	6,95%	7,73%	2,01%	-0,72%	-2,39%
Gross profit Margin ratio	-20,06%	10,79%	10,20%	8,09%	16,94%	18,30%	22,08%	22,35%	15,80%	11,46%	11,26%
Rate of return on assets ROA	-61,49%	32,77%	9,15%	5,50%	11,58%	9,63%	10,22%	8,26%	2,29%	-1,11%	-3,23%
Return on shareholders' equity (ROE)	-293,15%	71,65%	34,48%	27,33%	47,40%	22,20%	36,38%	30,46%	7,01%	-10,67%	-27,36%

Table 14. Profitability Ratios of TASK J&P AVAX S.A

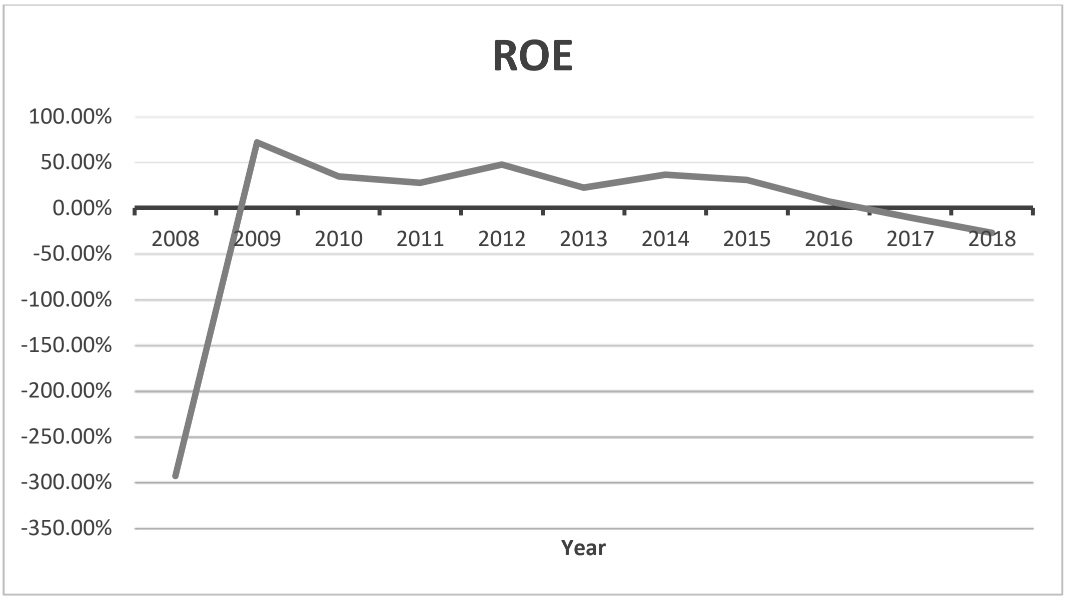


Graph 25. Net profit Margin per Year of TASK J&P AVAX S.A

Graph 26. Net profit Margin per Year of TASK J&P AVAX S.A



Graph 27. Return on Asset per Year of TASK J&P AVAX S.A



Graph 28. Return on Equity per Year of TASK J&P AVAX S.A

Regarding the profitability ratios, we can observe from the charts that the ratios ROS, ROA and ROE are negative in 2008 and during the period 2017- 2018.
Net profit margin has negative trend in general and that indicates that Task S.A is not generating profit from its sale and again the impact of financial crisis is obvious. It shows higher values on 2009, 2012 and 2015.

Gross profit margin is negative in 2008 and it is decreasing during the period 2009-2011. In 2012, it starts having positive trend until 2015 when it starts decreasing again until 2018. The lowest value beside 2008 is 8.09% in 2011 and it reaches the 22.35% in 2015.

ROA and ROE appear the same trend. They appear their highest value in 2009 and then the ratios start decreasing until 2011. They start increasing again until 2014 and they appear negative trend until 2018.

The appearance of ROA trend indicates that the company have issues in pulling profits from the assets.

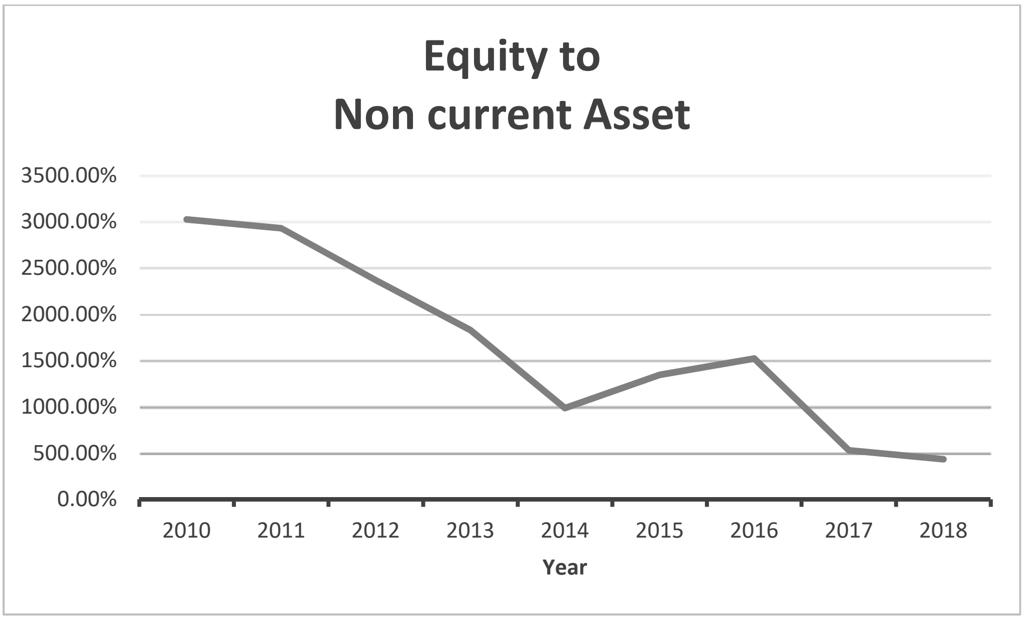
Concerning ROE, the negative trend, during financial crisis indicates that their problem in the company because it shows that the company is decreasing its ability to generate profit without needing as much capital.

6.2.2.4 Leverage Ratios

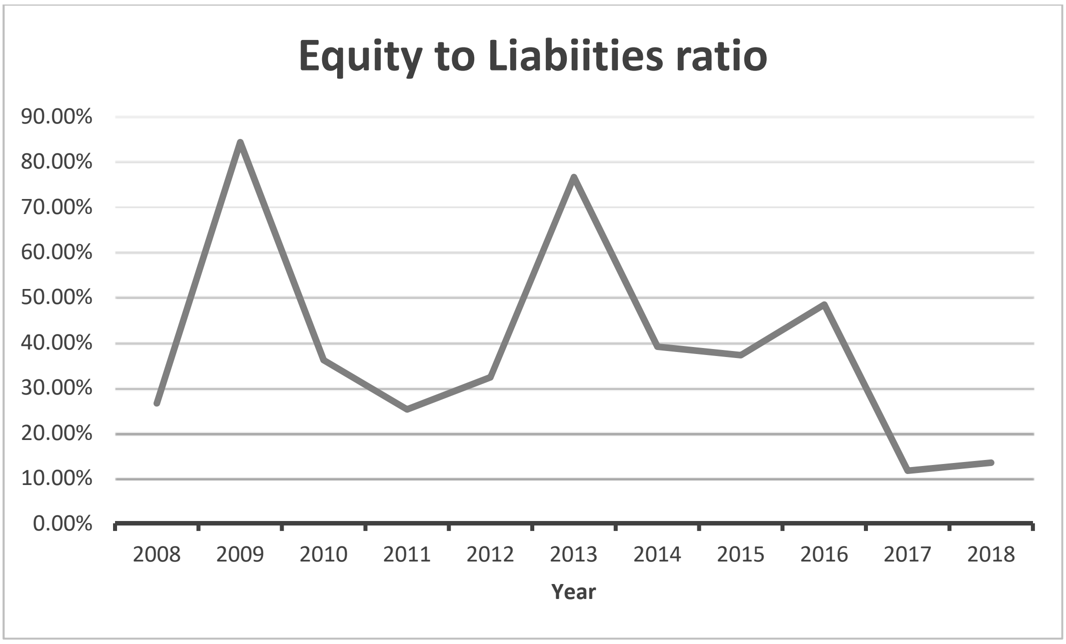
The leverage ratios of the subsidiaries are as follow:

RATIOS/YEAR	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Leverage Ratios/Capital structure ratios											
Equity to Non current asset ratio	0,00%	0,00%	3023,08%	2927,03%	2366,67%	1828,67%	984,62%	1344,21%	1520,44%	529,81%	432,54%
Equity to liabilities ratio	26,55%	84,29%	36,10%	25,20%	32,32%	76,58%	39,08%	37,19%	48,37%	11,66%	13,41%
Equity-to-Total Capitalization Ratio	20,98%	45,74%	26,53%	20,13%	24,43%	43,37%	28,10%	27,11%	32,60%	10,44%	11,82%

Table 15. Leverage Ratios of TASK J&P AVAX S.A



Graph 29. Equity to NON-Current Asset per Year of TASK J&P AVAX S.A



Graph 30. Equity to Liabilities Ratio per Year of TASK J&P AVAX S.A

Graph 31. Equity to Total Capitalization per Year of TASK J&P AVAX S.A

Since Task has a ratio of Equity to Non-Current Assets bigger than 100%, it means that the company didn't have to leverage for financing its assets.

The leverage ratios of the Company and their decrease, indicate the decrease of the shareholders' equity and the increase of the loans. It reflects that shareholder equity does not have the ability to cover all outstanding debts .The equity to total capitalization ratio in 2017 is 10.44% while in 2009 was 45.74%. This decrease appears more during the periods of 2010 to 2012 and 2014-2015.

6.2.3 Volterra S.A.

We present the data from financial statements of Volterra S.A:

VOLTERRA	2011	2012	2013	2014	2015	2016	2017	2018
	x100.000.000							
NON CURRENT ASSETS	12,586	0,025	0,029	0,039	0,045	0,052	0,193	0,279
CURRENT ASSET	36,726	0,032	0,029	0,069	0,057	0,087	0,157	0,296
TOTAL ASSETS	49,312	0,057	0,058	0,108	0,102	0,139	0,350	0,575
CURRENT (SHORT-TERM) LIABILITIES	0,640	0,020	0,025	0,071	0,045	0,067	0,160	0,294
SHAREHOLDERS EQUITY	40,390	0,036	0,031	0,033	0,050	0,062	0,063	0,114
SHAREHOLDERS LIABILITIES	8,922	0,021	0,027	0,075	0,052	0,078	0,287	0,461
TOTAL SHAREHOLDERS EQUITY AND LIABILITIES	49,312	0,057	0,058	0,108	0,102	0,139	0,350	0,575
SALES	7,856	0,051	0,049	0,141	0,171	0,281	0,517	0,868
COST OF SALES	8,412	0,050	0,046	0,132	0,156	0,251	0,489	0,820
GROSS PROFIT	-0,556	0,001	0,003	0,008	0,014	0,031	0,029	0,048
NET PROFIT BEFORE TAX	-7,866	-0,003	-0,003	0,003	0,007	0,013	0,003	0,000
NET PROFIT AFTER TAX	-7,870	-0,004	-0,004	0,002	0,006	0,011	0,001	0,000

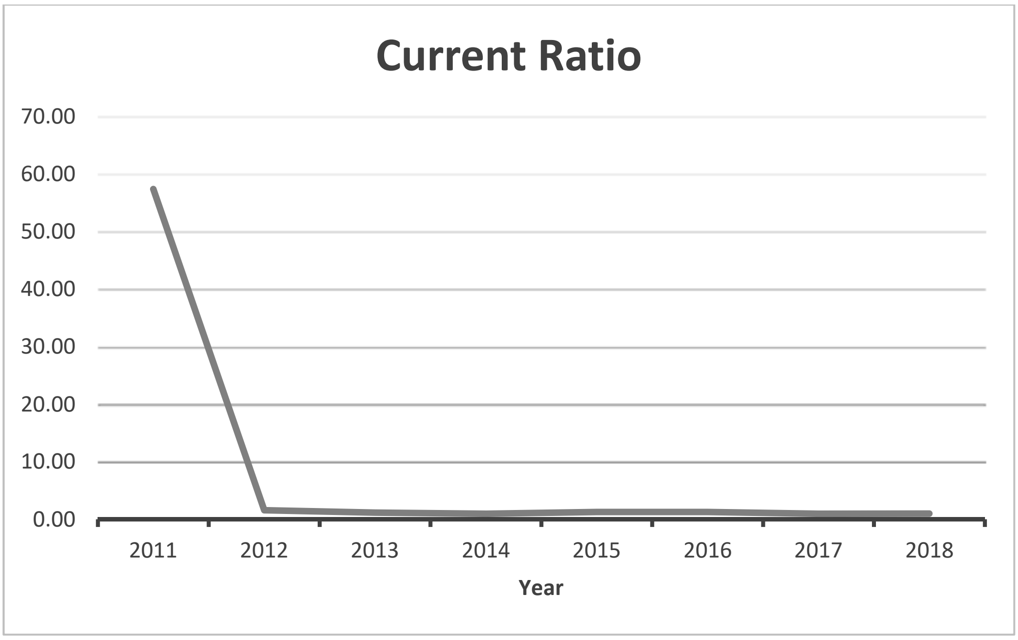
Table 16. Financial Data of VOLTERRA S.A

6.2.3.1 Liquidity ratios

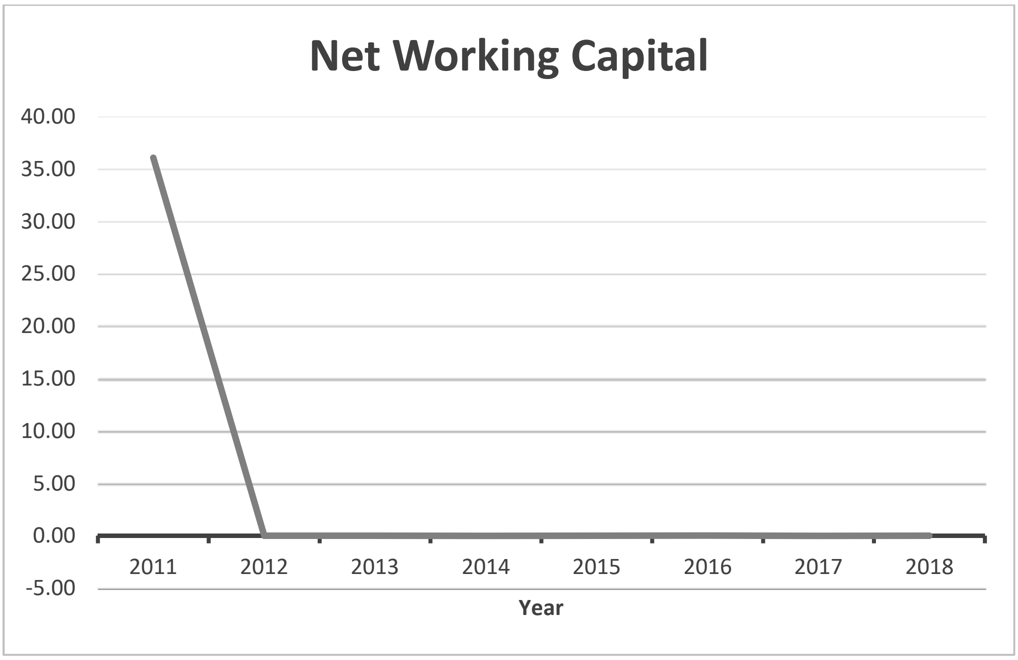
In the following table the liquidity ratios are presented:

RATIOS/YEAR	2011	2012	2013	2014	2015	2016	2017	2018
Liquidity Ratios								
Current ratio	57,38	1,60	1,18	0,97	1,29	1,29	0,98	1,01
Net Working Capital	36,09	0,01	0,00	0,00	0,01	0,02	0,00	0,00

Table 17. Liquidity Ratios of VOLTERRA S.A



Graph 32. Current Ratio per Year of VOLTERRA S.A



Graph 33. Net Working Capital per Year of VOLTERRA S.A

The current ratio of Volterra S.A. is decreasing since 2012 to 2014 and then since 2016 to 2018, but it is always is always above 1 except 2014 when it is almost 1.

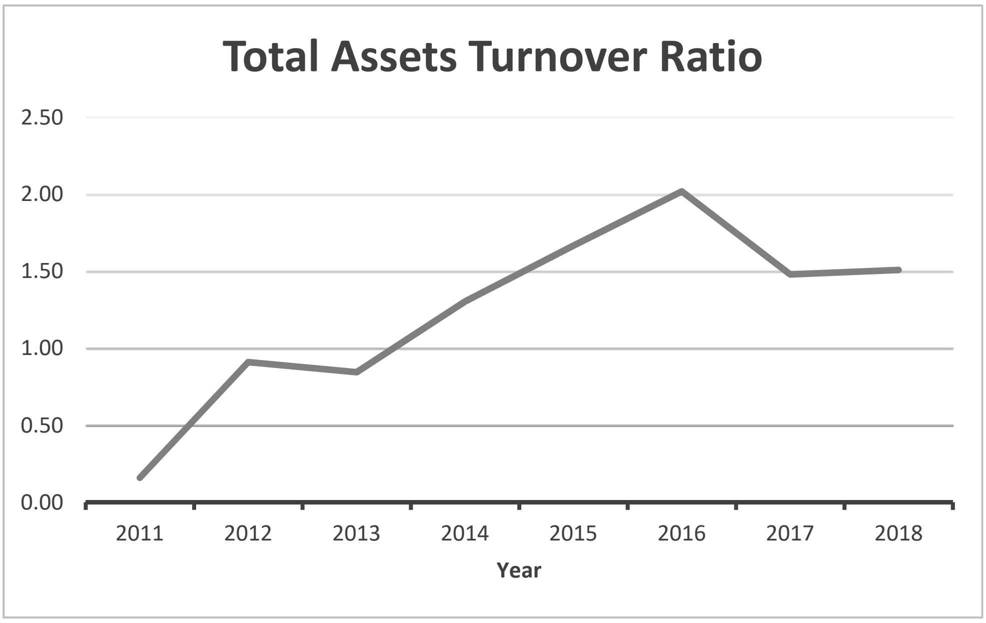
The Net Working Capital is above zero but very low and it does not have fluctuations.

6.2.3.2 Activity or Efficiency Ratios

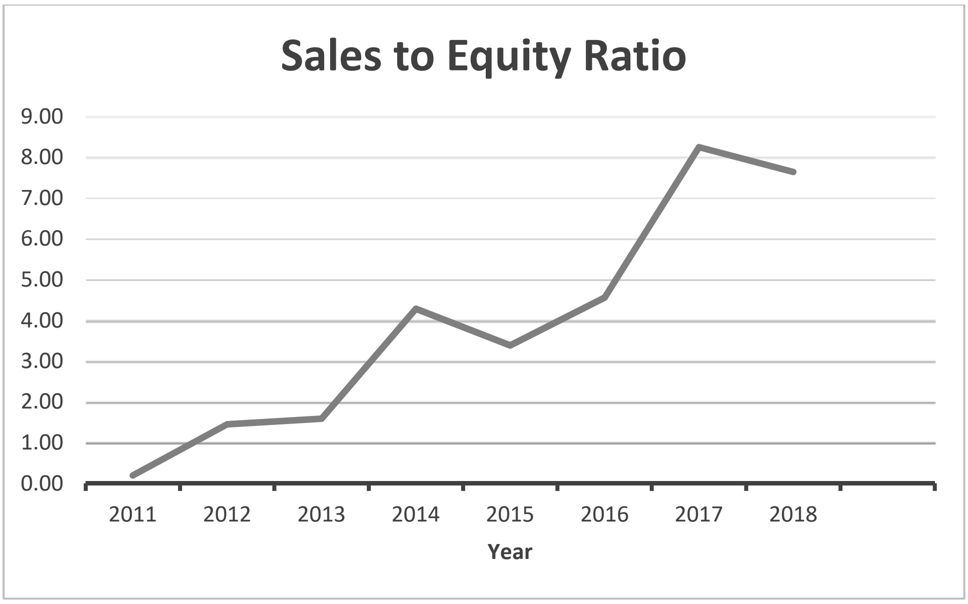
The efficiency Ratios of Volterra are:

RATIOS/YEAR	2011	2012	2013	2014	2015	2016	2017	2018
Activity or Efficiency Ratios								
Total Assets Turnover Ratio	0,16	0,91	0,85	1,30	1,67	2,02	1,48	1,51
Sales to equity ratio	0,19	1,45	1,59	4,28	3,39	4,56	8,25	7,64

Table 18. Efficiency Ratios of VOLTERRA S.A.



Graph 34. Total Assets Turnover Ratio per Year of VOLTERRA S.A



Graph 35. Sales to Equity Ratio per Year of VOLTERRA S.A

The Asset Turnover ratio has positive trend since 2011 to 2016 (except 2013) and then it decreases in 2017 to increase again in 2018. That is because of the increase of turnover.

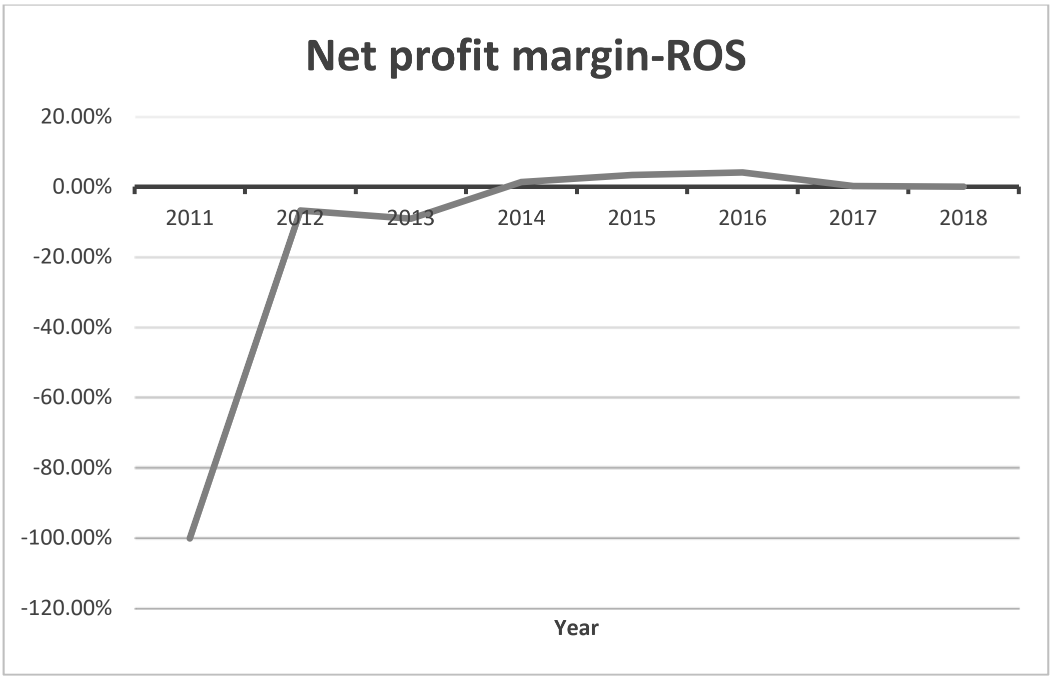
Furthermore, the sales to equity ratio has almost the same behavior as the asset turnover ratio with a decrease in 2015. Since 2015 until 2017, it increases again and it decreases in 2018. In general, we can say that it has positive trend and that shows the increase of the turnover.

6.2.3.3 Profitability Ratios

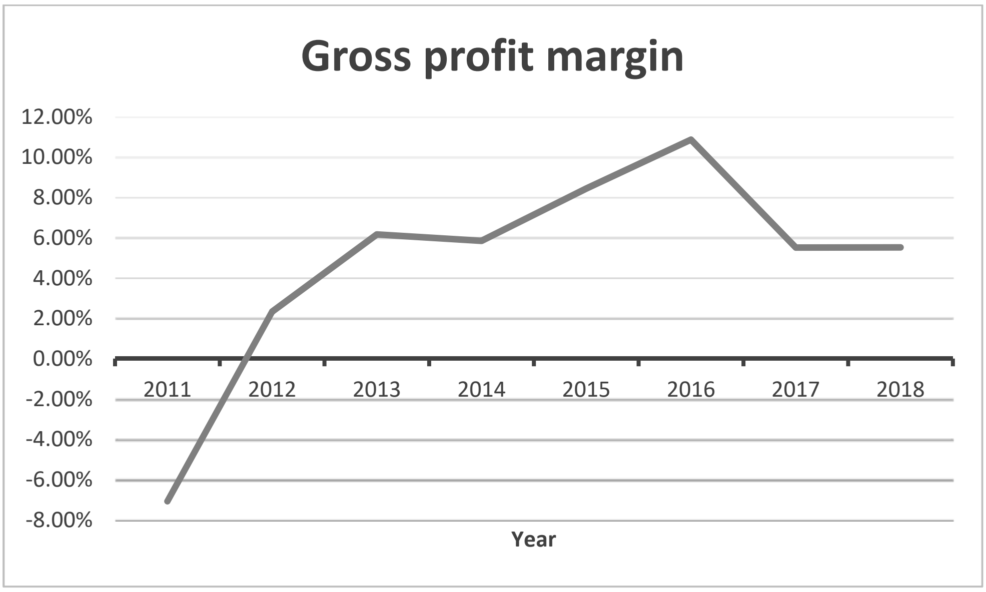
The profitability ratios of the subsidiary is:

RATIOS/YEAR	2011	2012	2013	2014	2015	2016	2017	2018
Profitability Ratios								
Rate of return on net sales (net profit margin) ROS	-100,17%	-6,80%	-9,13%	1,33%	3,31%	4,05%	0,20%	0,01%
Gross profit Margin ratio	-7,07%	2,33%	6,16%	5,85%	8,44%	10,87%	5,51%	5,52%
Rate of return on assets ROA	-15,96%	-6,19%	-7,72%	1,74%	5,53%	8,18%	0,29%	0,02%
Return on shareholders' equity (ROE)	-19,49%	-9,86%	-14,47%	5,70%	11,22%	18,46%	1,61%	0,11%

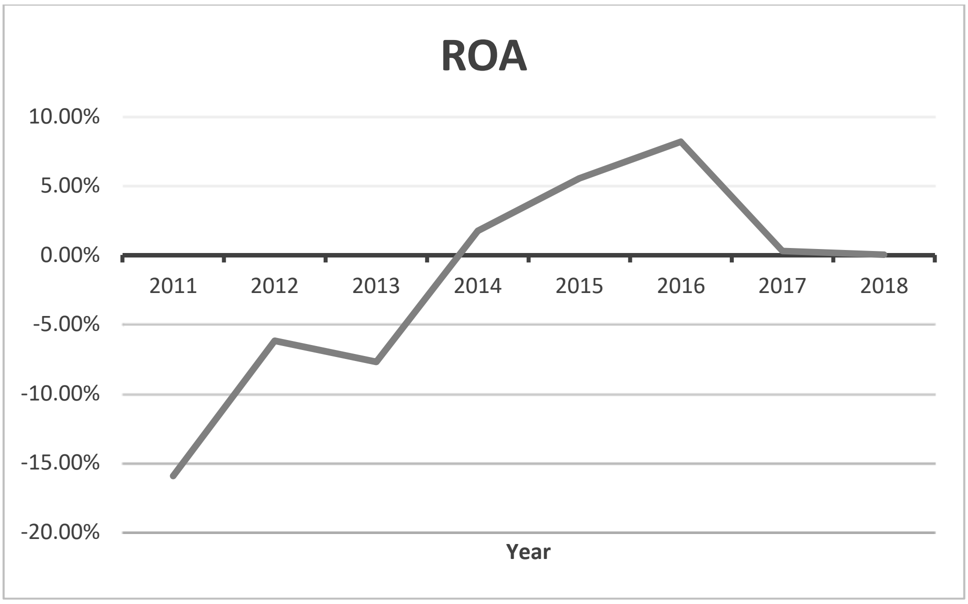
Table 19. Profitability Ratios of VOLTERRA S.A.



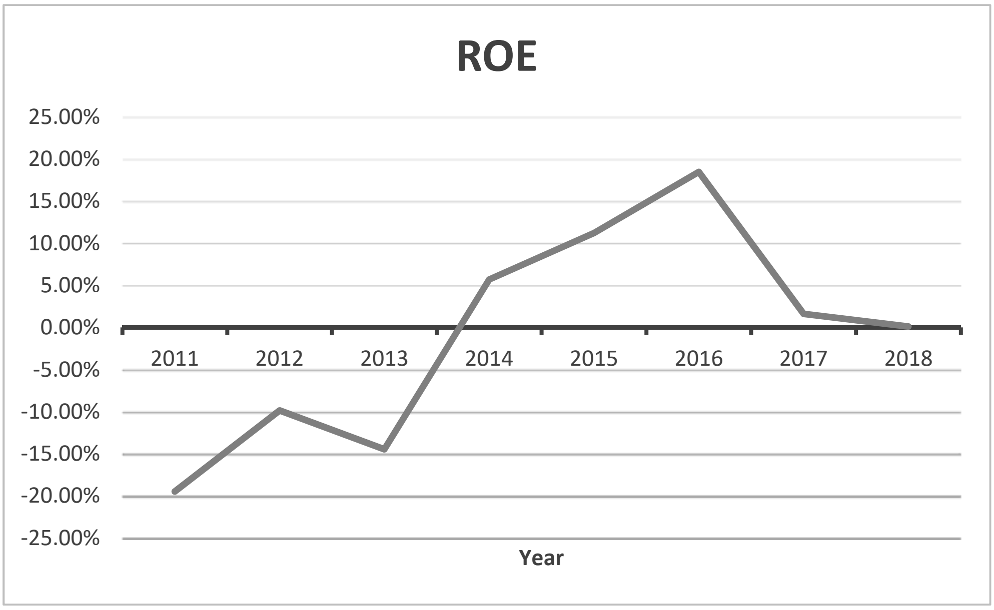
Graph 36. Net Profit Margin per Year of VOLTERRA S.A



Graph 37. Gross Profit margin per Year of VOLTERRA S.A



Graph 38. Return on Asset per Year of VOLTERRA S.A



Graph 39. Return on Equity Ratio per Year of VOLTERRA S.A

Regarding the profitability ratios, we can observe from the charts that all the ratios ROS, ROA and ROE are negative during the period 2011-2013.
Net profit margin has positive trend until 2016 when it stars decreasing.

Gross profit margin is negative in 2011 and since then it has positive trend until 2016 when it decreases. The ratio shows the good performance of the company's sales and production.

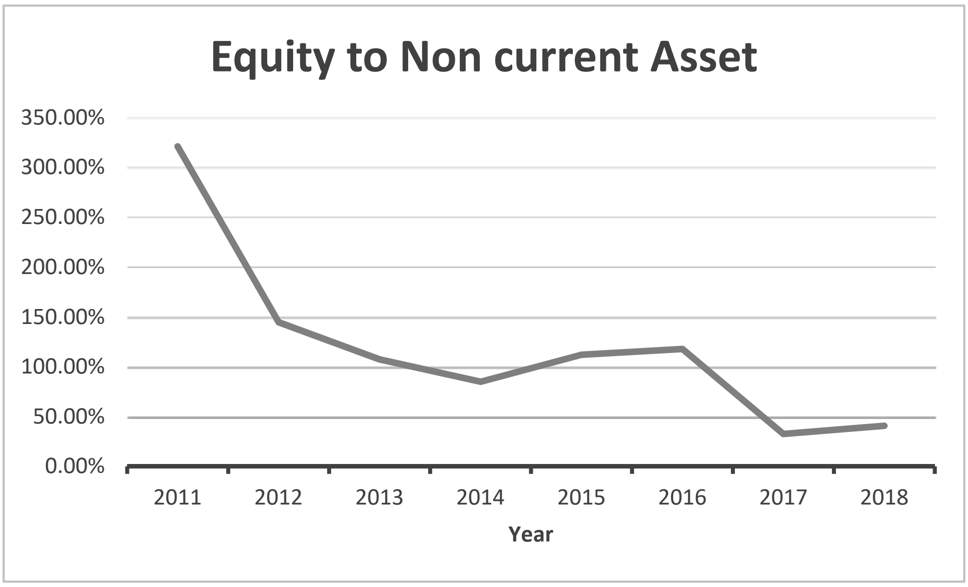
ROA has the same positive trend since 2013 to 2016 and it decreases until 2018. Finally, a good ROE is approximately 10% and Volterra appears around 10% only for the period 2015-2016.

6.2.3.4 Leverage Ratios

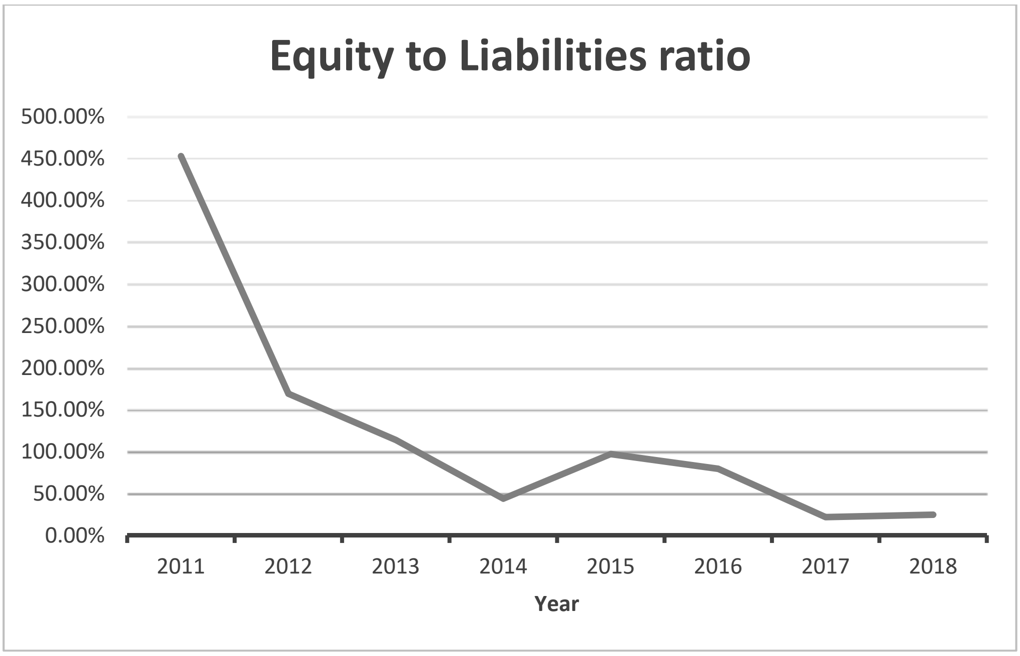
Volterra's leverage ratios are the following:

RATIOS/YEAR	2011	2012	2013	2014	2015	2016	2017	2018
Leverage Ratios/Capital structure ratios								
Equity to Non current asset ratio	320,91%	144,47%	107,34%	84,85%	111,89%	117,80%	32,55%	40,72%
Equity to liabilities ratio	452,71%	169,01%	113,83%	43,76%	97,04%	79,49%	21,87%	24,62%
Equity-to-Total Capitalization Ratio	81,91%	62,83%	53,23%	30,44%	49,25%	44,29%	17,94%	19,75%

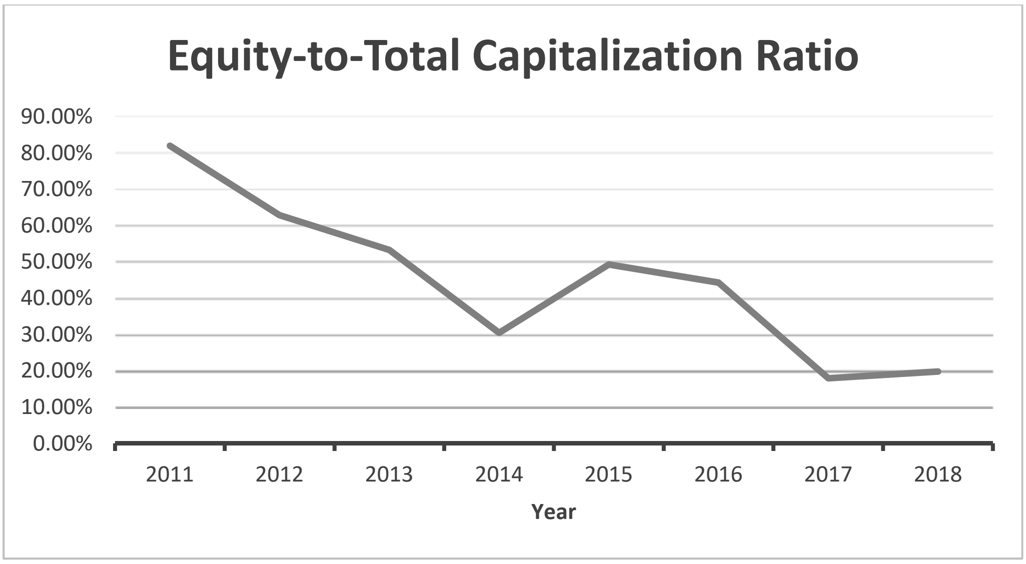
Table 20. Leverage ratios of VOLTERRA S.A.



Graph 40. Equity to Non-current Asset per Year of VOLTERRA S.A.



Graph 41. Equity to Liabilities per Year of VOLTERRA S.A.



Graph 42. Equity to Total Capitalization per Year of VOLTERRA S.A.

The leverage ratios of the Company and their decrease, indicate the decrease of the shareholders' equity and the increase of the loans. It reflects that shareholder equity does not have the ability to cover all outstanding debts .The equity to total capitalization ratio in 2017 is 17.94% while in 2011 was 81.91%.

The equity to non-current ratio the first two years 2011-2013 and 2015-2016 is bigger than 1 so the assets are financed by the shareholders. For the other years, in combination with the negative trend the company appears to have problems in financing its assets by the equity.

The equity to liabilities ratio is bigger than 1 during the period 2010to 2013, so the shareholders participate more than its creditors but the values during the other periods and the negative trend show that the company cannot pay its obligations by its equity.

The same results appears from the equity to total capitalization ratio.

6.2.4 Athina S.A.

The data from financial statements of Athina S.A are presented below:

ATHINA	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
	x100.000.000												
NON CURRENT ASSETS		0,69378	0,80161	1,45453	1,57638	1,54	1,03883	0,87538	0,65814	0,4847	0,37499	0,19746	0,21489
CURRENT ASSET		1,5586	1,68815	2,19736	2,11465	1,95	1,85	1,7873	1,86643	1,99488	1,7195	0,85827	0,70843
TOTAL ASSETS	0	2,25238	2,48976	3,65189	3,69103	3,49	2,88883	2,66268	2,52457	2,47958	2,09449	1,05573	0,92332
CURRENT (SHORT-TERM) LIABILITIES		1,08	1,02	1,532	1,755	1,69	1,84	1,84311	1,44911	1,78965	1,36056	0,58	0,46
SHAREHOLDERS EQUITY		0,87023	0,8049	1,12286	1,16207	1,07709	0,68875	0,56117	0,71053	0,3106	0,25756	0,38607	0,35885
SHAREHOLDERS LIABILITIES		1,37511	1,67714	2,52903	2,52896	2,4157	2,20098	2,10151	1,81404	2,16898	1,83693	0,66966	0,56447
TOTAL SHAREHOLDERS EQUITY AND LIABILITIES	0	2,24534	2,48204	3,65189	3,69103	3,49279	2,88973	2,66268	2,52457	2,47958	2,09449	1,05573	0,92332
SALES		1,5	1,80144	2,37121	2,30025	1,67	1,13897	1,02274	1,1635	0,98942	0,83223	0,39553	0,42647
COST OF SALES		1,40615	1,73664	2,3398	2,16183	1,52614	1,16351	0,99091	1,15096	1,25369	1,11507	0,57596	0,45858
GROSS PROFIT	0	0,09385	0,0648	0,03141	0,13842	0,15	-0,02454	0,03183	0,01254	-0,26427	-0,28284	-0,18043	-0,03211
NET PROFIT BEFORE TAX		0,013	-0,03515	-0,0745	0,03993	0,0433	-0,08852	-0,07773	-0,10218	-0,44256	-0,35598	-0,28893	-0,04305
NET PROFIT AFTER TAX		0,00462	-0,06441	-0,08909	0,02229	0,00144	-0,10674	-0,09933	-0,11854	-0,42854	-0,37674	-0,26037	-0,04945

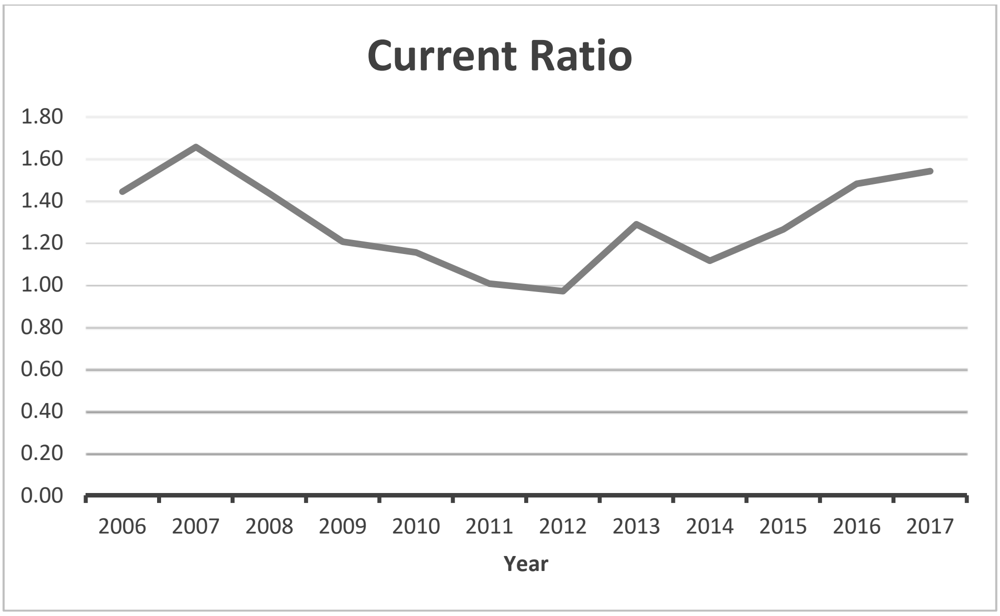
Table 21. Financial Data of ATHINA S.A.

6.2.4.1 Liquidity ratios

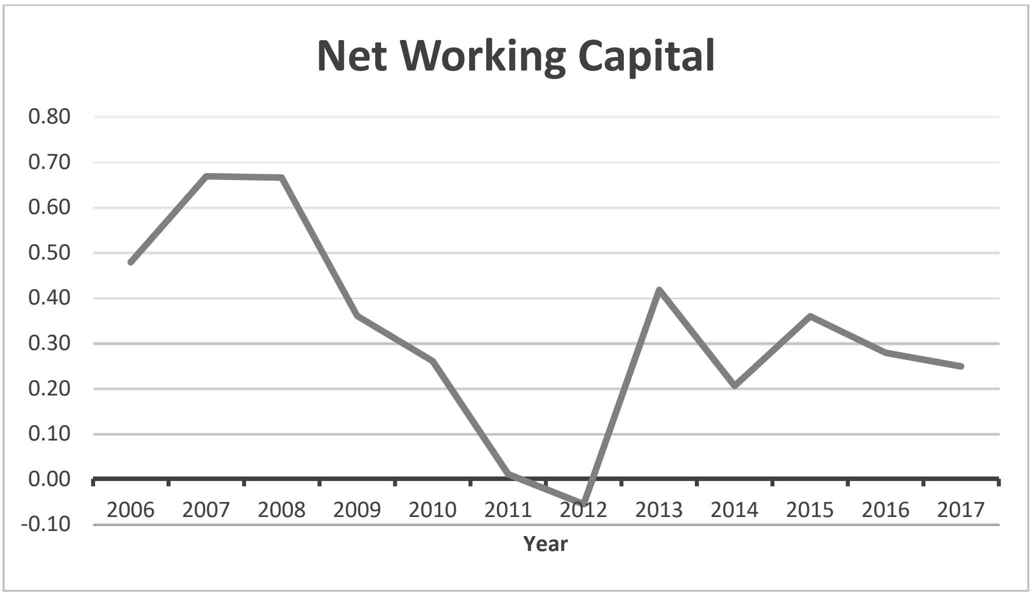
The liquidity ratios of ATHINA S.A are:

RATIOS/YEAR	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Liquidity Ratios												
Current ratio	1,44	1,66	1,43	1,20	1,15	1,01	0,97	1,29	1,11	1,26	1,48	1,54
Net Working Capital	0,48	0,67	0,67	0,36	0,26	0,01	-0,06	0,42	0,21	0,36	0,28	0,25
Activity or Efficiency Ratios												
Total Assets Turnover Ratio	0,67	0,72	0,65	0,62	0,48	0,39	0,38	0,46	0,40	0,40	0,37	0,46
Sales to equity ratio	1,72	2,24	2,11	1,98	1,55	1,65	1,82	1,64	3,19	3,23	1,02	1,19

Table 22. Liquidity Ratios of ATHINA S.A.



Graph 43. Current Ratio of ATHINA S.A.



Graph 44. Net Working Capital of ATHINA S.A.

The current ratio of Athina S.A. is decreasing since 2007 to 2012 and then since 2013 to 2014 when it starts increasing. It is always above 1 except 2012 when it is almost 1.

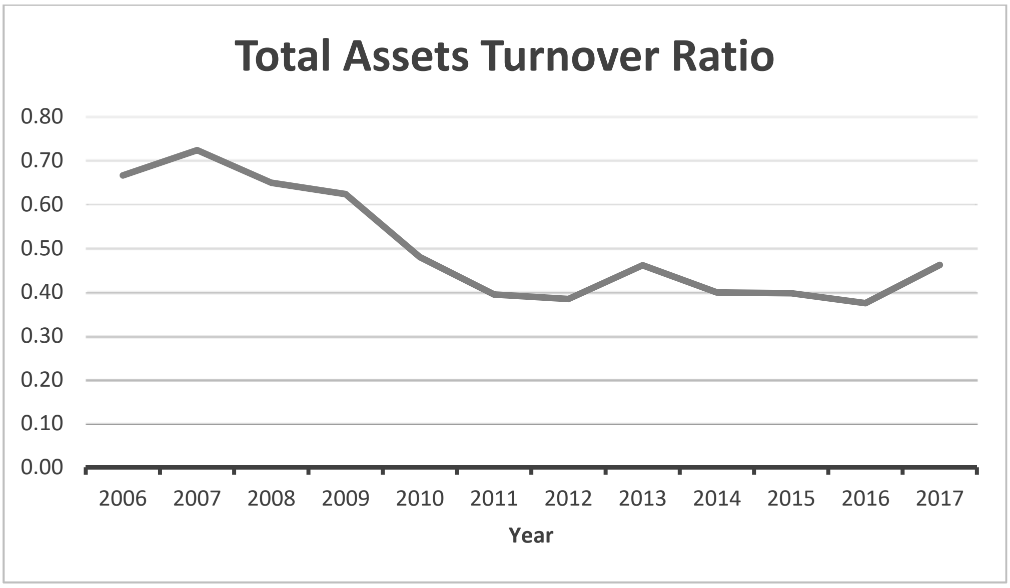
The Net Working Capital is above zero except in 2012 and it has fluctuations. It decreases since 2008 to 2012 and with an exception in 2013 it again decreasing. In general it has negative trend.

6.2.4.2 Activity or Efficiency Ratios

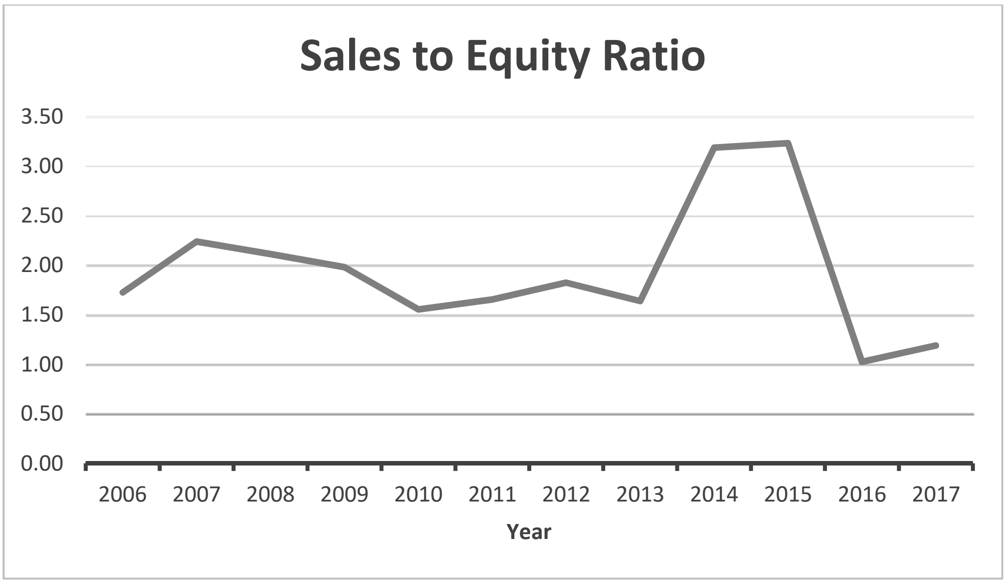
The efficiency ratios of ATHINA S.A are presented below:

RATIOS/YEAR	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Activity or Efficiency Ratios												
Total Assets Turnover Ratio	0,67	0,72	0,65	0,62	0,48	0,39	0,38	0,46	0,40	0,40	0,37	0,46
Sales to equity ratio	1,72	2,24	2,11	1,98	1,55	1,65	1,82	1,64	3,19	3,23	1,02	1,19

Table 23. Efficiency ratios of ATHINNA S.A.



Graph 45. Total Assets Turnover of ATHINA S.A.



Graph 46. Sales to equity of ATHINA S.A.

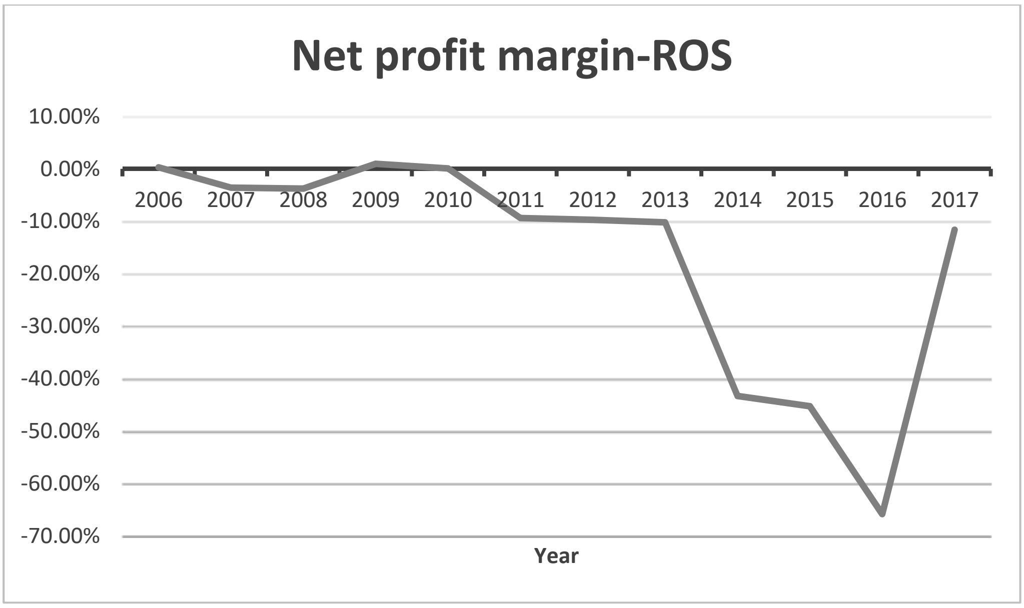
The Asset Turnover ratio has negative trend then it decreases in 2017 to increase again in 2018. This negative trend indicates the decrease of turnover. Furthermore, the sales to equity ratio has almost the same behavior as the asset turnover ratio with an increase in 2012 and a big increase in 2014-2015 when it decreases in 2016 to start increasing until 2017.

6.2.4.3 Profitability Ratios

The profitability ratios of the subsidiary are:

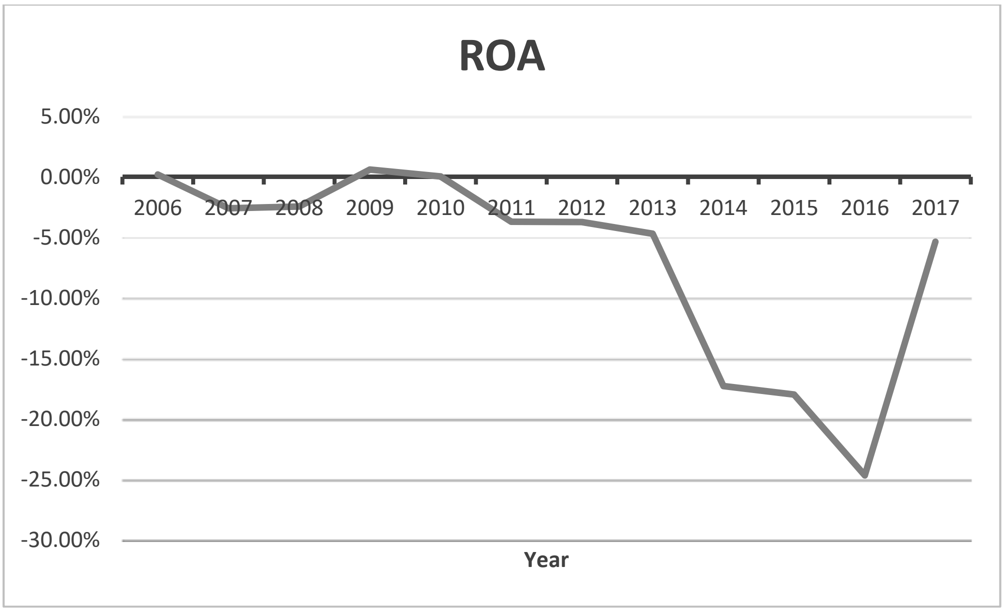
RATIOS/YEAR	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Profitability Ratios												
Rate of return on net sales (net profit margin) ROS	0,31%	-3,58%	-3,76%	0,97%	0,09%	-9,37%	-9,71%	-10,19%	-43,31%	-45,27%	-65,83%	-11,60%
Gross profit Margin ratio	6,26%	3,60%	1,32%	6,02%	8,80%	-2,15%	3,11%	1,08%	-26,71%	-33,99%	-45,62%	-7,53%
Rate of return on assets ROA	0,21%	-2,59%	-2,44%	0,60%	0,04%	-3,69%	-3,73%	-4,70%	-17,28%	-17,99%	-24,66%	-5,36%
Return on shareholders' equity (ROE)	0,53%	-8,00%	-7,93%	1,92%	0,13%	-15,50%	-17,70%	-16,68%	-137,97%	-146,27%	-67,44%	-13,78%

Table 24. Profitability Ratios of ATHINA S.A.

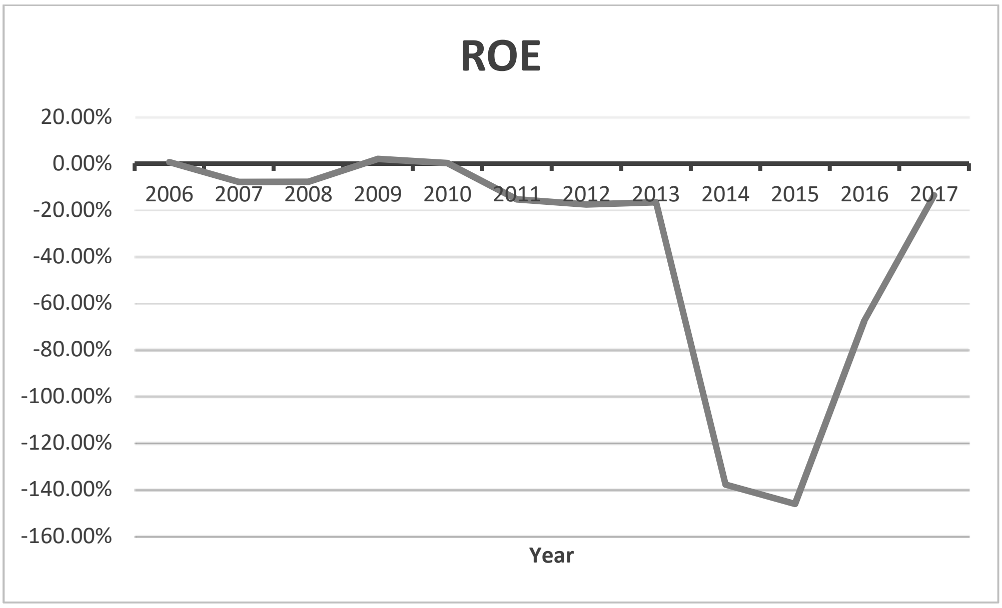


Graph 47. Net profit margin of ATHINA S.A.

Graph 48. Gross profit of ATHINA S.A.



Graph 49. Return on Asset per Year of ATHINA S.A.



Graph 50. Return on Equity per Year of ATHINA S.A.

Regarding the profitability ratios, we can observe from the charts that all the ratios ROS, ROA and ROE are negative during the period 2007-2008 and 2011-2017. Net profit margin has negative trend and negative values except 2009-2010. That indicates that the company does not have a good performance.

Gross profit margin has the same appearance with the ROS but it has negative values in 2011 and the period 2014-2017. The ratio shows the poor performance of the company's sales and production.

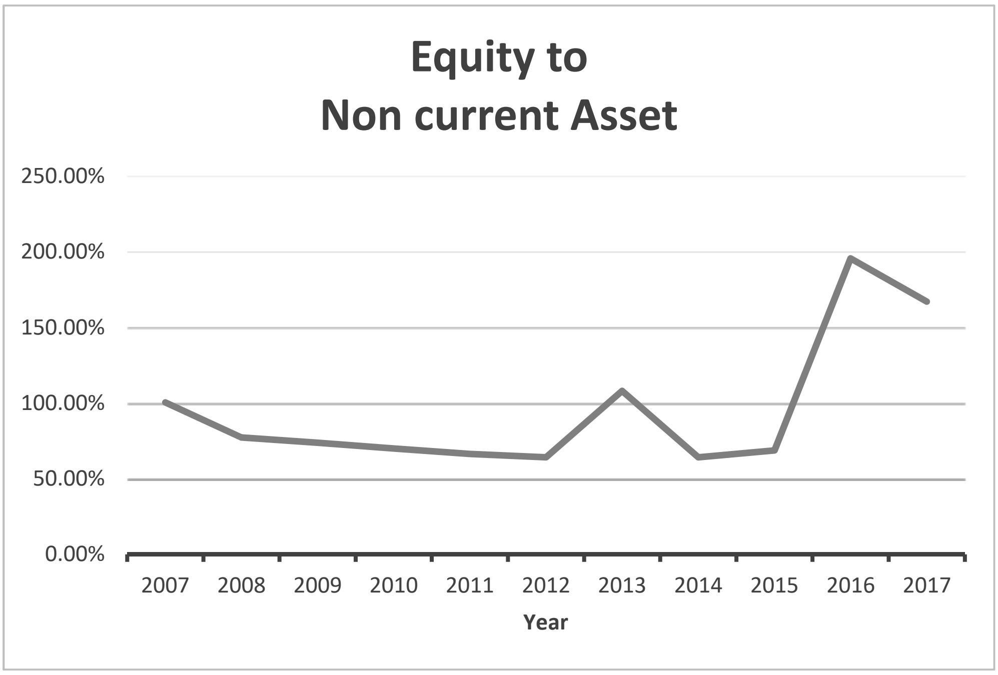
ROA and ROE have the same behavior with ROS. That shows that the company has poor asset efficiency and in addition the value of ROE that is below 10% empower the poor efficiency of the company.

6.2.4.4 Leverage Ratios

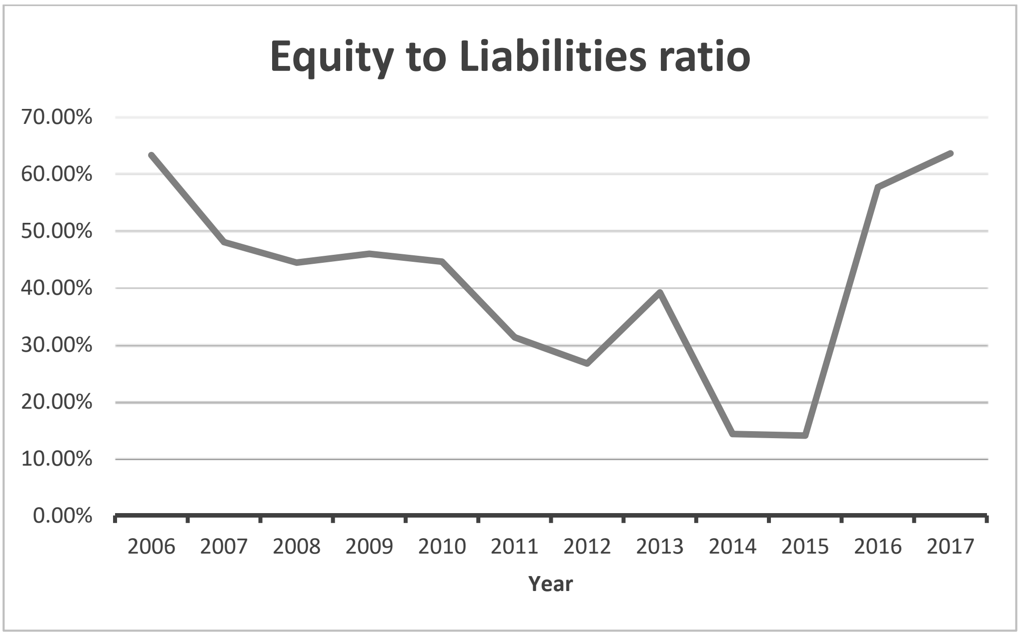
The leverage ratios are as follows:

RATIOS/YEAR	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Leverage Ratios/Capital structure ratios												
Non current asset to equity ratio	125,43%	100,41%	77,20%	73,72%	69,94%	66,30%	64,11%	107,96%	64,08%	68,68%	195,52%	166,99%
Liabilities to equity ratio	63,28%	47,99%	44,40%	45,95%	44,59%	31,29%	26,70%	39,17%	14,32%	14,02%	57,65%	63,57%
Equity-to-Total Capitalization Ratio	38,76%	32,43%	30,75%	31,48%	30,84%	23,83%	21,08%	28,14%	12,53%	12,30%	36,57%	38,87%

Table 25. Leverage Ratios of ATHINA S.A.



Graph 51 Equity to Non-Current Asset per Year of ATHINA S.A.



Graph 52. Equity to Liabilities ratio per Year of ATHINA S.A.

Graph 53. Equity to Total Capitalization ratio per Year of ATHINA S.A

The leverage ratios of the Company and their decrease, indicate the decrease of the shareholders' equity and the increase of the loans. It reflects that shareholder equity does not have the ability to cover all outstanding debts .The equity to total capitalization ratio in 2015 is 12.30% while in 2006 was 38.76%.

The equity to non-current ratio is bigger than 1 in the periods 2006-2007 and 2016-2017 than 1 so the assets are financed by the shareholders. For the other years, in combination with the negative trend the company appears to have problems in financing its assets by the equity. The trend starts being positive since 2015.

The equity to liabilities ratio is smaller than 1 in all years so, the values and the negative trend show that the company cannot pay its obligations by its equity. The ratio starts increasing since 2015.

The same results appears from the equity to total capitalization ratio.

6.2.5 J&P Development S.A.

The data from financial statements of J&P Development S.A are presented below:

J&P DEVELOPMENT	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
	x100.000.000													
NON CURRENT ASSETS	0,05	0,04	0,20	0,24	0,23	0,23	0,24	0,24	0,21	0,20	0,19	0,15	0,16	0,14
CURRENT ASSET	0,17	0,14	0,12	0,13	0,16	0,16	0,15	0,14	0,12	0,13	0,12	0,12	0,11	0,11
TOTAL ASSETS	0,22	0,18	0,32	0,37	0,39	0,39	0,39	0,38	0,33	0,33	0,31	0,27	0,27	0,24
CURRENT (SHORT-TERM) LIABILITIES	0,11	0,10	0,01	0,02	0,05	0,15	0,23	0,25	0,16	0,18	0,18	0,08	0,07	0,07
SHAREHOLDERS EQUITY	0,10	0,08	0,20	0,21	0,19	0,16	0,15	0,11	0,08	0,06	0,06	0,06	0,08	0,08
SHAREHOLDERS LIABILITIES	0,12	0,11	0,12	0,16	0,20	0,23	0,25	0,27	0,25	0,27	0,25	0,21	0,19	0,16
TOTAL SHAREHOLDERS EQUITY AND LIABILITIES	0,22	0,18	0,32	0,37	0,39	0,39	0,39	0,38	0,33	0,33	0,31	0,27	0,27	0,24
SALES	0,05	0,04	0,02	0,01	0,03407	0,12	0,0133	0,01	0,01	0,0046	0,01	0,01	0,00	0,01
COST OF SALES	0,07	0,05	0,01	0,01	0,02916	0,12	0,0128	0,01	0,00	0,0034	0,00	0,01	0,00	0,01
GROSS PROFIT	-0,02	-0,01	0,0013	0,0034	0,00491	0,00	0,00	0,00	0,00	0,0012	0,00	0,00	0,00	0,00
NET PROFIT BEFORE TAX	-0,01	-0,03	0,02	0,02	-0,03	-0,02	-0,02	-0,03	-0,07	-0,02	-0,03	-0,03	0,01	-0,02
NET PROFIT AFTER TAX	-0,01	-0,03	0,02	0,01	-0,03	-0,20	-0,02	-0,03	-0,07	-0,02	-0,03	-0,03	0,01	-0,02

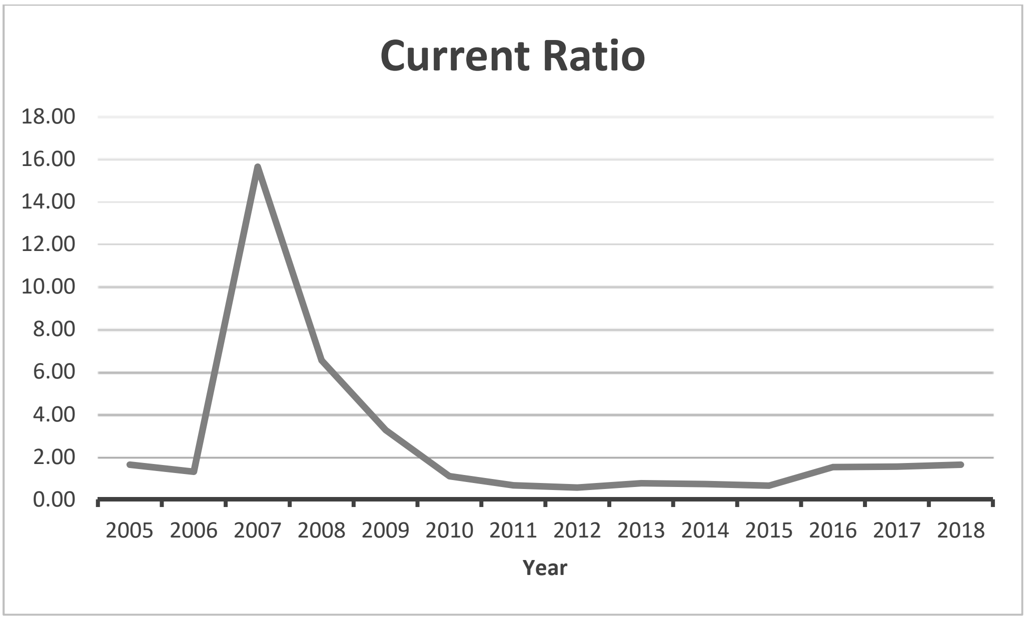
Table 26. Financial data of J&P Development S.A

6.2.5.1 Liquidity ratios

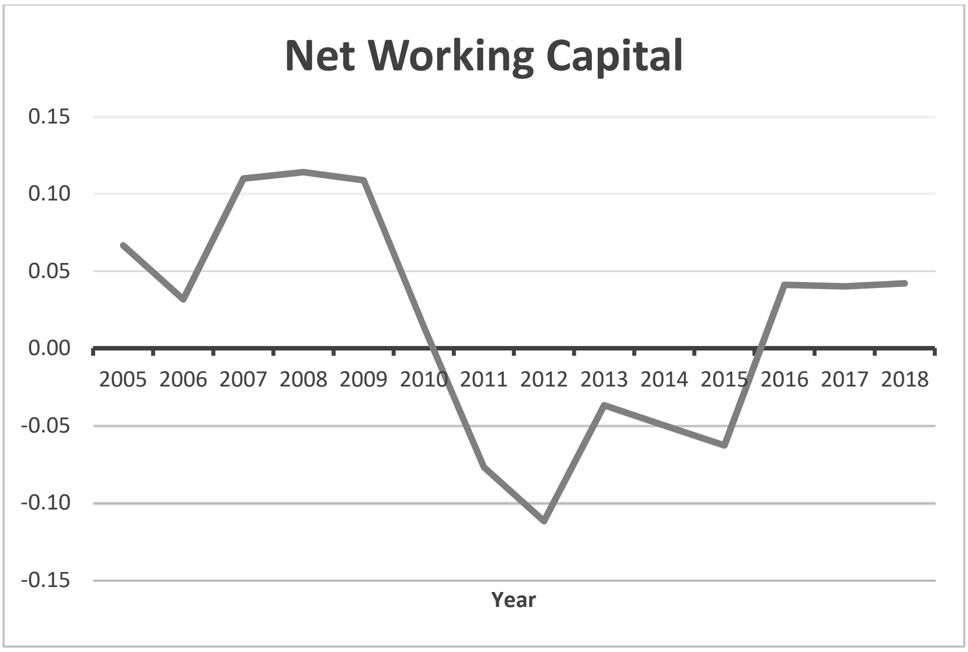
The liquidity ratios of the company are as follows:

RATIOS/YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Liquidity Ratios														
Current ratio	1,63	1,30	15,64	6,54	3,26	1,10	0,66	0,56	0,76	0,72	0,65	1,52	1,55	1,64
Net Working Capital	0,07	0,03	0,11	0,11	0,11	0,01	-0,08	-0,11	-0,04	-0,05	-0,06	0,04	0,04	0,04

Table 27. Liquidity ratios of J&P Development S.A



Graph 54. Current ratio per Year of J&P Development S.A



Graph 55. Net Working Capital per Year of J&P Development S.A

The current ratio of J&P Development S.A. is increasing until 2007 and then it decreases until 2015, i.e. all the period of financial period. This was expected as the company is occupied with the house development that was in recession at this period. In the sequel since 2016 to 2018, increases again. The value of the ratio is always bigger than 1 except the period 2011 to 2015 and that indicates the liquidity problems of the company during financial crisis.

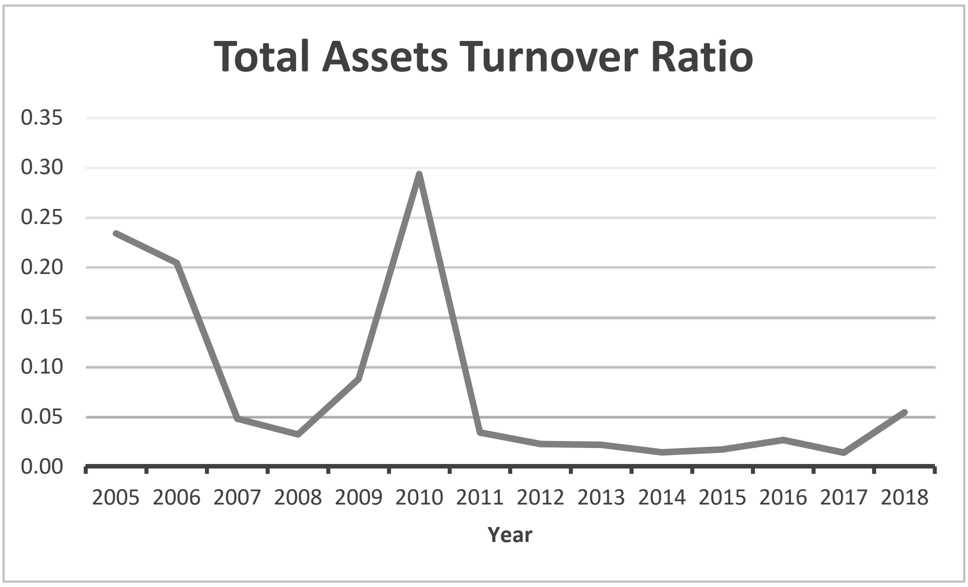
The Net Working Capital is above zero but very low during the periods 2005-2009 and 2016 to 2018. Since 2009 to 2015 is decreasing and the period 2011 to 2015 it has negative values. Since 2016 is stable and above zero. Therefore the Net Working Capital indicates the problem of the company during the financial recession.

6.2.5.2 Activity or Efficiency Ratios

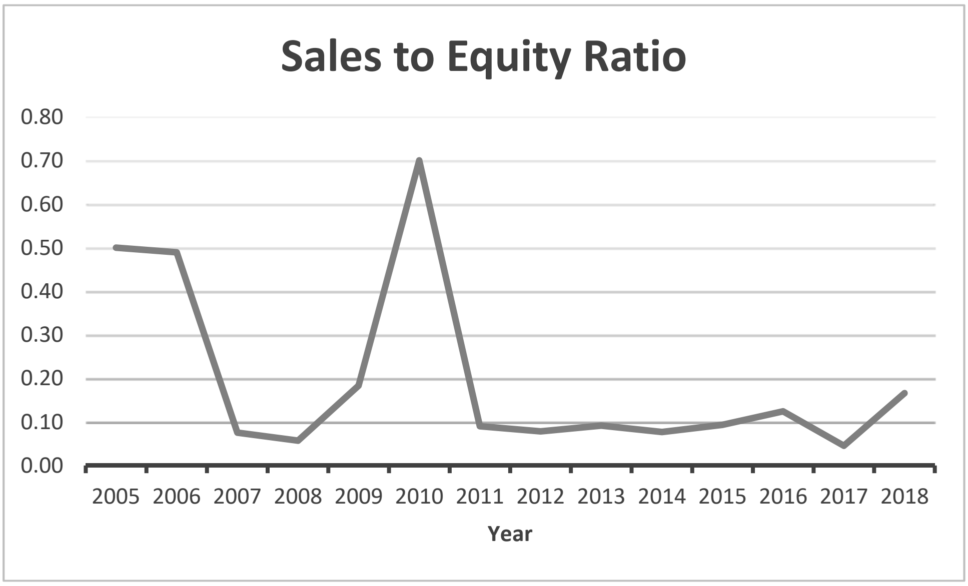
The efficiency ratios of the company are:

RATIOS/YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Activity or Efficiency Ratios														
Total Assets Turnover Ratio	0,23	0,20	0,05	0,03	0,09	0,29	0,03	0,02	0,02	0,01	0,02	0,03	0,01	0,05
Sales to equity ratio	0,50	0,49	0,08	0,06	0,18	0,70	0,09	0,08	0,09	0,08	0,09	0,12	0,05	0,17

Table 28. Efficiency ratios of J&P Development S.A



Graph 56. Total Asset Turnover ratio per Year of J&P Development S.A



Graph 57. Sales to Equity ratio per Year of J&P Development S.A

The Asset Turnover ratio has almost stable trend since 2011 except in 2009-2010. Since 2005 is decreasing until 2008 when it is increasing until 2010. The decrease of the ratio indicates the decrease of the turnover at that period.

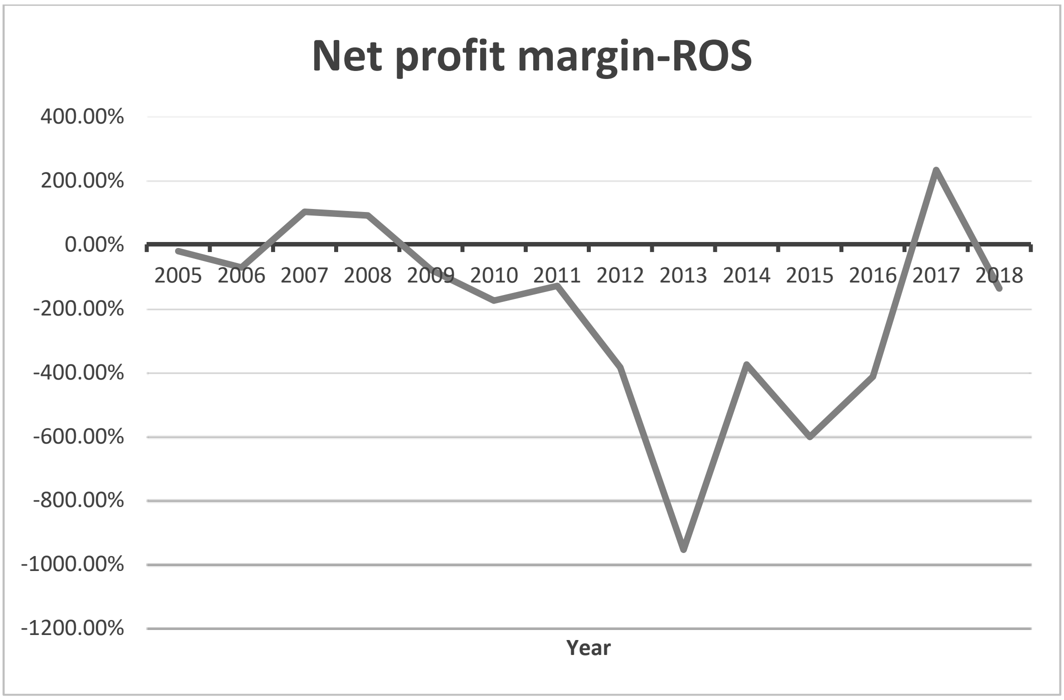
Furthermore, the sales to equity ratio has the same behavior as the asset turnover ratio.

6.2.5.3 Profitability Ratios

The Profitability ratios are presented below:

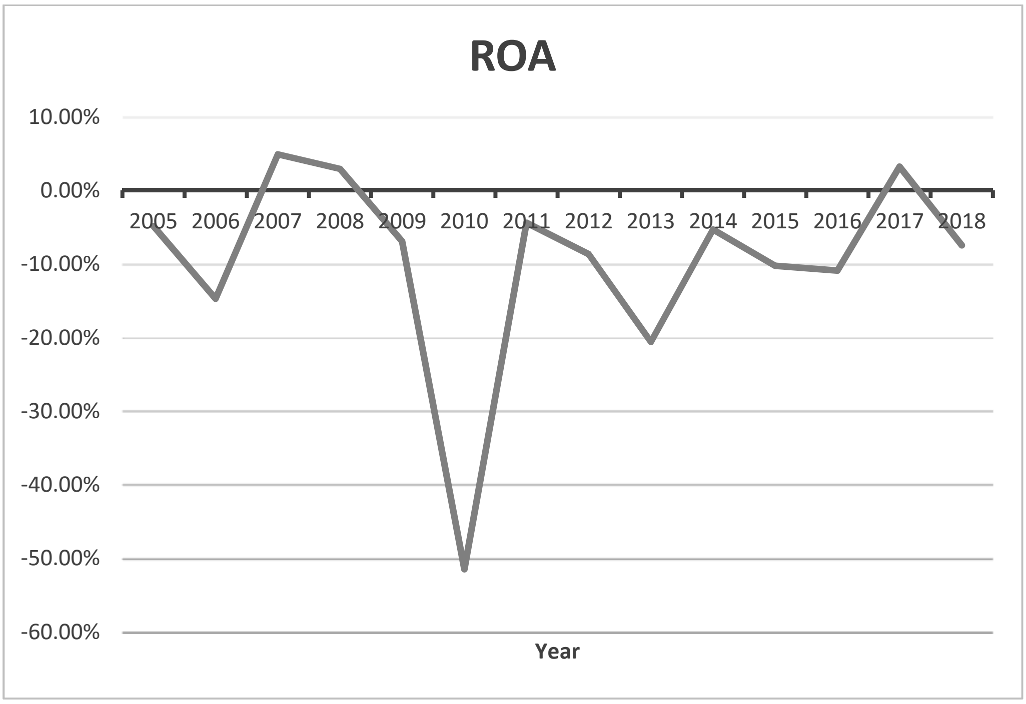
RATIOS/YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Profitability Ratios														
Rate of return on net sales (net profit margin) ROS	-20,78%	-72,14%	102,41%	90,85%	-78,93%	-175,61%	-129,41%	-384,97%	-954,80%	-375,87%	-602,10%	-413,09%	233,16%	-137,62%
Gross profit Margin ratio	-46,80%	-38,61%	8,13%	28,62%	14,41%	0,10%	3,75%	16,30%	34,18%	26,30%	26,72%	11,10%	0,53%	-0,45%
Rate of return on assets ROA	-4,86%	-14,72%	4,89%	2,92%	-6,92%	-51,48%	-4,40%	-8,66%	-20,58%	-5,31%	-10,25%	-10,89%	3,22%	-7,47%
Return on shareholders' equity (ROE)	-10,40%	-35,32%	7,76%	5,21%	-14,48%	-123,04%	-11,68%	-30,27%	-87,68%	-29,01%	-56,51%	-51,48%	10,65%	-22,87%

Table 29. Profitability ratios of J&P Development S.A

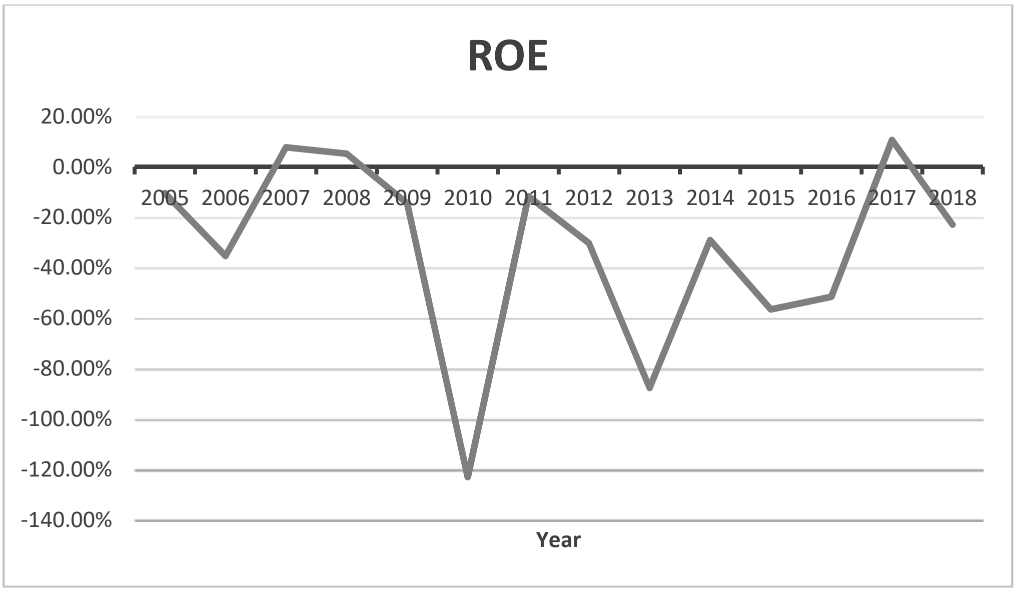


Graph 58. Net profit Margin per Year of J&P Development S.A

Graph 59. Gross profit Margin per Year of J&P Development S.A



Graph 60. Return on Asset per Year of J&P Development S.A



Graph 61. Return on Equity per Year of J&P Development S.A

Regarding the profitability ratios, we can observe from the charts that all the ratios ROS, ROA and ROE are negative during the periods 2005-2006 and 2009-2016. Net profit margin has positive trend until 2016 when it stars decreasing in general negative trend with many fluctuations.

Gross profit margin has negative trend but it has negative values only between 2005 and 2006 and in 2018. The ratio's trend shows the poor performance of the company's sales and production.

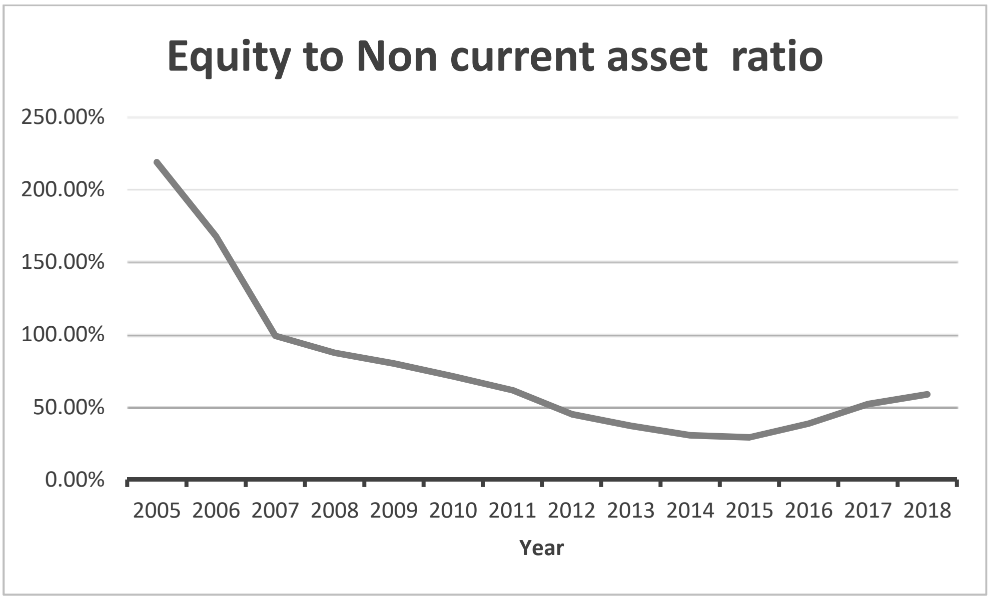
ROA and ROE have the same behavior with ROS. That shows that the company has poor asset efficiency and in addition the value of ROE that is below 10% (except in 2017) empower the poor efficiency of the company.

6.2.5.4 Leverage Ratios

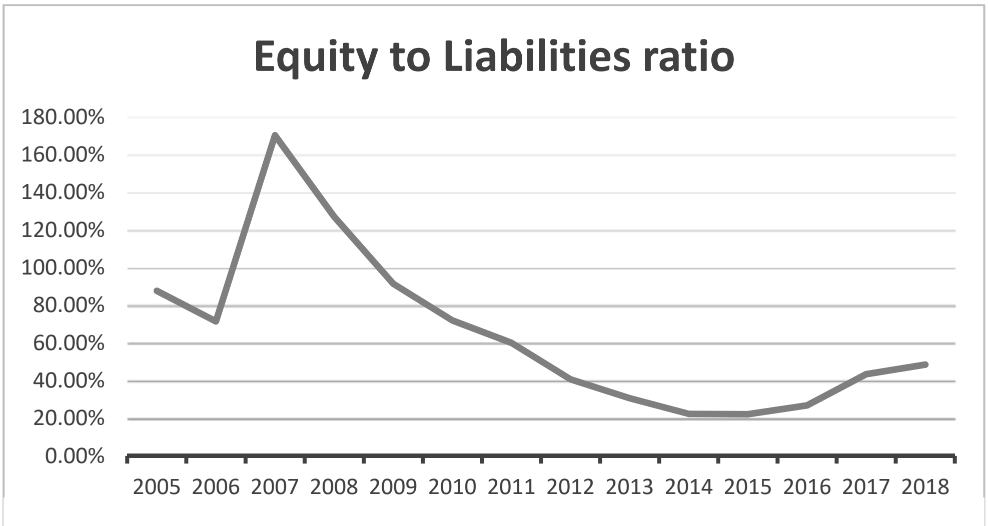
The leverage ratios are as follows:

RATIOS/YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Leverage Ratios/Capital structure ratios														
Equity to Non current asset ratio	218,77%	167,74%	99,10%	87,37%	80,01%	71,05%	61,56%	45,01%	36,98%	30,43%	29,11%	38,48%	51,97%	58,73%
Equity to liabilities ratio	87,67%	71,45%	170,25%	127,14%	91,43%	71,95%	60,09%	40,74%	30,65%	22,37%	22,15%	26,84%	43,38%	48,48%
Equity-to-Total Capitalization Ratio	46,72%	41,67%	63,00%	55,97%	47,76%	41,84%	37,54%	28,95%	23,46%	18,28%	18,14%	21,16%	30,26%	32,65%

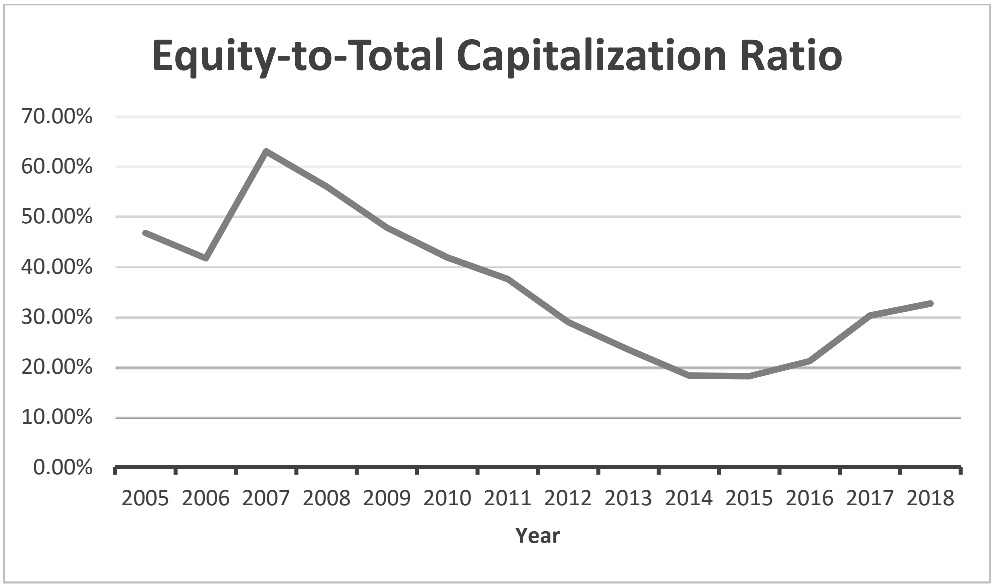
Table 30. Leverage ratios of J&P Development S.A



Graph 62. Equity to Non-current Asset ratio per Year of J&P Development S.A



Graph 63. Equity to Liabilities ratio per Year of J&P Development S.A



Graph 64. Equity to Total Capitalization ratio per Year of J&P Development S.A

The leverage ratios of the Company and their decrease, indicate the decrease of the shareholders' equity and the increase of the loans. It reflects that shareholder equity does not have the ability to cover all outstanding debts .The equity to total capitalization ratio in 2015 is 18.14% while in 2007 was 63%.

The equity to non-current ratio is bigger than 1 in the periods 2005-2006 so the assets are financed by the shareholders. For the other years, in combination with the negative trend the company appears to have problems in financing its assets by the equity. The trend starts being positive since 2015.

The equity to liabilities ratio is smaller than 1 in all years except 2007-, so values and the negative trend show that the company cannot pay its obligations by its equity. The ratio starts increasing since 2015.
The same results appears from the equity to total capitalization ratio.

6.3 Comparison between the ratios of the Group and the Subsidiaries

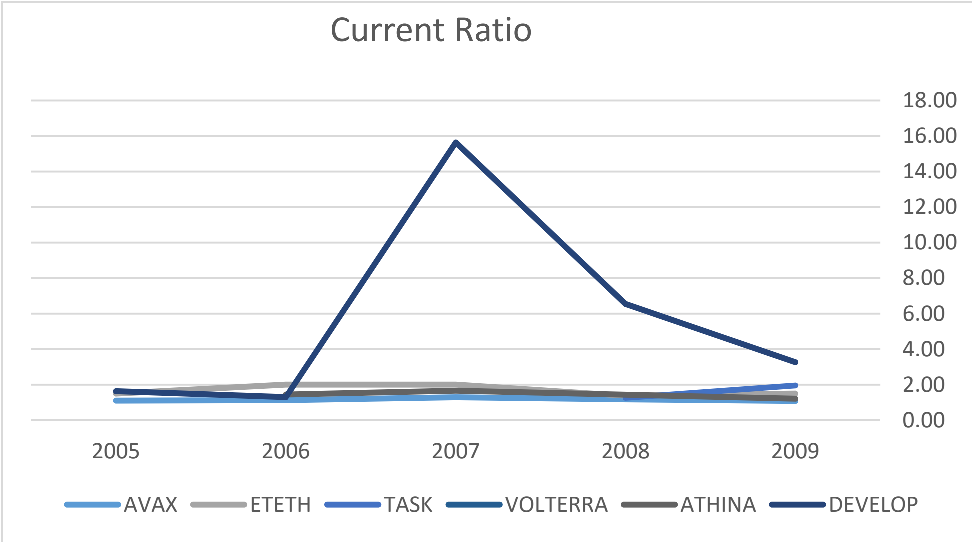
In the following chapters, we compare the ratios, found in the previous chapters, of the subsidiaries in relation with the Group AVAX .SA. We demonstrate these ratios in three different periods-the first is the period 2005-2009, the second one is 2010-2016 and the third one is 2017-2018.

6.3.1 Current Ratio

Current Ratio						
Year/ Company	AVAX	ETETH	TASK	VOLTERRA	ATHINA	DEVELOP
2005	1,10	1,50				1,63
2006	1,13	2,00			1,44	1,30
2007	1,29	2,00			1,66	15,64
2008	1,17	1,38	1,27		1,43	6,54
2009	1,08	1,50	1,95		1,20	3,26
2010	1,10	1,15	1,43		1,15	1,10
2011	1,08	1,08	1,28		1,01	0,66
2012	1,12	1,05	1,39	1,60	0,97	0,56
2013	1,09	1,44	1,76	1,18	1,29	0,76
2014	1,28	1,58	1,38	0,97	1,11	0,72
2015	1,24	1,11	1,38	1,29	1,26	0,65
2016	1,13	1,19	1,50	1,29	1,48	1,52
2017	1,14	1,18	1,14	0,98	1,54	1,55
2018	1,09	0,91	1,16	1,01	0,00	1,64

Table 31. Comparison of Current Ratios

6.3.1.1 Period 2005-2009

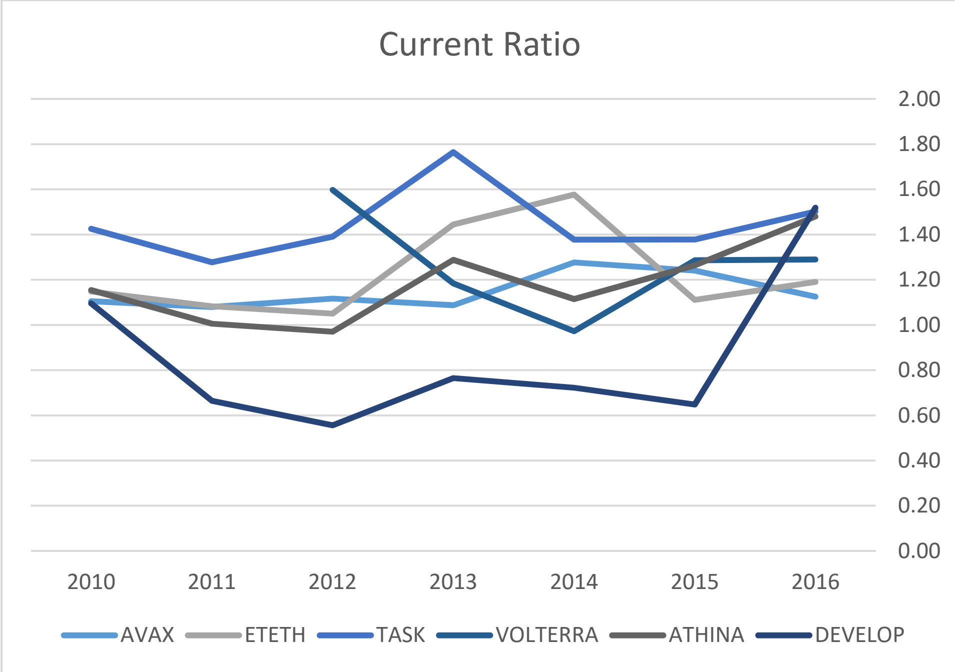


Graph 65. Comparison of Current Ratios for period 2005-2009

Regarding the current ratio, J&P-Development S.A. has the best ratio for the current period that reaches 15.64 in 2007. ETETH S.A follows, then Athina S.A. and at last Task J&P AVAX. All subsidiaries have current ratio above one for this period.

6.3.1.2 Period 2010-2016

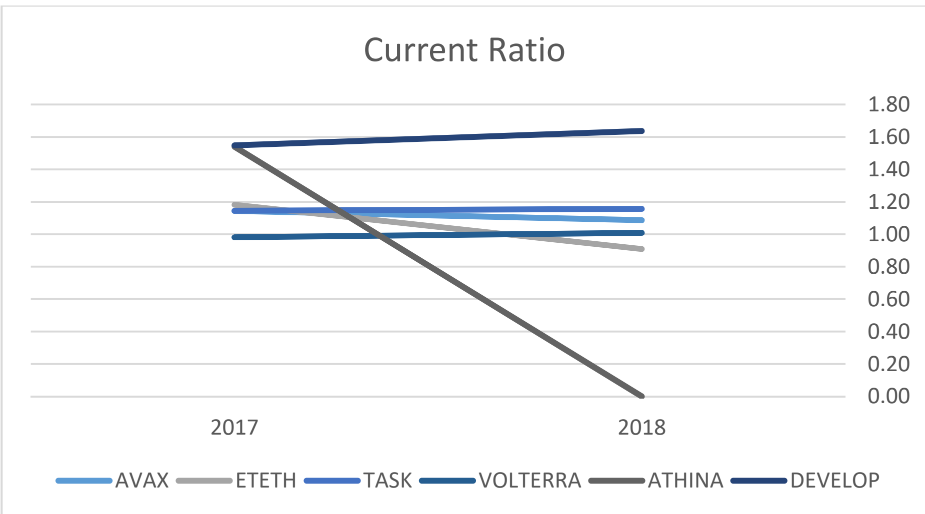
For presentation reasons we did not put the value of 57.38 of Volterra's ratio.



Graph 66. Comparison of Current Ratios for period 2010-2016

In this period of financial crisis, Task J&P AVAX S.A. has the best current ratio, except in 2011 when Volterra S.A. appears a very high value. Then, Volterra S.A follows (except the value in 2014 that is below 1), Eteth S.A, Athina S.A and J&P Development comes last with ratio below one during the period 2011-2014. The ratio of J&P Development is not strange if we take into consideration that the real estate was affected in the period of financial crisis.

6.3.1.2 Period 2017-2018



Graph 67. Comparison of Current Ratios for period 2017-2018

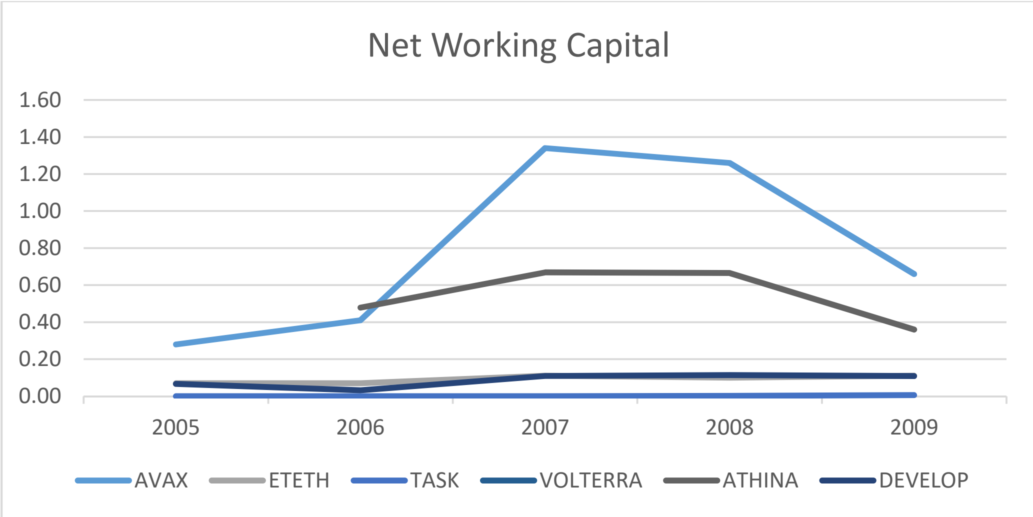
During this period after crisis, again J&P Development comes first, with Athina S.A, Task S.A., Eteth S.A and Volterra S.A to follow. All companies have ratio above 1 except Eteth S.A. in 2018 and Volterra S.A in 2017.

6.3.2 Net Working Capital

Net Working Capital						
Year/ Company	AVAX	ETETH	TASK	VOLTERRA	ATHINA	DEVELOP
2005	0,28	0,07	0,00			0,07
2006	0,41	0,07	0,00		0,48	0,03
2007	1,34	0,11	0,00		0,67	0,11
2008	1,26	0,10	0,00		0,67	0,11
2009	0,66	0,11	0,01		0,36	0,11
2010	0,72	0,03	0,01		0,26	0,01
2011	0,52	0,02	0,01		0,01	-0,08
2012	0,75	0,01	0,02	0,01	-0,06	-0,11
2013	0,58	0,08	0,03	0,00	0,42	-0,04
2014	1,81	0,15	0,02	0,00	0,21	-0,05
2015	1,51	0,03	0,03	0,01	0,36	-0,06
2016	0,85	0,04	0,03	0,02	0,28	0,04
2017	0,84	0,04	0,01	0,00	0,25	0,04
2018	0,42	-0,02	0,01	0,00	0,00	0,04

Table 32. Comparison of Net Working Capital

6.3.2.1 Period 2005-2009

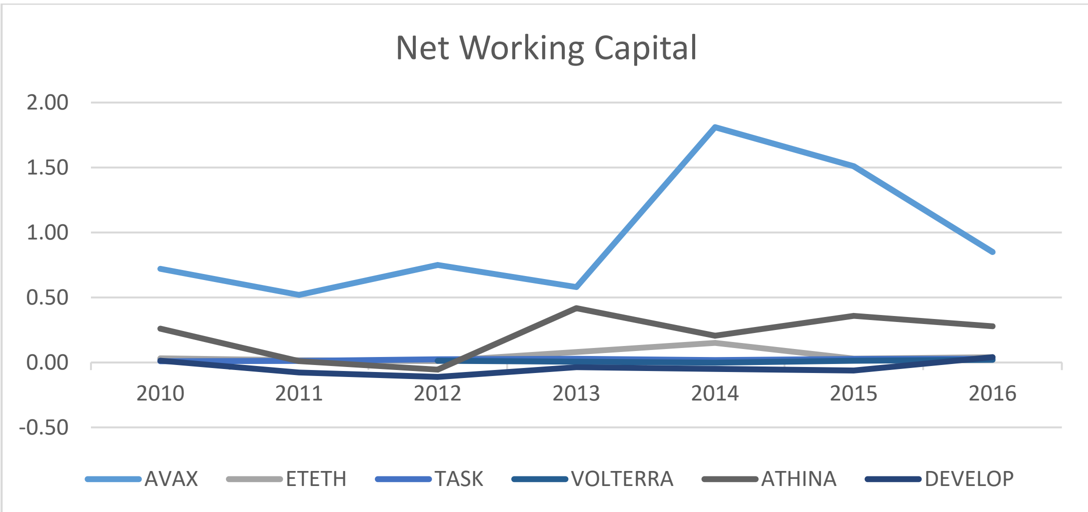


Graph 68. Comparison of Net Working Capital for period 2005-2009

Regarding Net Working Capital, Athina S.A. appears the better value with J&P Development and Eteth to follow. Task S.A comes last for the years 2008-2009 that entered in the Group. We have to emphasize though that all the subsidiaries have ratio less than one, so all they have negative Net Working Capital.

6.3.2.2 Period 2010-2016

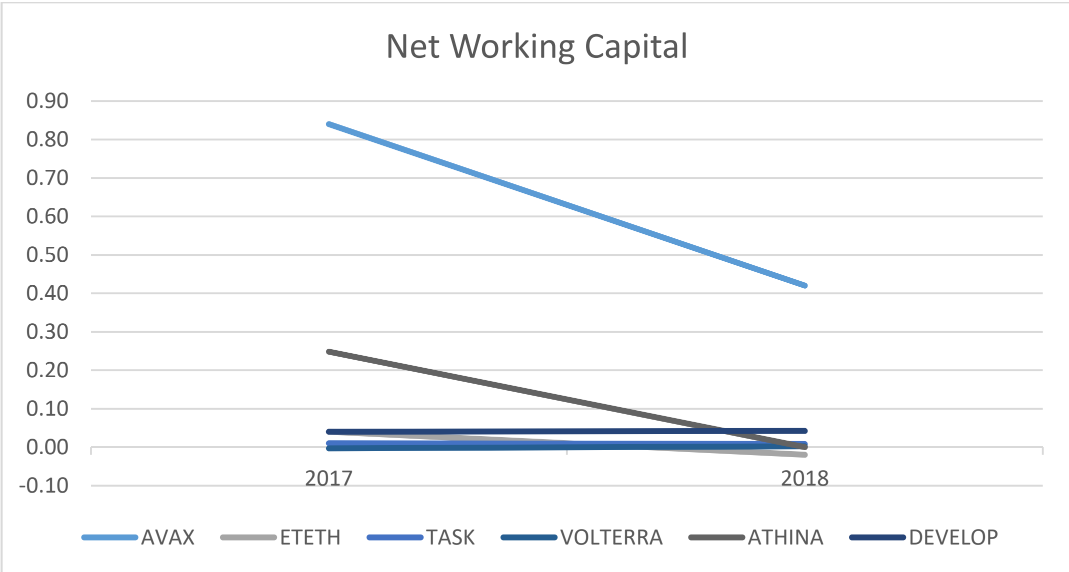
The value of 36.09 that indicates the value of Net Working Capital of Volterra is not presented in the chart foe presentation reasons.



Graph 69. Comparison of Net Working Capital for period 2010-2016

This period, Athina has the better value of ratio. Then Eteth, Task, Volterra and J&P Development follow. Volterra appears a huge value only in 2011. All ratios are less than one and that creates problem in funding their current operations. Athina and J&P Devlopment have even negative values, Athina in 2012 and J&P Development during 2011-2015. Therefore financial recession affect all subsidiaries regarding the Net Working Capital.

6.3.2.3 Period 2017-2018



Graph 70. Comparison of Net Working Capital for period 2017-2018

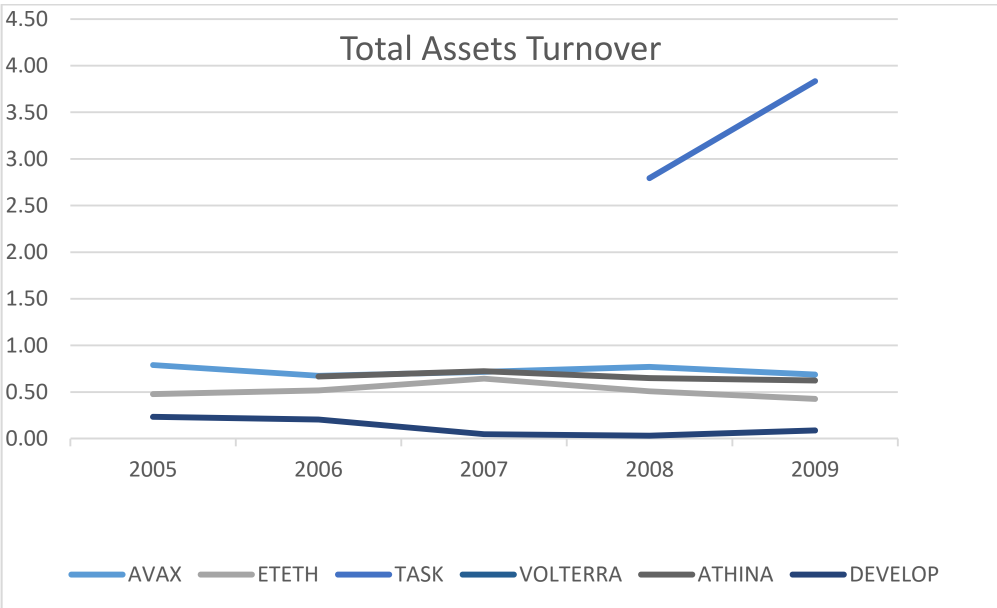
Finally, in the last period again all the companies appear values less than one. Athina has better values, with J&P Development, Eteth, Task and Volterra to follow.

6.3.3 Total Assets Turnover

Total Assets Turnover Ratio						
Year/ Company	AVAX	ETETH	TASK	VOLTERRA	ATHINA	DEVELOP
2005	0,79	0,48				0,23
2006	0,67	0,52			0,67	0,20
2007	0,72	0,64			0,72	0,05
2008	0,77	0,51	2,79		0,65	0,03
2009	0,69	0,43	3,83		0,62	0,09
2010	0,59	0,41	2,59		0,48	0,29
2011	0,54	0,33	2,53	0,16	0,39	0,03
2012	0,36	0,22	1,44	0,91	0,38	0,02
2013	0,32	0,18	1,62	0,85	0,46	0,02
2014	0,37	0,27	1,47	1,30	0,40	0,01
2015	0,38	0,29	1,07	1,67	0,40	0,00
2016	0,41	0,36	1,14	2,02	0,37	0,03
2017	0,54	0,45	1,54	1,48	0,46	0,01
2018	0,52	0,41	1,35	1,51		0,05

Table 33. Comparison of Total Assets Turnover Ratios

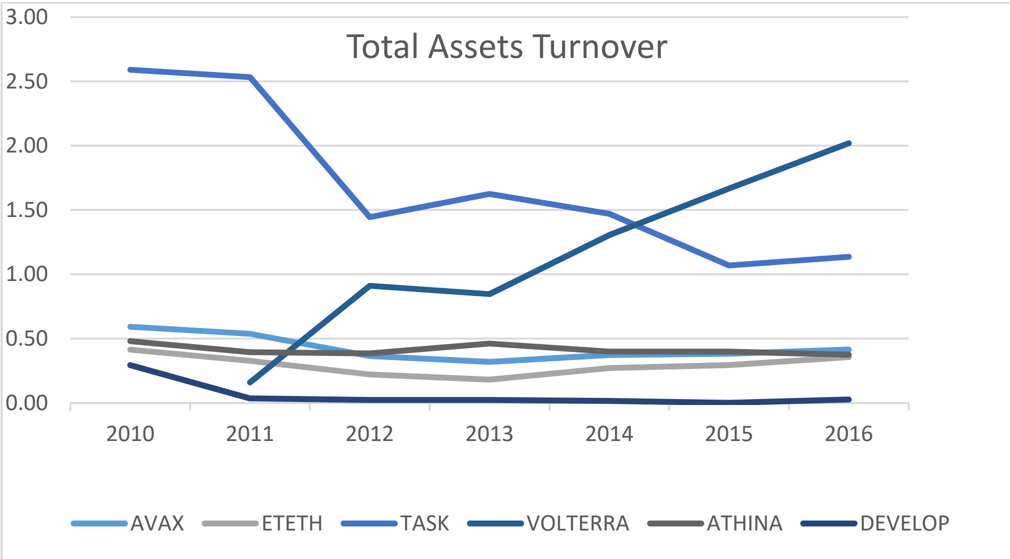
6.3.3.1 Period 2005-2009



Graph 71. Comparison of Total Assets Turnover Ratios for period 2005-2009

Regarding Total assets Turnover ratio, Task has the higher value, therefore it is more efficient to use its asset to generate revenue. Athina, Eteth and J&P Development follow.

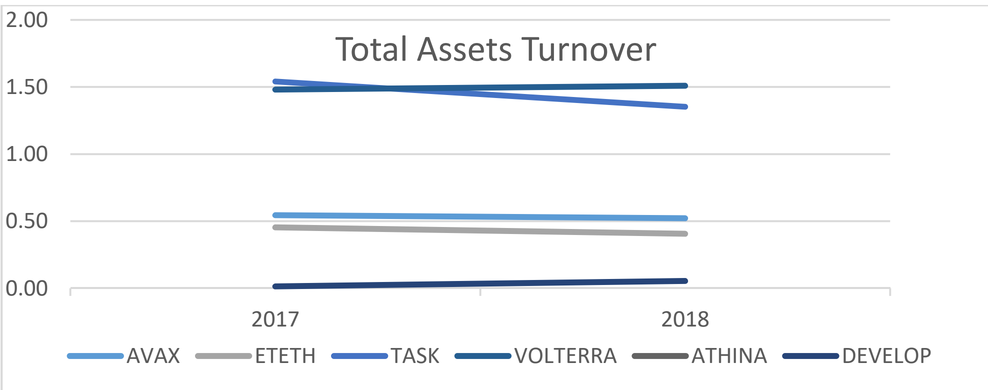
6.3.3.2 Period 2010-2016



Graph 72.Comparison of Total Assets Turnover Ratios for period 2010-2016

We observe the same results as for the period 2005-2009. Again, Task is more efficient in the period of crisis to use its assets to generate revenue. Athina, Eteth and J&P Development follow.

6.3.3.3 Period 2017-2018



Graph 73. Comparison of Total Assets Turnover Ratios for period 2017-2018

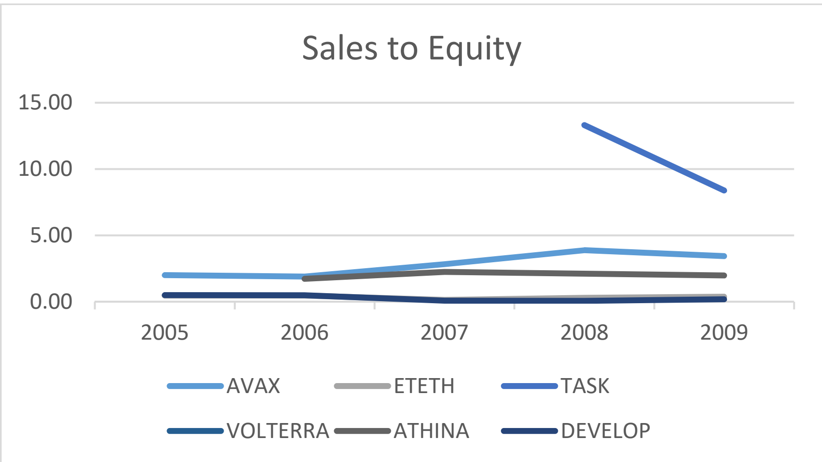
During this period, Volterra comes first in efficiency, and Task, Eteth and J&P Development follow.

6.3.4 Sales to equity ratio

Sales to equity ratio						
Year/ Company	AVAX	ETETH	TASK	VOLTERRA	ATHINA	DEVELOP
2005	2,00	0,47				0,50
2006	1,89	0,46			1,72	0,49
2007	2,83	0,14			2,24	0,08
2008	3,89	0,29	13,32		2,11	0,06
2009	3,44	0,38	8,38		1,98	0,18
2010	2,31	0,16	9,76		1,55	0,70
2011	2,15	0,05	12,59	0,19	1,65	0,09
2012	1,54	0,06	5,91	1,45	1,82	0,08
2013	1,72	0,10	3,75	1,59	1,64	0,09
2014	2,39	0,20	5,23	4,28	3,19	0,08
2015	2,82	0,28	3,94	3,39	3,23	0,09
2016	4,66	0,44	3,48	4,56	1,02	0,12
2017	6,12	0,43	14,76	8,25	1,19	0,05
2018	6,69	0,21	11,44	7,64		0,17

Table 34. Comparison of Sales to Equity Ratios

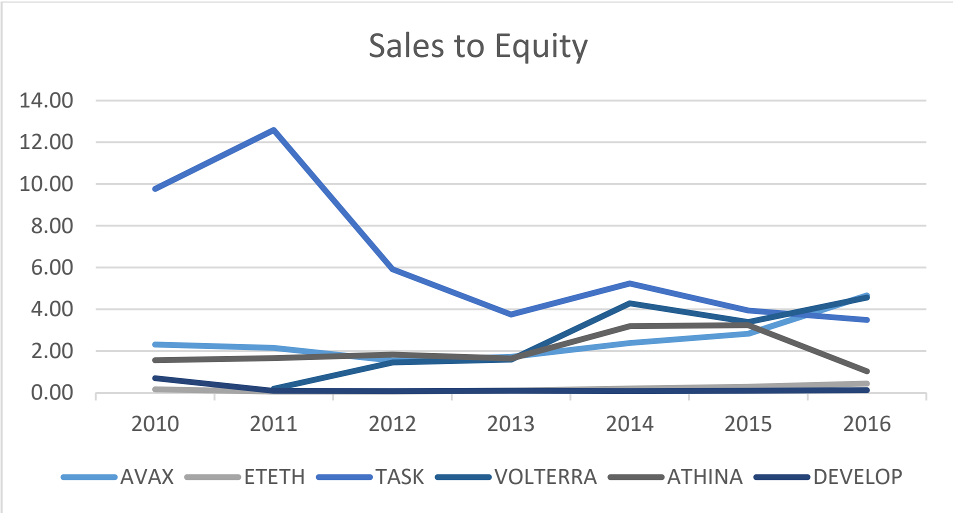
6.3.4.1 Period 2005-2009



Graph 74. Comparison of Sales to Equity Ratios for period 2005-2009

Task appears to be more efficient in utilizing its shareholders to generate sales during 2008-2009. Athina, Eteth and J&P Development follow.

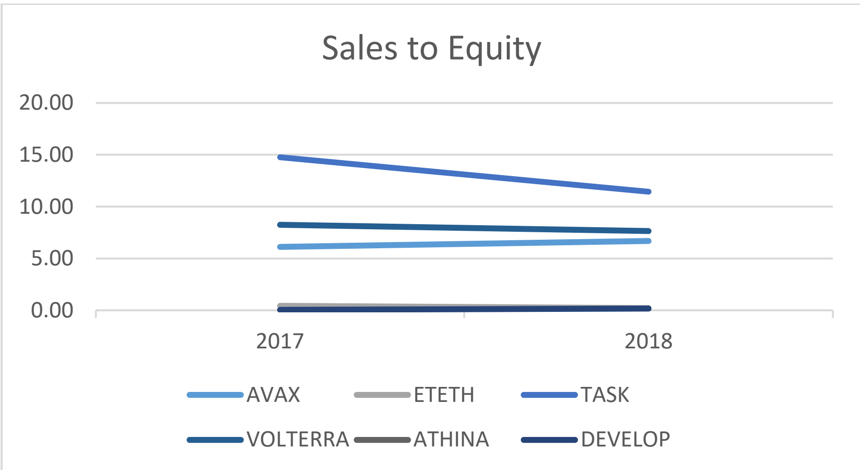
6.3.4.2 Period 2010-2016



Graph 75. Comparison of Sales to Equity Ratios for period 2010-2016

Task again, appears to be more efficient in utilizing its shareholders to generate sales during financial crisis. Volterra, Athina, Eteth and J&P Development follow.

6.3.4.3 Period 2017-2018



Graph 76. Comparison of Sales to Equity Ratios for period 2017-2018

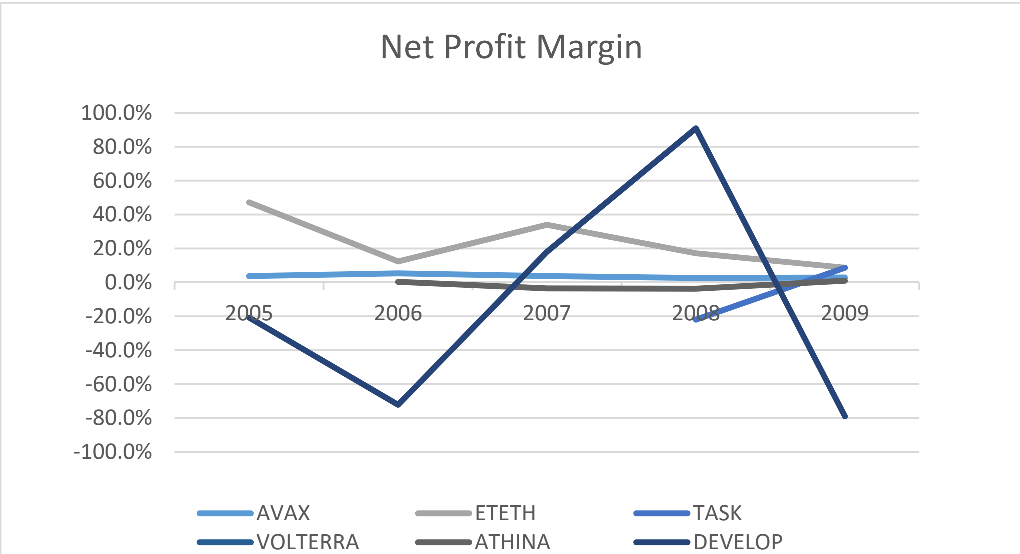
Task continues to be more efficient in utilizing its shareholders to generate sales during financial crisis. Volterra, Athina, Eteth and J&P Development follow.

6.3.5 Net Profit Margin (ROS)

ROS						
Year/ Company	AVAX	ETETH	TASK	VOLTERRA	ATHINA	DEVELOP
2005	3,6%	47,2%				-20,8%
2006	5,3%	12,3%			0,3%	-72,1%
2007	3,7%	34,0%			-3,6%	18,1%
2008	2,5%	17,1%	-22,0%		-3,8%	90,8%
2009	2,9%	8,7%	8,5%		1,0%	-78,9%
2010	0,8%	-27,9%	3,5%		0,1%	-175,6%
2011	-0,4%	-31,1%	2,2%	-100,2%	-9,4%	-129,4%
2012	-2,7%	-11,9%	8,0%	-6,8%	-9,7%	-385,0%
2013	-17,8%	21,7%	5,9%	-9,1%	-10,2%	-954,8%
2014	-7,7%	52,6%	7,0%	1,3%	-43,3%	-375,9%
2015	-7,6%	30,1%	7,7%	3,3%	-45,3%	-602,1%
2016	-7,9%	28,1%	2,0%	4,1%		-413,1%
2017	-1,6%	27,4%	-0,7%	0,2%	-11,6%	233,2%
2018	-4,5%	-21,3%	-2,4%	0,0%		-137,6%

Table 35. Comparison of Net Profit Ratios

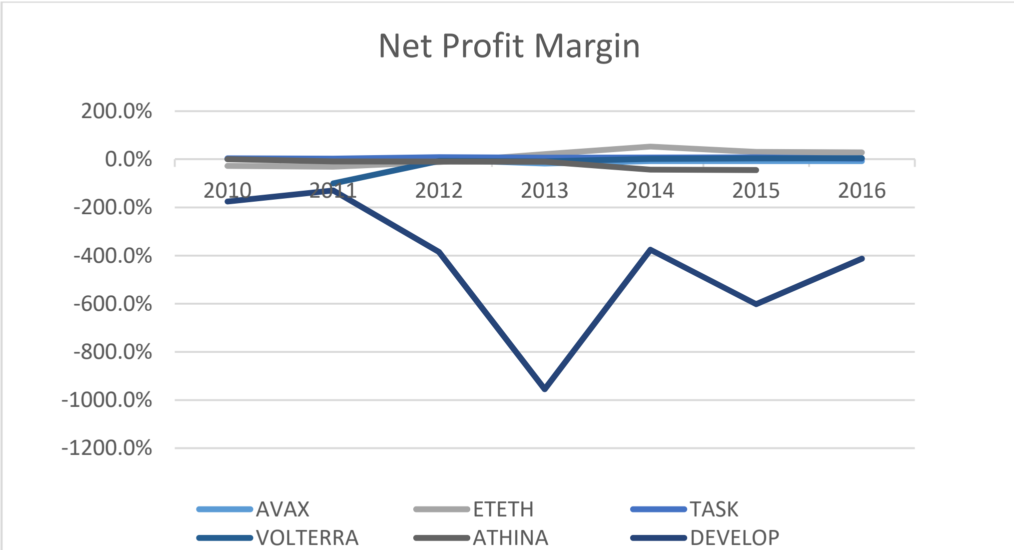
6.3.5.1 Period 2005-2009



Graph 77. Comparison of Net Profit Ratios for period 2005-2009

Eteth S.A. appears the highest Net Profit Margin by far in comparison with the other subsidiaries of the Group. J&P Development comes next with negative values in 2005, 2006 and 2009. Then, Athina and Task follow with negative values in 2007-2008 and 2008 respectively.

6.3.5.2 Period 2010-2016

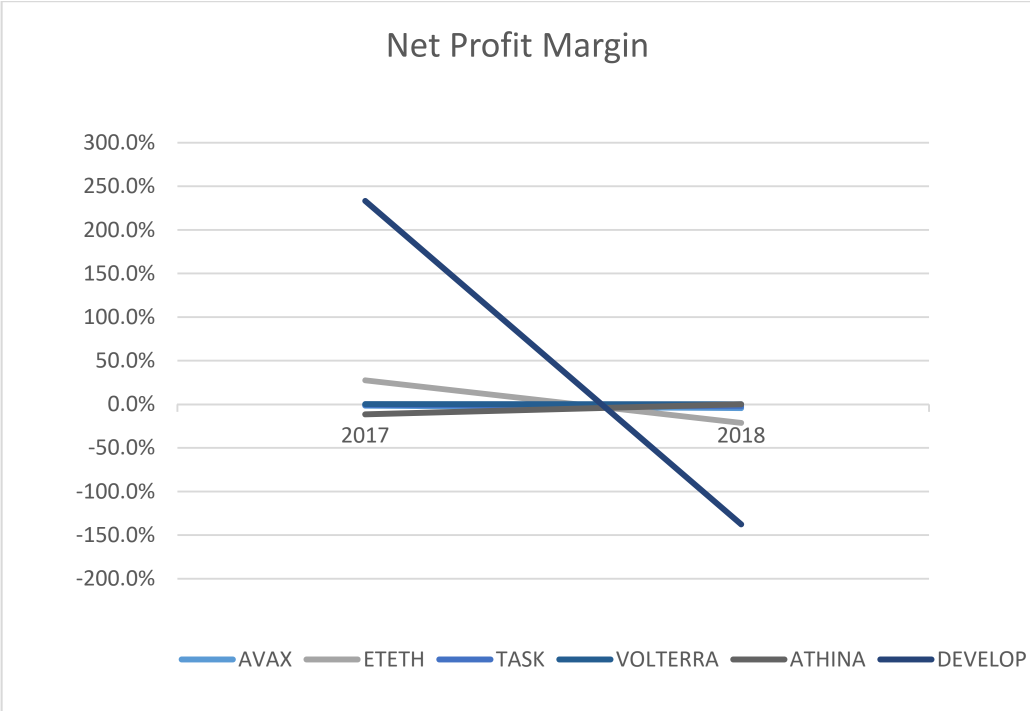


Graph 78. Comparison of Net Profit Ratios for period 2010-2016

During the period 2010-2012, Task is the subsidiary that appears higher Net Profit Margin. Athina, Eteth, Volterra and J&P Development follow with negative values.

Subsequently, in the period 2013-2016, Eteth appears financial health in comparison with the other subsidiaries. Task and Volterra follow and then Athina and J&P Development come with negative values.

6.3.5.3 Period 2017-2018



Graph 79. Comparison of Net Profit Ratios for period 2017-2018

We observe that in 2017, J&P Development appears the highest value of Net Profit Margin that reaches the 232%. Eteth, Volterra follow and then Task and Athina with negative values.

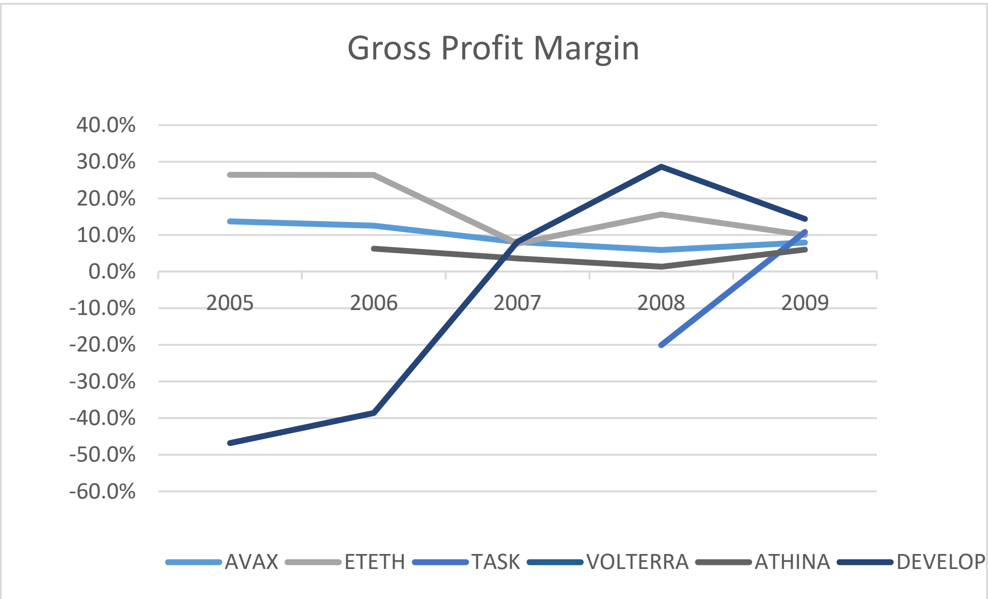
In 2018, Volterra comes first and then Task, Eteth and J&P Development follow with negative values.

6.3.6 Gross Profit Margin

Gross profit Margin						
Year/ Company	**AVAX**	**ETETH**	**TASK**	**VOLTERRA**	**ATHINA**	**DEVELOP**
2005	13,7%	26,4%				-46,8%
2006	12,5%	26,3%			6,3%	-38,6%
2007	8,1%	7,7%			3,6%	8,1%
2008	5,9%	15,6%	-20,1%		1,3%	28,6%
2009	7,9%	10,0%	10,8%		6,0%	14,4%
2010	10,0%	-3,0%	10,2%		8,8%	0,1%
2011	8,9%	14,3%	8,1%	-7,1%	-2,2%	3,8%
2012	9,7%	16,4%	16,9%	2,3%	3,1%	16,3%
2013	3,4%	-32,3%	18,3%	6,2%	1,1%	34,2%
2014	10,6%	2,4%	22,1%	5,8%	-26,7%	26,3%
2015	8,2%	13,7%	22,3%	8,4%	-34,0%	26,7%
2016	5,5%	17,9%	15,8%	10,9%	-45,6%	11,1%
2017	5,5%	20,1%	11,5%	5,5%	-7,5%	0,5%
2018	5,5%	-46,5%	11,3%	5,5%		-0,5%

Table 36. Comparison of Gross Profit Margin

6.3.6.1 Period 2005-2009

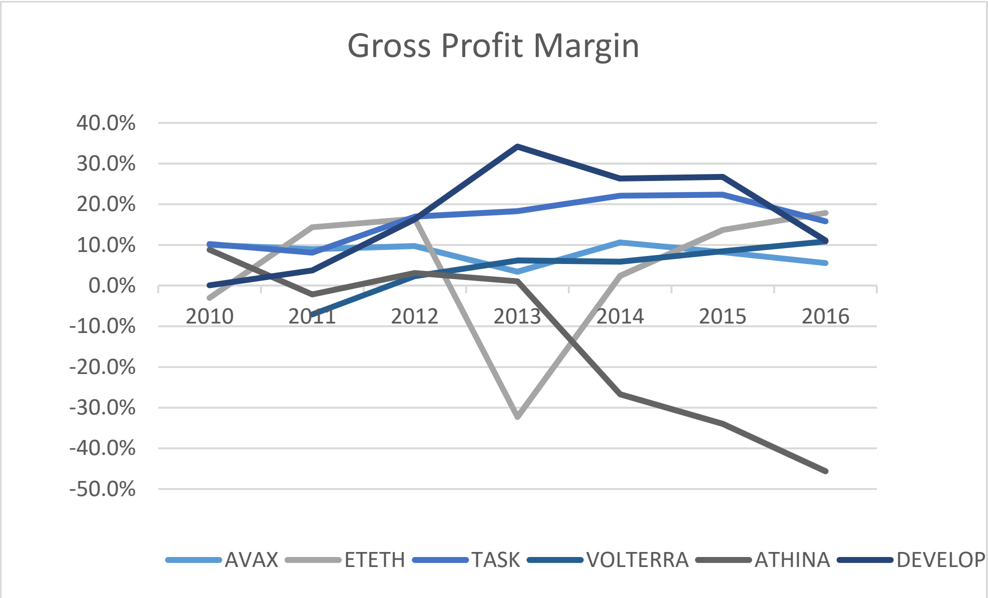


Graph 80. Comparison of Gross Profit Margin for period 2005-2009

During the period 2005-2006, Eteth appears higher Gross Profit Margin and Athina and J&P Development follow, with the last one to show negative value. Then in 2007-2009, J&P Development has the higher value, with Eteth, Athina and Task to follow.

As the above graph presents, Eteth appears better financial health as it has not any negative values.

6.3.6.2 Period 2010-2016



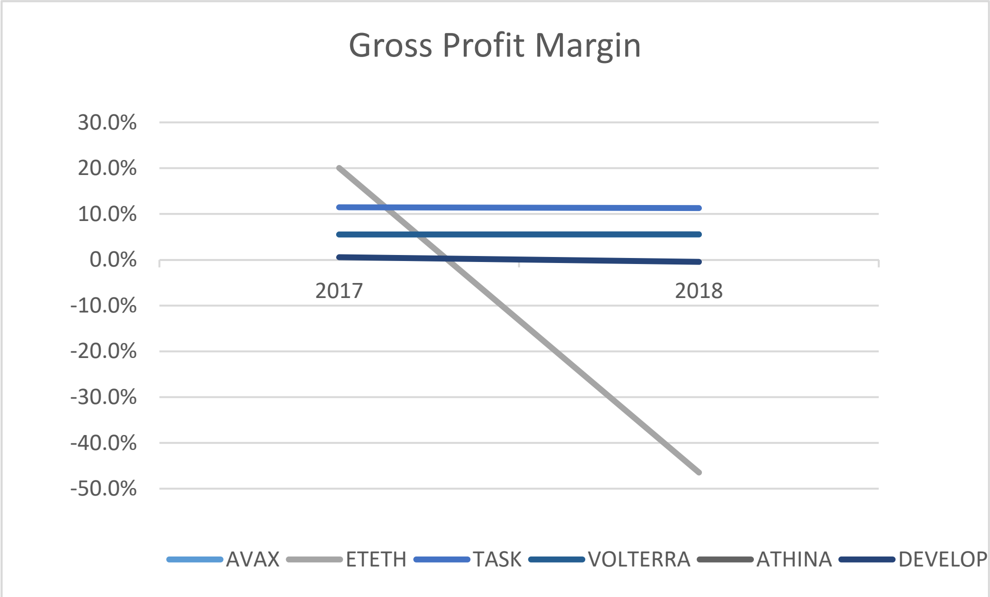
Graph 81. Comparison of Gross Profit Margin for period 2010-2016

If we split the above period in two sub periods, we observe that in 2010-2012 Task appears to have better ratio, with Eteth, J&P Development, Athina and Volterra to follow.

In the other sub period 2013-2016, J&P Development has better ratio and Task, Volterra Eteth and Athina to follow. Athina has negative values of Gross Profit Ratio.

Consequently, in the period of financial recession, we can say that Task and J&P Development has better financial performance with Task not to appear many fluctuations as J&P Development does.

6.3.6.3 Period 2017-2018



Graph 82. Comparison of Gross Profit Margin for period 2017-2018

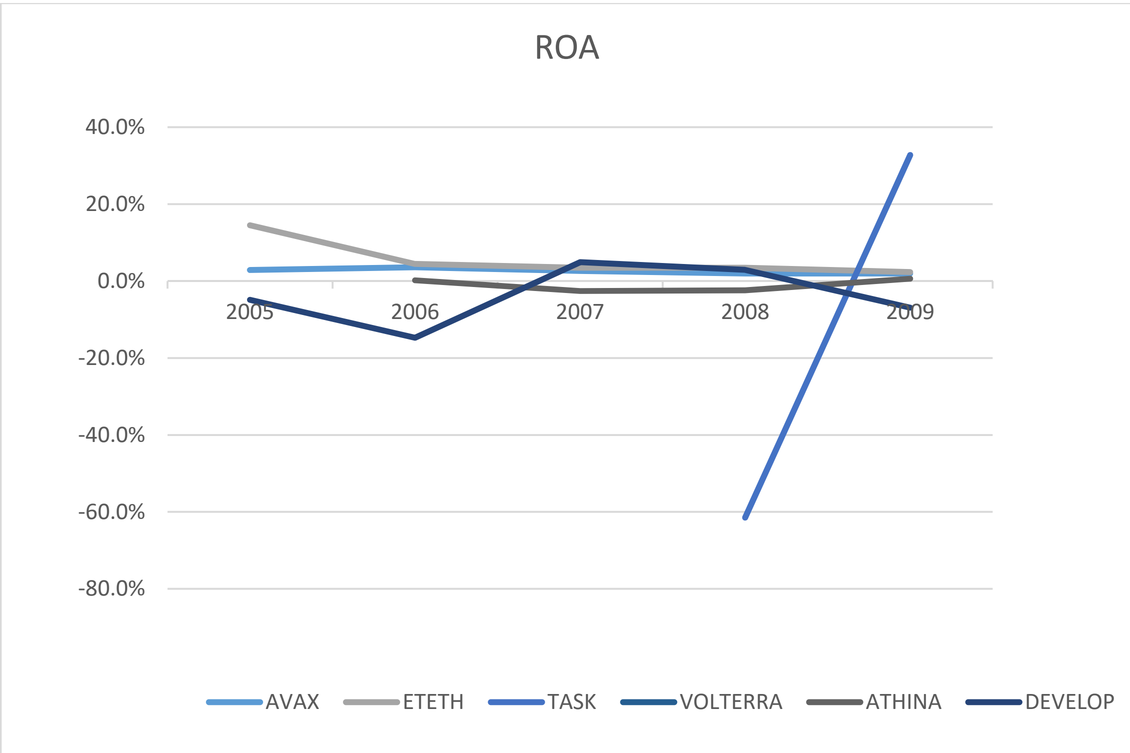
Regarding Gross Profit Margin, Task appears to have better financial health in the period 2017-2018. Volterra, J&P Development follow. Eteth, even if it appears higher value of the ratio in 2017, it shows negative value in 2018, so it comes last in this period.

6.3.7 Return on Assets

ROA						
Year/ Company	AVAX	ETETH	TASK	VOLTERRA	ATHINA	DEVELOP
2005	2,9%	14,5%				-4,9%
2006	3,6%	4,4%			0,2%	-14,7%
2007	2,6%	3,4%			-2,6%	4,9%
2008	1,9%	3,4%	-61,5%		-2,4%	2,9%
2009	2,0%	2,3%	32,8%		0,6%	-6,9%
2010	0,4%	-3,1%	9,1%		0,0%	-51,5%
2011	-0,2%	-1,1%	5,5%	-16,0%	-3,7%	-4,4%
2012	-1,0%	-0,5%	11,6%	-6,2%	-3,7%	-8,7%
2013	-5,7%	1,4%	9,6%	-7,7%	-4,7%	-20,6%
2014	-2,9%	7,0%	10,2%	1,7%	-17,3%	-5,3%
2015	-2,9%	5,2%	8,3%	5,5%	-18,0%	-10,3%
2016	-3,3%	7,8%	2,3%	8,2%	-24,7%	-10,9%
2017	-0,9%	7,1%	-1,1%	0,3%	-5,4%	3,2%
2018	-2,3%	-2,5%	-3,2%	0,0%		-7,5%

Table 37. Comparison of Return on Assets ratios

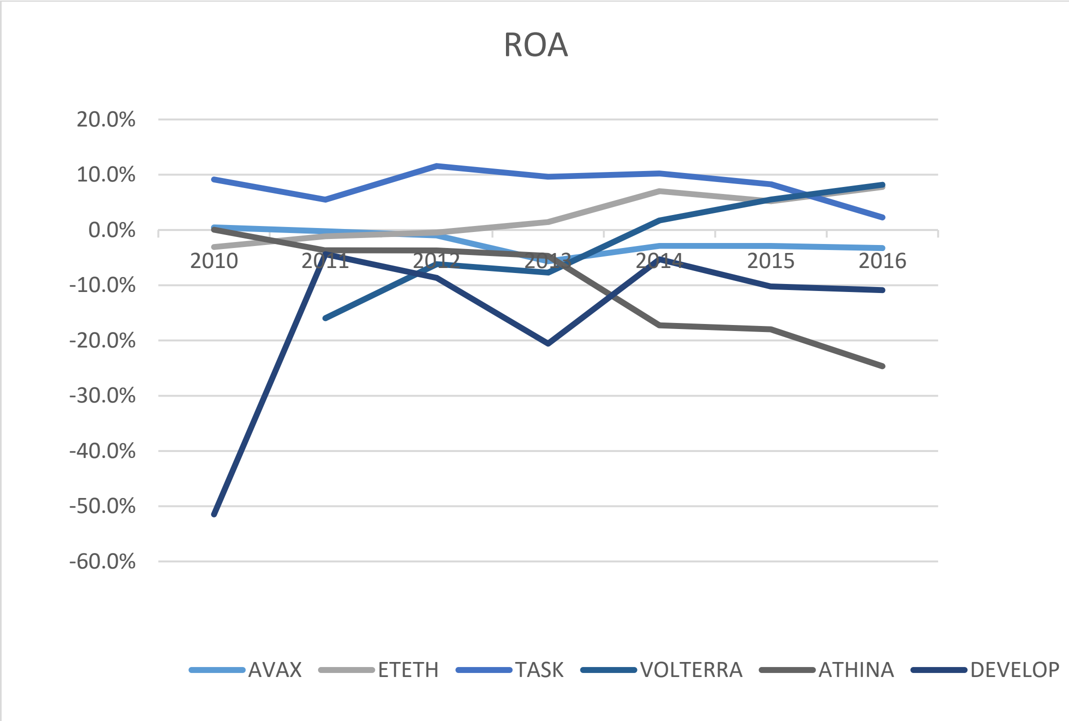
6.3.7.1 Period 2005-2009



Graph 83. Comparison of Return on Assets ratios for period 2005-2009.

In this period, Eteth shows higher ROA with J&P Development, Athina and Task to follow.

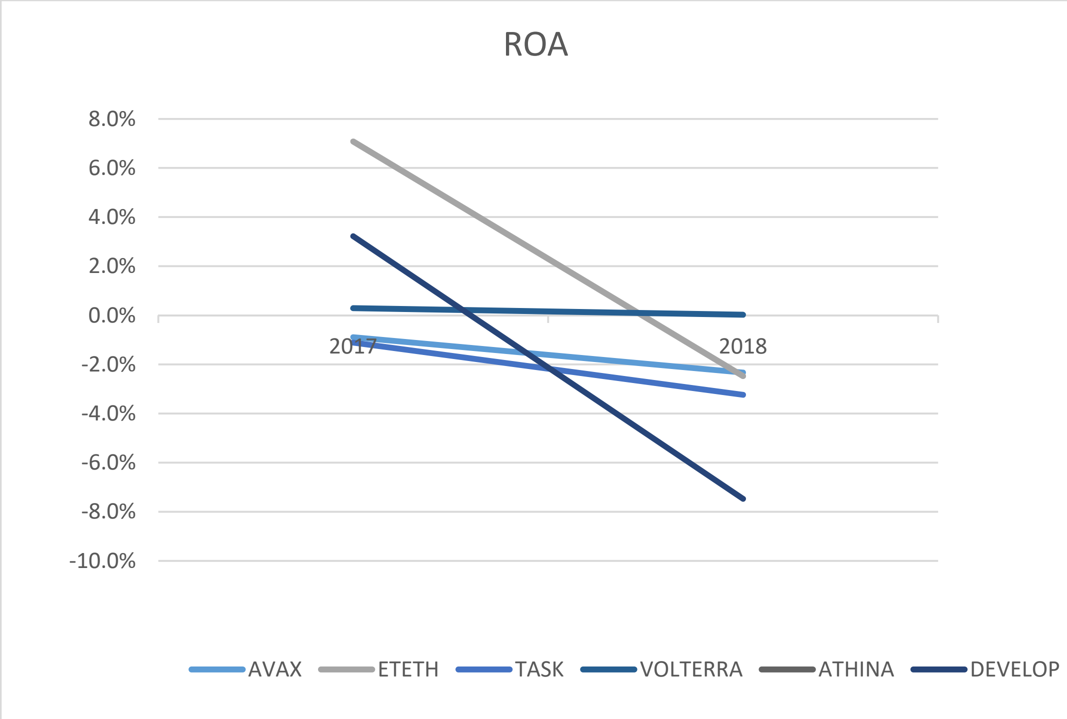
6.3.7.2 Period 2010-2016



Graph 84. Comparison of Return on Assets ratios for period 2010-2016

Regarding ROA, in the period of financial crisis, task appears to be more efficient at using its assets to generate earnings. Eteth, Volterra follow with Athina and J&P Development to appear negative values.

6.3.7.3 Period 2017-2018



Graph 85. Comparison of Return on Assets ratios for period 2017-2018

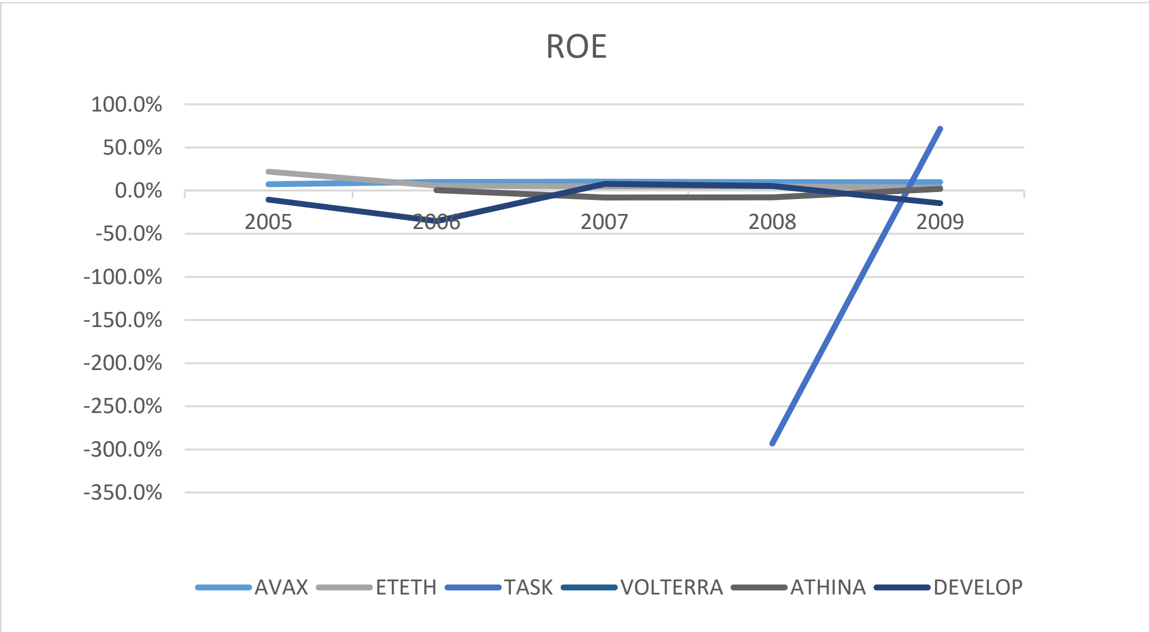
In this period, Voltera shoes more stable trend but with low value. Eteth and J&P Development has positive values in 2017 and negative ones in 2018. Task appears only negative value of ratio.

6.3.8 Return on Equity

ROE						
Year/ Company	AVAX	ETETH	TASK	VOLTERRA	ATHINA	DEVELOP
2005	7,3%	22,0%				-10,4%
2006	10,0%	5,6%			0,5%	-35,3%
2007	10,4%	4,7%			-8,0%	7,8%
2008	9,8%	4,9%	-293,2%		-7,9%	5,2%
2009	9,8%	3,3%	71,7%		1,9%	-14,5%
2010	1,8%	-4,4%	34,5%		0,1%	-123,0%
2011	-0,9%	-1,6%	27,3%	-19,5%	-15,5%	-11,7%
2012	-4,2%	-0,7%	47,4%	-9,9%	-17,7%	-30,3%
2013	-30,5%	2,1%	22,2%	-14,5%	-16,7%	-87,7%
2014	-18,4%	10,6%	36,4%	5,7%	-138,0%	-29,0%
2015	-21,5%	8,5%	30,5%	11,2%	-146,3%	-56,5%
2016	-37,1%	12,3%	7,0%	18,5%	-67,4%	-51,5%
2017	-10,0%	11,7%	-10,7%	1,6%	-13,8%	10,6%
2018	-29,9%	-4,5%	-27,4%	0,1%		-22,9%

Table 38. Comparison of Return on Equity Ratios

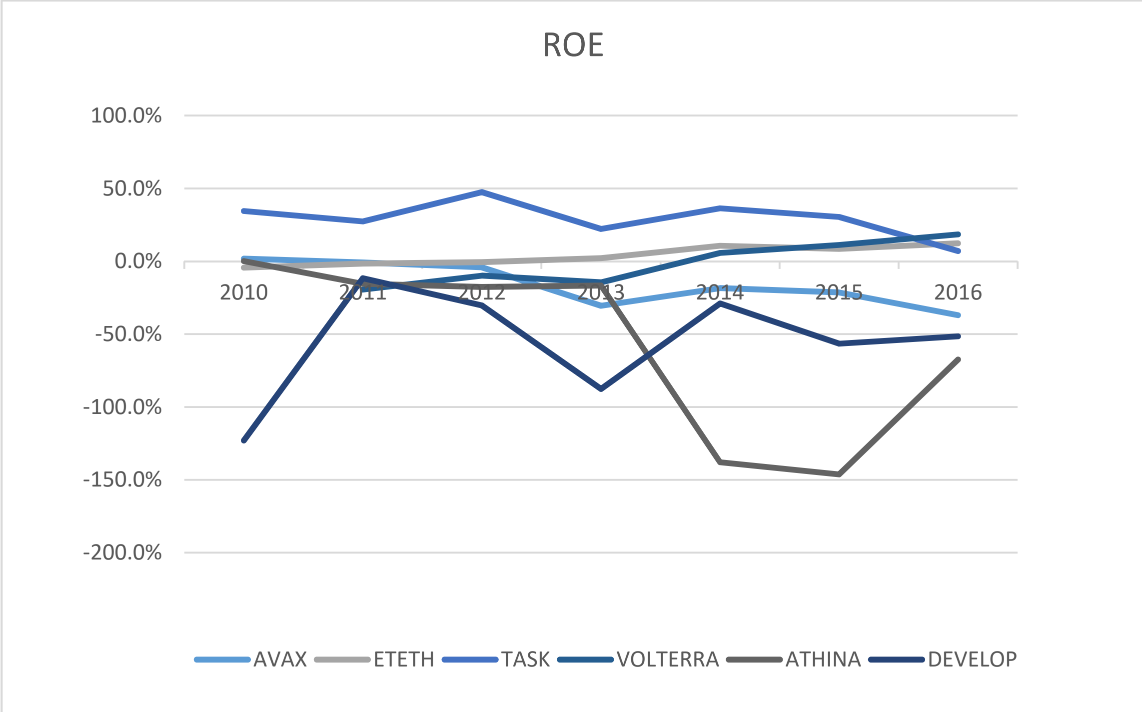
6.3.8.1 Period 2005-2009



Graph 86. Comparison of Return on Equity Ratios for period 2005-2009

In the above graph, Eteth is the subsidiary with the better ROE ratio. Athina and J&P Development follow. Task has positive trend but it has big fluctuation.

6.3.8.2 Period 2010-2016

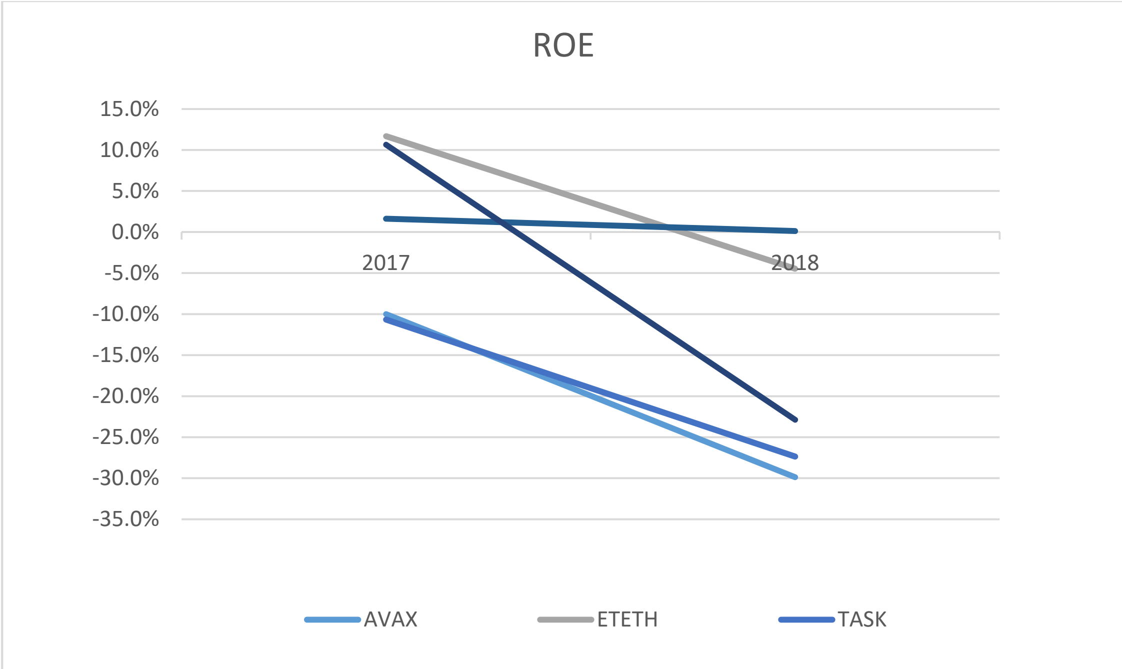


Graph 87. Comparison of Return on Equity Ratios for period 2010-2016

Task has the highest value of ROE that is even bigger than 10%. Then, Ethet and Volterra, which have negative values in the first three years, follow. J&P Development and Athina have negative values.

Therefore, Task uses more effectively its assets to create profit in comparison with the other subsidiaries, during the period of the financial crisis.

6.3.8.3 Period 2017-2018



Graph 88. Comparison of Return on Equity Ratios for period 2017-2018

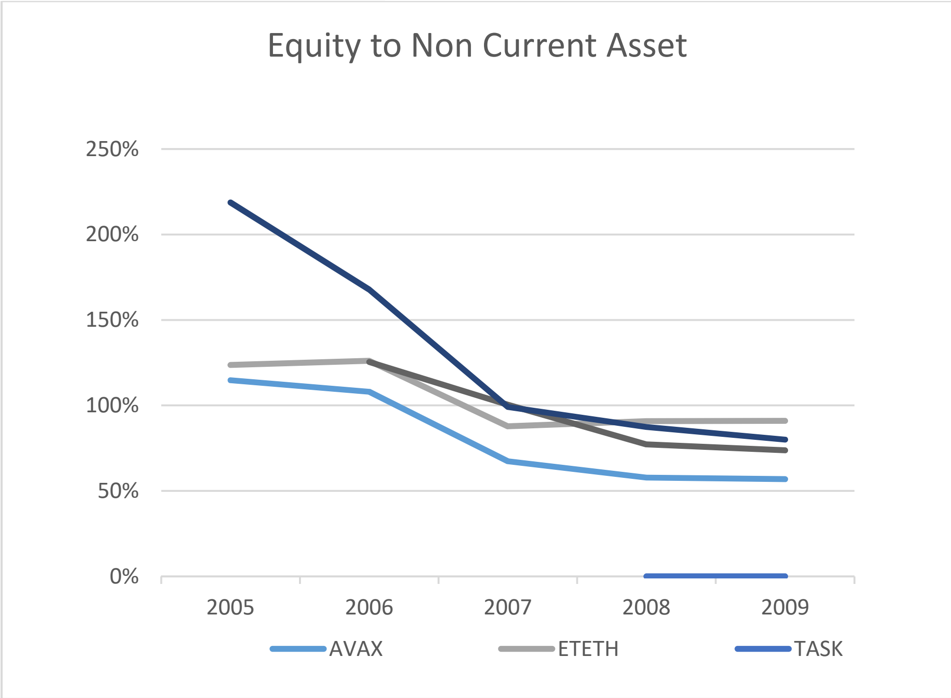
Volterra appears more stable trend during this period. Eteth and J&P Development appear positive values only in 2017 and Task has only negative values of ROE.

6.3.9 Equity to Non-Current Asset

Equity to Non Current Assets						
Year/ Company	AVAX	ETETH	TASK	VOLTERRA	ATHINA	DEVELOP
2005	115%	124%				219%
2006	108%	126%			125%	168%
2007	67%	88%			100%	99%
2008	58%	91%	0%		77%	87%
2009	57%	91%	0%		74%	80%
2010	60%	85%	3023%		70%	71%
2011	56%	84%	2927%	321%	66%	62%
2012	53%	84%	2367%	144%	64%	45%
2013	43%	86%	1829%	107%	108%	37%
2014	39%	95%	985%	85%	64%	30%
2015	33%	81%	1344%	112%	69%	29%
2016	21%	84%	1520%	118%	196%	38%
2017	19%	82%	530%	33%	167%	52%
2018	15%	71%	433%	41%		59%

Table 39. Equity to Non-current Assets

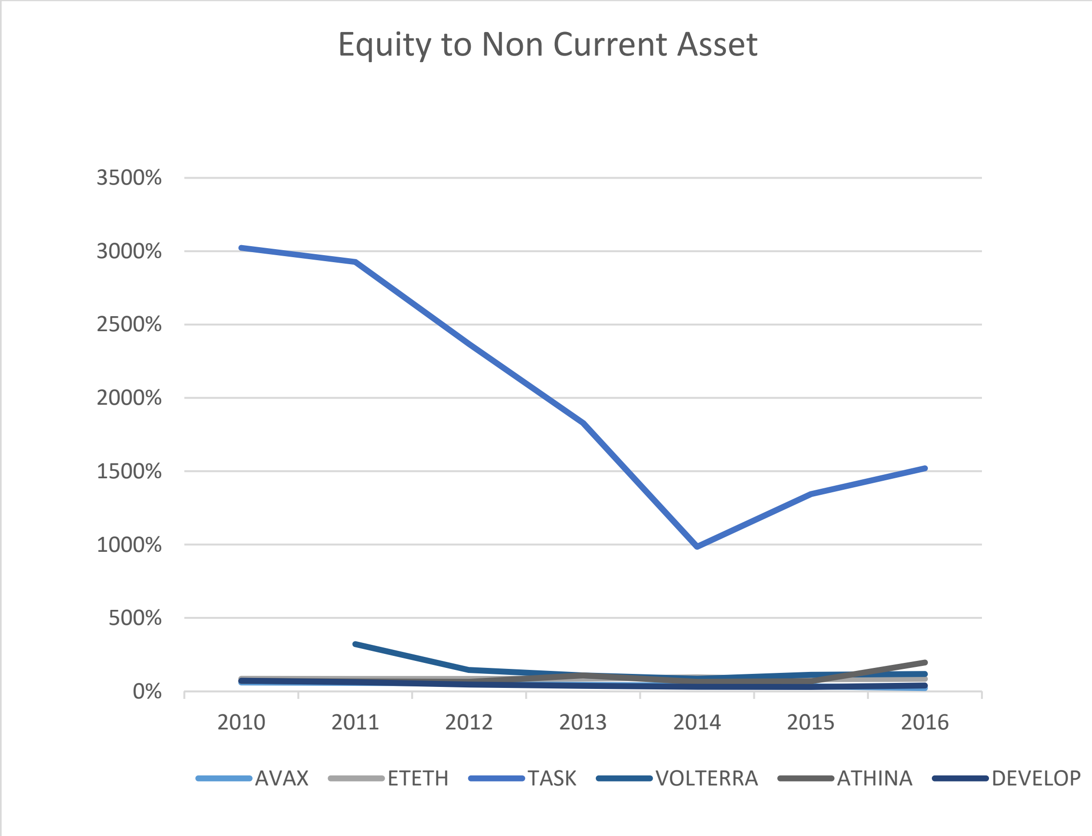
6.3.9.1 Period 2005-2009



Graph 89. Equity to Non-current Assets for period 2005-2009

In this period, J&P Development appears to have the highest value of ratio. It uses approximately 20% of loans in order to finance its assets. Eteth depends on creditors only by 12%. Athina with 26% dependence on creditors follow and Task uses 100% creditors in order to finance its assets.

6.3.9.2 Period 2010-2016

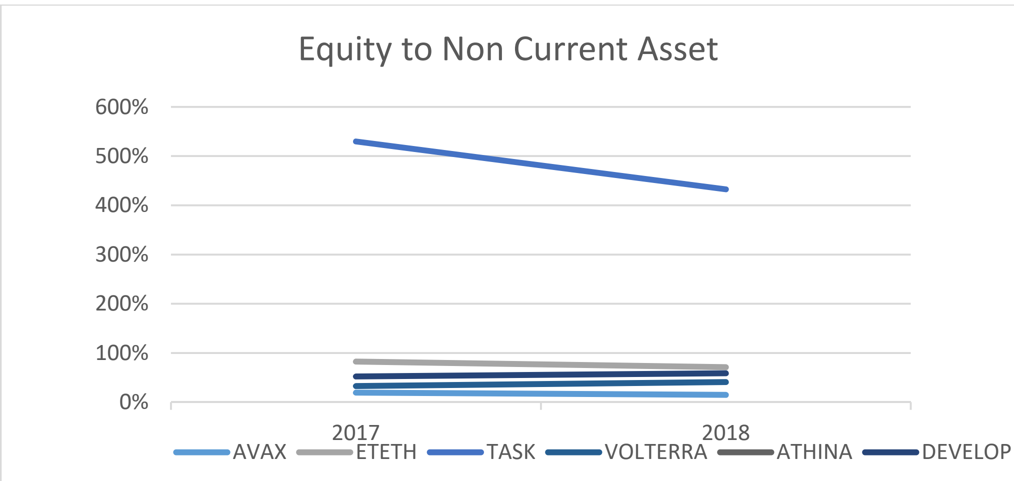


Graph 90. Equity to Non-current Assets for period 2010-2016

During financial crisis, Task uses only shareholders' equity to finance its assets. Volterra follows with 15% dependence on creditors, Eteth with 20%, Athina with 36% and J&P Development with 70%.

Therefore, Task is less leveraged in comparison with the other companies.

6.3.9.3 Period 2017-2018



Graph 91. Equity to Non-current Assets for period 2017-2018

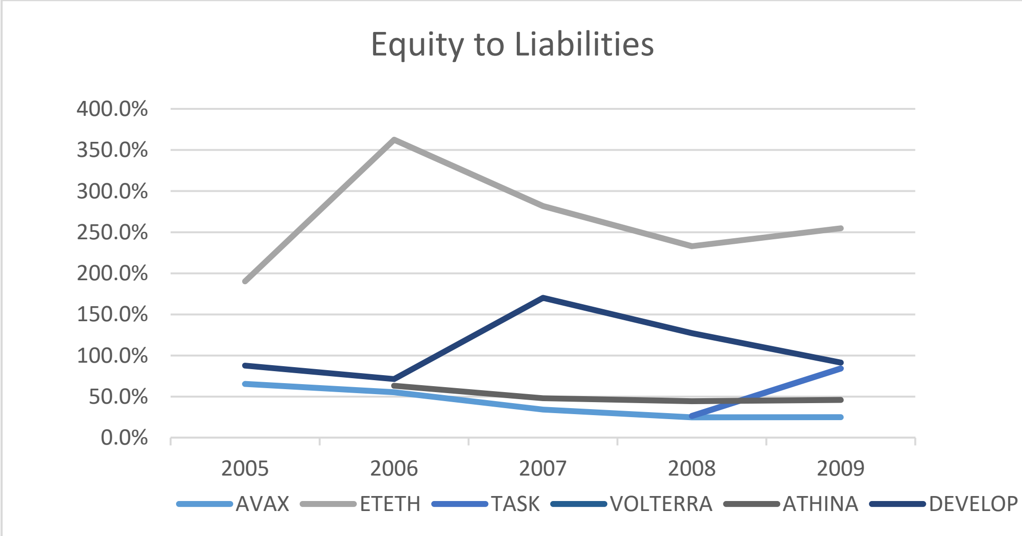
Again, Task is 100% depended on its shareholders. Athina follows, Eteth with 30% dependence on creditors, J&P Development with 40% dependence and Volterra with 67%.

6.3.10 Equity to Liabilities

Equity to liabilities						
Year/ Company	AVAX	ETETH	TASK	VOLTERRA	ATHINA	DEVELOP
2005	65,3%	190,3%				87,7%
2006	55,2%	362,5%			63,3%	71,5%
2007	34,2%	281,8%			48,0%	170,3%
2008	24,7%	233,0%	26,5%		44,4%	127,1%
2009	24,9%	254,9%	84,3%		46,0%	91,4%
2010	34,4%	240,6%	36,1%		44,6%	72,0%
2011	33,4%	243,0%	25,2%	452,7%	31,3%	60,1%
2012	30,9%	228,7%	32,3%	169,0%	26,7%	40,7%
2013	22,8%	217,5%	76,6%	113,8%	39,2%	30,7%
2014	18,5%	197,8%	39,1%	43,8%	14,3%	22,4%
2015	15,6%	158,3%	37,2%	97,0%	14,0%	22,2%
2016	9,8%	173,0%	48,4%	79,5%	57,7%	26,8%
2017	9,8%	153,8%	11,7%	21,9%	63,6%	43,4%
2018	8,5%	124,4%	13,4%	24,6%		48,5%

Table 40. Comparison of Equity to Liabilities Ratios

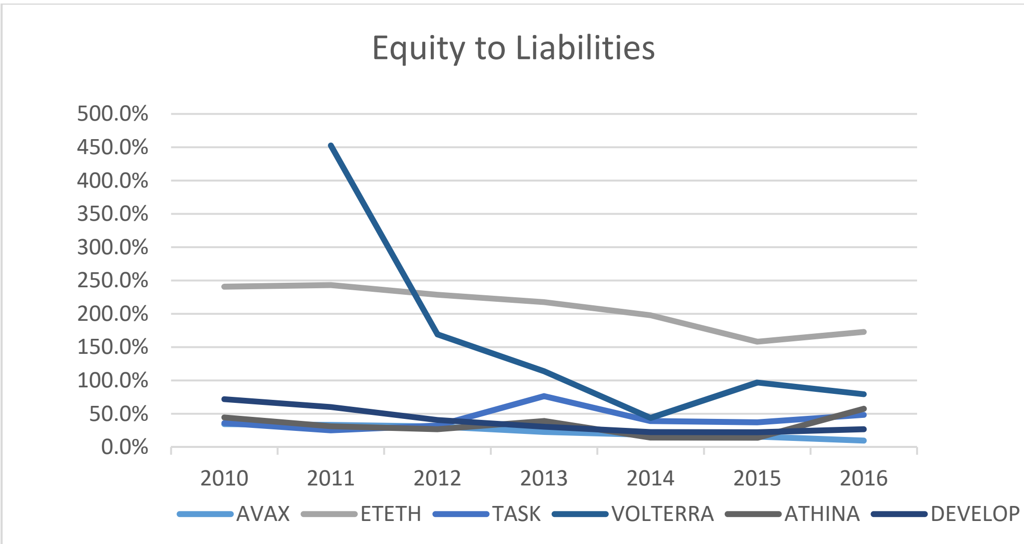
6.3.10.1 Period 2005-2009



Graph 92. Comparison of Equity to Liabilities Ratios for period 2005-2009

Regarding Equity to liabilities ratio, Eteth appears to have no dependence on its creditors in comparison with the other subsidiaries. J&P Development, Athina and Task follow.

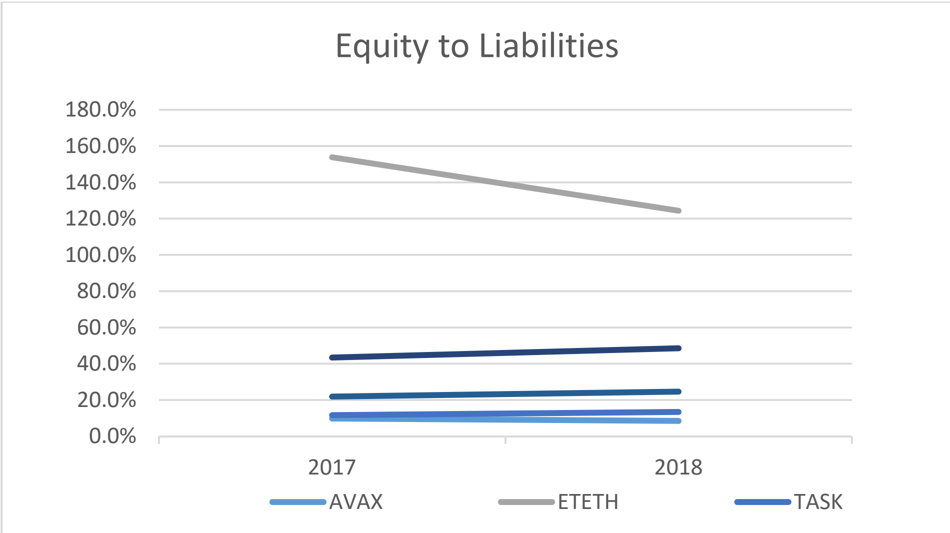
6.3.10.2 Period 2010-2016



Graph 93. Comparison of Equity to Liabilities Ratios for period 2010-2016

In this difficult period of recession, Eteth appears to be able to use only its shareholders and to be depended on its creditors. Volterra, Task, J&P Development and Athina follow.

6.3.10.3 Period 2017-2018



Graph 94 . Comparison of Equity to Liabilities Ratios for period 2017-2018

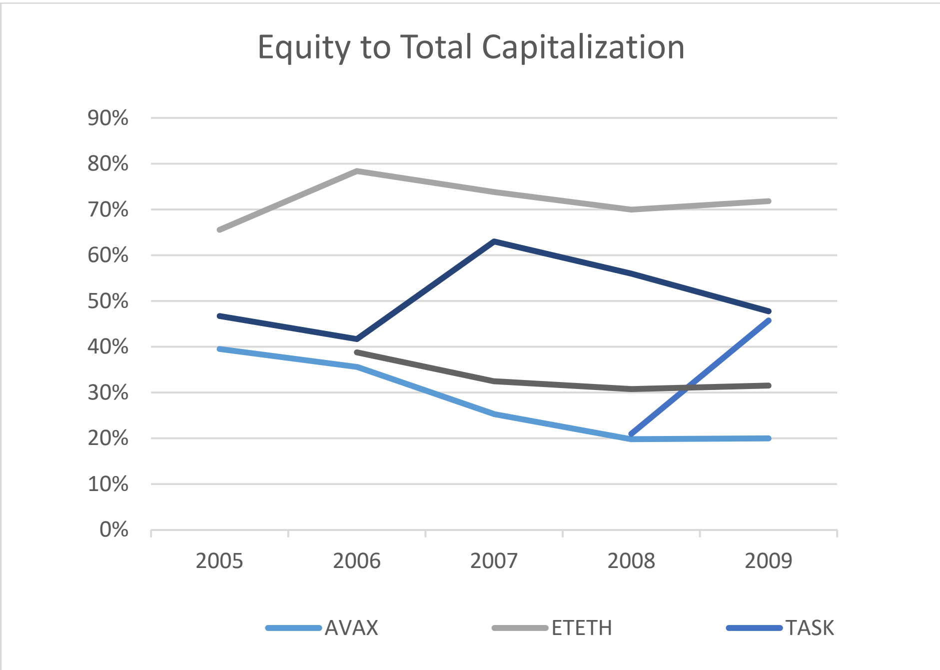
Regarding the ratio during this period, Eteth has the better value, with J&P Development, Volterra and Task to follow.

6.3.11 Equity to Total Capitalization

Equity-to-Total Capitalization						
Year/ Company	AVAX	ETETH	TASK	VOLTERRA	ATHINA	DEVELOP
2005	40%	66%				47%
2006	36%	78%			39%	42%
2007	25%	74%			32%	63%
2008	20%	70%	21%		31%	56%
2009	20%	72%	46%		31%	48%
2010	26%	71%	27%		31%	42%
2011	25%	71%	20%	82%	24%	38%
2012	24%	70%	24%	63%	21%	29%
2013	19%	69%	43%	53%	28%	23%
2014	16%	66%	28%	30%	13%	18%
2015	14%	61%	27%	49%	12%	18%
2016	9%	63%	33%	44%	37%	21%
2017	9%	61%	10%	18%	39%	30%
2018	8%	55%	12%	20%		33%

Table 41. Comparison of Equity to Total Capitalization Ratios

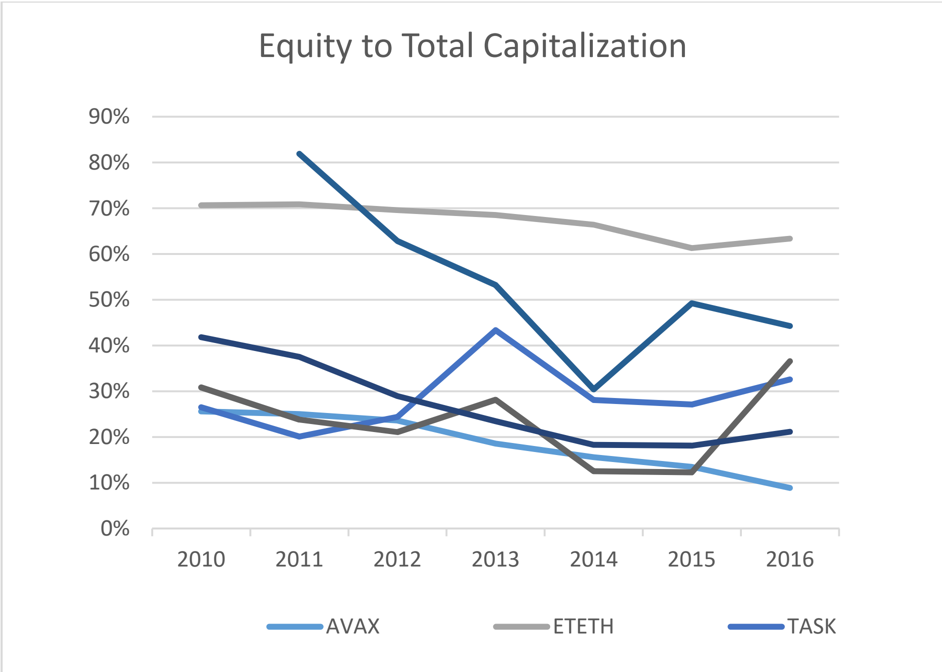
6.3.11.1 Period 2005-2009



Graph 95. Comparison of Equity to Total Capitalization Ratios for period 2005-2009

Regarding Equity to Total Capitalization Ratio, Eteth seems to have higher value with J7P Development, Athina and Task to follow.

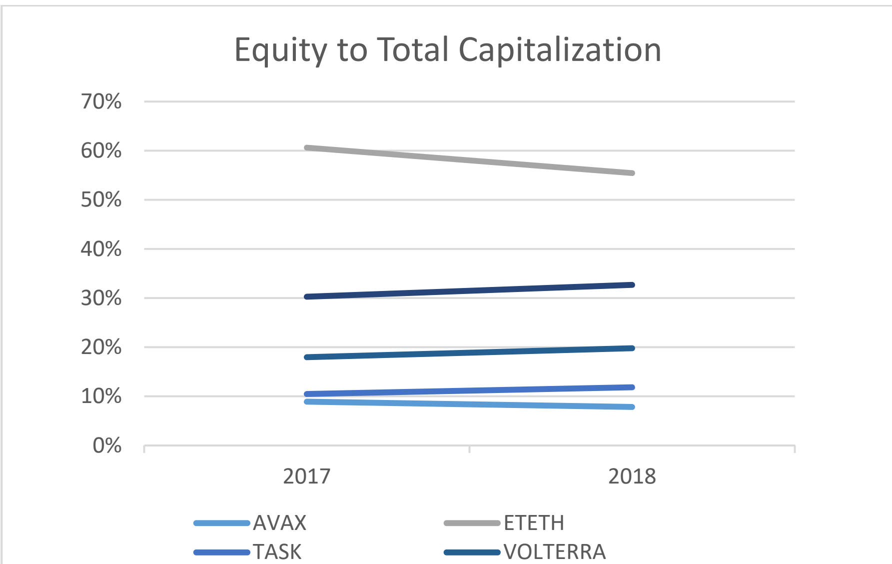
6.3.11.2 Period 2010-2016



Graph 96. Comparison of Equity to Total Capitalization Ratios for period 2010-2016

Eteth seems to be more independent by creditors than the other subsidiaries in the period of financial crisis. Volterra, Task , J&P Development and Athina follow.

6.3.11.3 Period 2017-2018



Graph 97. Comparison of Equity to Total Capitalization Ratios for period 2017-2018

During the period 2017-2018, Eteth appears to have better ratio again. J&P Development, Volterra and Task follow.

Chapter 7
Conclusion

In this Master's dissertation, a financial analysis through ratios occurred for AVAX S.A, a big construction Group of companies in order to observe its performance during the financial crisis that affected the construction sector in Greece. This analysis prepared also for the main subsidiaries of the Group, Eteth S.A., Task J&P AVAX, Volterra S.A. and the results are as follows:

- The period before economic recession, AVAX Group appears increase of sales and the Total Assets Turnover ratio substantiate this fact as it was approximately stable. The sales of the Group AVAX S.A are reduced in the period 2008-2013, i.e. the period of the financial crisis, even for 40%. Especially, the Total Assets Turnover Ratio has negative trend during this period and the decrease reaches the 40%. This indicates inefficiency in generating sales from asset. The positive trend of the ratio since 2013 though, indicates that the Group may obtain the efficiency in generating sales from asset as before crisis.

  Eteth and Athina have the same performance as AVAX Group. Volterra appears in 2011 in the middle of financial crisis with positive trend of efficiency but since 2017, this trend decreases. Task as it is labor-based company appears high ratios in the period 2008-2011 when it started showing decline until 2018 because the crisis affected the core of the company, i.e., the labor. Finally, J&P Development since 2006 has negative trend until 2018 when it has some small increase and this trend shows that the financial crisis affected J&P Development. The small value of Total Assets Turnover ratio of this subsidiary comparing the other companies is because is a real estate company, which has low Total Assets Turnover ratio.

- Regarding the profitability of the Group, Net profit margin decreases since 2007 and it becomes negative since 2011. That indicates that the Group is not generating profit from its sale but loss. Therefore, the impact of financial crisis is obvious in Group's profitability.

  In the period before economic recession, Eteth is in alignment with the Group but since 2013, it shows positive net profit ratio until 2017 but with negative trend. Therefore, the crisis may not affect it as much as the Group but certainly there was effect.

  Task has positive ratio and that indicates that it has profit and not loss during the crisis but the impact of the recession is shown in the negative trend of the ratio.

  Volterra until 2013 has loss as Net Profit Margin indicates, but even if the period 2014-2016 there was increase of the profit margin, in 2018 there is zero ratio.

  Athina is in alignment with the Group.

  J&P Development appears negative Net Profit Margin and it contributes to the negative margin of the Group. Therefore, the crisis affected the profitability both of the Group and its Subsidiaries.

- AVAX S.A., since 2008, is not depended only on its shareholders' equity. As Equity to Liabilities ratio indicates, during the period of financial crisis, Group was 65% depended on its equity in 2005, 35% in 2010 and only 10% in 2016.

  In addition, the value of Equity to Total Capitalization ratio reaches the 8% in 2018, 9% in 2016 when it was 26% in 2010 and 40% in 2005. Therefore, the shareholders do not own their Group as it is depended on creditors.

Eteth appears to have no dependence on its creditors during all the period 2005-2018 but there is a continuous decrease of the Equity to Liabilities ratio. Therefore, Eteth may not have dependency by creditors but the negative trend of the ratio indicates the impact of crisis.

Task appears 84% dependency on its equity, but since 2010 this ratio decrease to reach 25% in 2011 and 11% in 2017 when starts to increase again.

Athina follows the Group's alignment but it appears increase in 2016.

Volterra even it has independency until 2013 since then it is depended on its creditors with small increase since 2017.

Finally, J&P Development has 170% independency in 2007 and reaches the 22% only in 2015. Since 2016 the ratio increase again and that indicates that even if it was affected in the period of recession, it appears to obtain its independency.

- On the other hand, though, Current ratio is always above one during the whole period before, during and after the financial recession. Therefore, AVAX was able to fulfill the short-term liabilities.
  The analyzed subsidiaries were in alignment with the Group Liquidity and they all have ratio above one. Only J&P Development appears ratio below one during the period 2011-2014. The low value of the ratio of J&P Development is not strange if we take into consideration that the real estate was affected in the period of financial crisis.

Therefore, the financial crisis affected AVAX Group and its subsidiaries. The subsidiaries from the unrelated diversification strategy of the group appeared better results during the economic recession and have beneficiary contribution to the Group's performance. Some of the subsidiaries appear to return their performance since 2017 but this is something that needs more study during the years to come. New projects and new legislation might help the recovery but any prediction for the future of the construction sector in Greece is not possible as the financial condition in Greece is still not stable.

Construction companies should use their resources, their knowledge and experience and take action abroad more aggressively. In addition, more investments in energy and tourism might help their recovery, subject for further study.

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