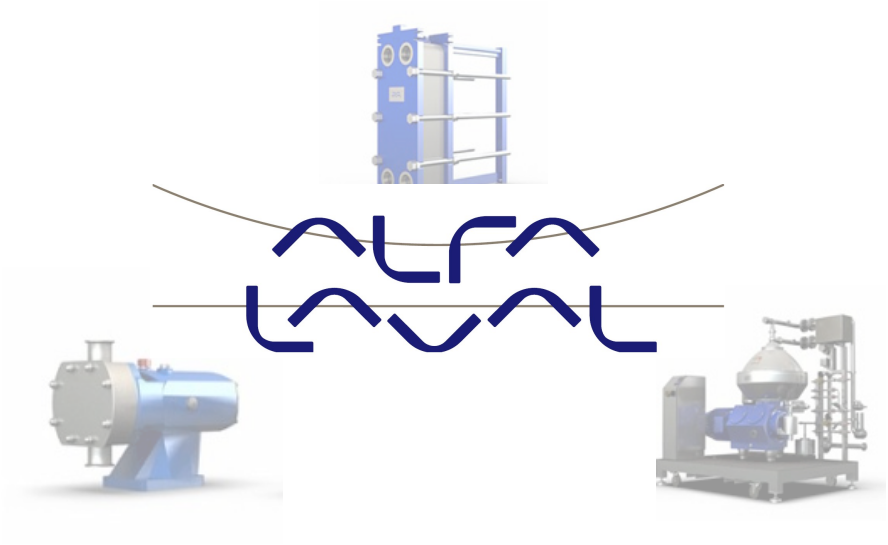
Valuation of Alfa Laval



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Executive Summary

The purpose of the report has been to find the fair value per share of the industrial company Alfa Laval as of 31st of March 2012. The writers have taken the role as investment analysts, solely using external information.

The world is currently undergoing a transforming phase where financial, political, environmental and societal forces are interconnecting and changing the rules of the game for many companies. This transformation is eminently influencing Alfa Laval as a multinational company producing capital goods for numerous industries, e.g. within transportation, oil refinery, food and drinks processing, and the energy sector.

The report has, in order to perform a fundamental valuation of Alfa Laval, applied three strategic analytical frameworks: the PEST-model to analyse the macro-economy, the Porter's Five Forces-framework to analyse the industry's characteristics, and the SWOT-framework to conclude the findings from the two previous frameworks. The strategic assessment illustrated, despite the current turmoil, a rather optimistic outlook for Alfa Laval, mostly driven by a strong market position, proactive R&D focus, a promising product portfolio, bright projections for several market segments, and valuable service and distribution networks.

The report continued with a comprehensive analysis of Alfa Laval's current and historical financial performance. This was undertaken by comparing Alfa Laval's performance with its main competitor's, GEA. The financial analysis concluded that Alfa Laval has expanded immensely the last decade, with doubled net sales. However, the expansion has resulted in a steep increase of assets, which in turn has caused a decreasing ATO and a lower profitability. Alfa Laval's financial situation is nevertheless considered as being strong.

The insight from the analytical chapters resulted in an assessment of budgeting and forecasting. Subsequently, the report applied two established valuation models: the DCF and EVA model. The computed value per share was set to SEK 140.18, to be compared with the market value of SEK 136.10 per share. To test the accuracy of, and critically assess, the report's results a sensitivity analysis and multiple comparisons were undertaken. The sensitivity analysis showed that the valuation was sensitive to changes in PM, ATO, beta and MRP, and less sensitive to changes in cost of debt and cost of operating leases. From the multiple comparisons it was concluded that Alfa Laval was valued over its peer group and that the report's estimations were slightly higher than Bloomberg's. Finally, it was concluded that the estimated value of SEK 140.18 was solid, implying that the share is slightly undervalued. Nevertheless, the final investment recommendation was set to hold due to the slight difference from the market value and because of the estimations sensitivity to underlying factors.

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1. Introduction

1.1. Problem Discussion

The world is currently experiencing dramatic shifts: financially, politically, environmentally and societally. Concurrently, world risks factors are becoming more interconnected with each other, resulting in increased impact and likelihood. As a result, the business climate has probably never experienced a more uncertain period post World War Two. For example, countries that formerly were considered stable, in a political and financial sense, are suddenly experiencing governmental turmoil and are on the edge of bankruptcy. (WEF, 2012) The downturn in Europe is furthermore affecting emerging markets and developing countries with lower prospected growth (World Bank, 2012a). In addition, many countries are deeply exposed to environmental and societal risks such as rising greenhouse gas emissions and water supply shortage, simultaneously as the world population is rapidly growing. Naturally, the turmoil characterizing the world has resulted in great uncertainty in the industry sector (Dagens Industri, 2012a). As a result, not only the companies within these industries will be affected, but also companies further down in the value chain.

Despite these uncertainties, there are still companies that are prospering and foreseeing a bright future – among them the Swedish industrial company Alfa Laval. Alfa Laval is known for their technologies within separation, heat transferring and fluid handling. Their products are used in a wide range of industries and their market segments comprise e.g. Marine & Diesel, Industrial Equipment, Process Industry and Energy & Environment. Their products are sold in diverse geographical areas to customers in over hundred countries, with China, India and South America being their most promising and fastest growing markets. Throughout the last couple of years, they have been able to advance their global positioning (Alfa Laval, 2012a)

Alfa Laval's own positive outlook was put into words in the year of 2010, in the middle of the European crisis, by the company's president and CEO Lars Renström when he declared increased growth targets. The growth target was increased from previous 5% per year over a business cycle, to at least 8%. The estimated growth was projected to be driven by mainly four factors: increased demand for efficient solutions in energy production, increased demand for processed food, increased international trade and intensified environmental focus. (Alfa Laval, 2011a) At the same time, recent news gives indications of a somewhat different picture. Namely, Alfa Laval's latest dividend proposal to their shareholders was below most analysts' expectations, which usually indicates that a company is expecting difficult times and therefore wishes to strengthen their

balance sheet (Dagens Industri, 2012a). Furthermore, Alfa Laval expects their underlying markets to develop in line with the average global GDP growth rate, which is forecasted to 2.5% in 2012 and 3.1% in 2013 (Alfa Laval, 2011a; World Bank, 2012a). Consequently, Alfa Laval needs to outgrow GDP with about 5% per year if they shall achieve their targets.

As can be seen, it is evident that Alfa Laval has ambitious targets for the future. Indications are also given that they might be able to capitalize on many of the changes currently characterizing the world. For example, the increased attention towards energy and cost efficient production solutions, demographic changes in many fast growing markets in combination with an intensified globalization of the world, is likely to open up for many business opportunities. In addition, a continued strategy of growing by acquisitions might be promising for the company. Conversely, the current unstable situation in the world economy will undoubtedly affect Alfa Laval, especially since about 90% of their sales are based on exports. This risk is further strengthened by the fact that it is one of Alfa Laval's primary sales regions that is experiencing most turmoil. Namely, despite Alfa Laval's last years' development of increased exposure towards fast growing markets, in e.g. Asia and South America, 40% of the company's order intake still comes from Europe (Alfa Laval, 2012a). In addition, the likelihood is high that many of Alfa Laval's other major markets will be affected by the European financial turmoil.

Consequently, indications are given that there are contradicting forces influencing the future success of Alfa Laval, and hereby the underlying share price. Namely, their wide industrial and geographical exposure implies many complex causality relations for analysts to take into consideration. As a result, it is of high relevance to thoroughly analyse Alfa Laval, and estimate the fair value per share of the company.

A more personal aspect of the chosen subject field is the authors' interest in the company and the industry in general. An interest that partly can be explained by that both authors originate from the south of Sweden, a region where Alfa Laval has a strong presence. Further motivating the research is that the subject field is expected to provide knowledge about the Swedish industrial sector in general, naturally being beneficial for the authors' future professional careers.

1.2. Research Question

It is evident Alfa Laval's future development is associated with a rather high level of uncertainty and complexity, which makes it an interesting and relevant company to analyse and value. Namely, according to theory, the value of a listed company is the result of the market's expectations of its future ability to generate earnings. Consequently, the following research question has been elaborated:

"What is the fair value per share of Alfa Laval, as of March 31st 2012?"

To be able to break down the research process, the following sub-questions have been composed as a mean of answering the research question:

- *What are the major macroeconomic factors influencing Alfa Laval, and how do they affect the company's value?*
- *What are the major industry characteristics influencing Alfa Laval, and how do they affect the company's value?*
- *What are Alfa Laval's strengths, weaknesses, opportunities and threats?*
- *What does Alfa Laval' current and historical financial situation look like, and how does it affect the company's value?*
- *What is the fair value per share using the Discounted Cash Flow and Economic Value Added models?*
- *What value dependant variables is Alfa Laval most sensitive to?*
- *What does Alfa Laval's expected multiples look like compared to its peers?*

1.3. Delimitations

Throughout the process it has been necessary to undertake several delimitations, in order to make both the collection of information and the analysis manageable. During the working process, the purpose has been to emphasize those factors with most impact and relevance to the answering of the problem formulation.

The Alfa Laval corporate group comprises a number of subsidiaries, operating in different industries. However, this report will regard Alfa Laval as one entity. This is a natural reasoning, primarily considering that the subsidies constitute for a small portion of Alfa Laval's total net sales and market value, in combination with that they run as rather integrated in the parent company.

This report is exclusively based on external information, i.e. secondary data. This is a consequence of the aim of doing the valuation from an investor's point of view. Therefore, the report has made the assumption that such investors only have access to information available in the market. This assumption is in line with the so-called semi-strong form[1] of the efficient market hypothesis, which implies that the stock price is a result of all publicly available information, excluding so-called "inside-information" (Bodie et al.; 2008). Naturally, by undertaking qualitative interviews the report could most probably have gained important internal information, beneficial for the valuation. However, this would simultaneously have excluded the report from reflecting an external investor's standpoint.

Since the aim of the report is to do a valuation of Alfa Laval as of 31st of March 2012, the report exclusively uses information with influence on the company's stock price released prior to this date. Such information includes e.g. press releases and financial reports. Information published after this date is considered irrelevant since it would bias the valuation process, and will naturally not be taken into consideration.

When undertaking a valuation process, there are several different models that can be used. However, the models and frameworks used in this report are regarded as the most appropriate for this case. Other models are therefore not taken into consideration. Furthermore, the models used will exclusively be applied to Alfa Laval's industries and the company itself. The theories will neither be investigated nor deeply analysed – they will only be used as tools in the process of retaining knowledge and understanding. Important to state is that the authors acknowledges that the used theories and models have limitations. However, since they are widely accepted for valuation processes, they are assumed to be adequate for the report.

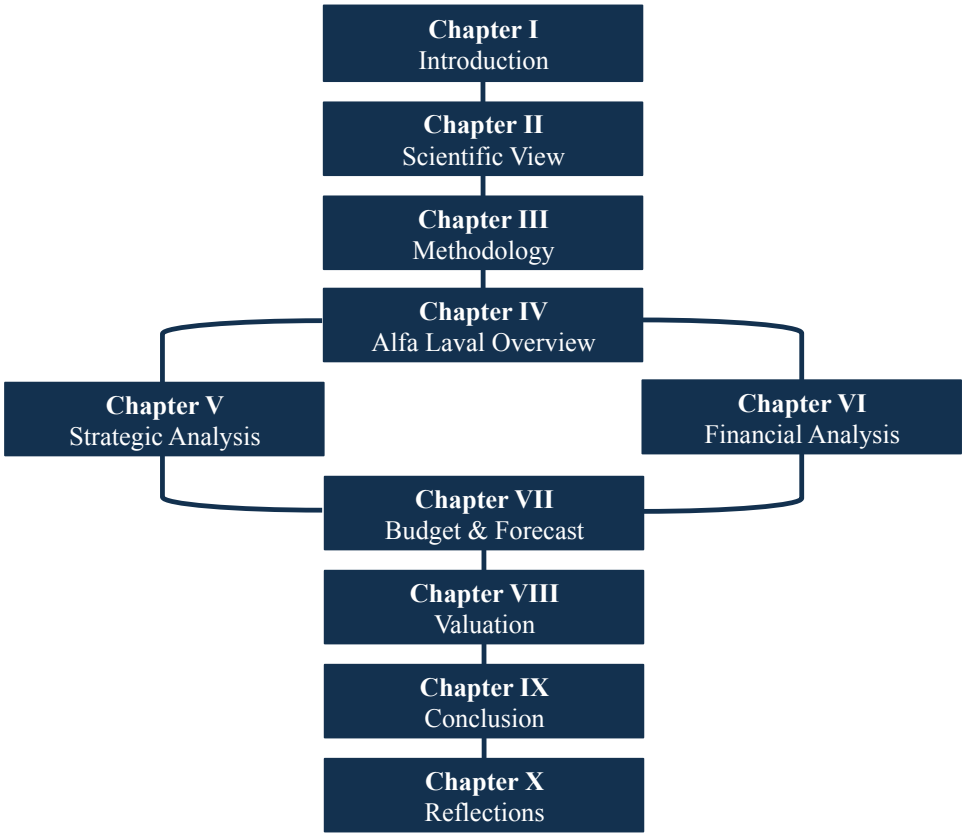
1.4. Structure

The report takes the following structure. Chapter II presents the scientific view. Chapter III gives the reader an overview of the methodology used, i.e. data collection and processing. In continuation, Chapter IV introduces the reader to Alfa Laval. In Chapter V and Chapter VI, the strategic analysis and financial analysis are undertaken respectively. Based on the findings found in the two analysis chapters, Chapter VII contains budget and forecast. Naturally, this chapter is essential for the valuation process in Chapter VIII.

[1] When discussing efficient market hypothesis it is common praxis to distinguish between three information levels: weak form, semi-strong form and strong form.

Subsequently, Chapter IX sums up the findings into a conclusion. Finally, the thesis is reflected in Chapter X. The figure below shows a graphical illustration of the report's structure.

Figure 1.1. Structure of Report



Source: Own illustration.

2. Scientific View

The scientific view chosen for this report is social constructionism. In an ontological sense, constructionism is in opposition to objectivism. The constructionist believes that social phenomena and the meaning of those are continuously created through the interaction of social actors. Constructionism is connected to an interpretative epistemology, as opposed to a positivistic one, and often has an inductive approach to theory. Common practice is to use social constructionism when executing qualitative research. However, it can also be used in quantitative analysis since such research processes can be interpretative and creative as well. Therefore, social constructionism can be used when conducting research exclusively based on secondary data, especially when the process is not hypothesis driven nor is intended to test theory but instead focused on drawing inferences out of the data. (Bryman & Bell, 2007)

Social constructionism has been chosen in favour of social constructivism, which has a positivistic epistemology (Bryman & Bell, 2007). Since we neither believe that there exist an objective reality nor an objective truth, we find constructionism most adequate. In our research we will exclusively make use of secondary data, existing theories and frameworks, and must therefore consider that this information has been elaborated by subjective individuals and consequently cannot be regarded as an objective truth. For example, data acquired from Alfa Laval and other secondary sources, will naturally be critically reviewed. At the same time, we must stress the fact that our analysis, and the interpretation of the same in the valuation process, also will be subjectively executed. As a result, we find the hermeneutic tradition most appropriate, which social constructionism is based upon, since it stresses the importance of interpretation of human behaviour (Bryman & Bell, 2007). Another fact supporting our choice of scientific view is that we exclusively will use secondary data, theories and frameworks for inference purposes to be used in the valuation process.

3. Methodology

The report's data was exclusively collected from secondary sources. It was gathered from research and literature within the field of study, as well as from Internet sources and newspapers. Furthermore, substantial information was collected from several reports, e.g. industry and financial reports.

Throughout the report, various theories and frameworks were used to be able to acquire a proper overview of both the industry and Alfa Laval, as well as to enable a fair analysis of the same. In the analysis process, both quantitative and qualitative analysis was employed. The aim was to use the existing data, theories and frameworks in the field as a mean of assessing the valuation process – and to answer the problem formulation – in an adequate manner. As mentioned in Chapter II, constructionism is often characterised by an inductive approach to the problem, an interpretative epistemological orientation and a constructionist ontological stand. However, according to Bryman & Bell (2007) not all researchers always subscribe to all of these three methods. Since it was not the aim of the report to develop new theories based on the analysis of the collected data, an entirely inductive approach was not appropriate. Neither did we regard the existing data, theories and frameworks as an objective truth, nor wanted to test them scientifically – which excluded the deductive approach. Furthermore, the deductive approach would have severely conflicted with the selected scientific view. On this background, in combination with the aim of analysing secondary data simultaneously as using theories and frameworks to acquire a broader knowledge, abductive reasoning was seen as most adequate. This is also in line with Bryman & Bell (2007), who stresses that quantitative research of secondary data does not necessarily have to be entirely deductive, but can be a mix of a deductive and inductive approach.

In the strategic analysis, widely accepted frameworks were used. The choice of frameworks was mainly based on the presented models for industry analysis in Grant's (2010) book *"Contemporary strategy analysis"*. The models used were: PEST[2], Porter's Five Forces and SWOT[3]. In the financial analysis and valuation process, the applied models were mainly chosen in accordance with Koller, Goedhart & Wessels' (2010) *"Valuation: Measuring and Managing the Value of Companies"*, Penman's (2010; 2003) *"Financial Statement Analysis and Security Valuation"* and Petersen & Plenborg's (2012) *"Financial Statement Analysis: Valuation, Credit analysis, Executive compensation"*. The applied models were: Weighted Average Cost of Capital Model,

[2] Political Economical Social Technological
[3] Strengths Weaknesses Opportunities Threats

Capital Asset Pricing Model, Discounted Cash Flow Model, Economic Value Added Model as well as various multiple-ratios. The applied frameworks have different approaches to strategic and financial analysis, as well as to the valuation process. Consequently, they are regarded as appropriate complements to each other in the process of determine Alfa Laval's fair value per share.

4. Alfa Laval Overview

This chapter aims at giving the reader an overview of Alfa Laval. The chapter starts with an introduction to the company's history, followed by an overview of recent developments. Thereafter, the company's corporate governance model is presented. Subsequently, Alfa Laval's products and segments are discussed. Finally, the chapter ends with a brief financial overview of the company.

4.1. Company History 1870's - 2000

The story of Alfa Laval started in the end of the 1870's when the Swedish engineer Gustaf de Laval read a German journal about dairy farming, from which he was inspired to work on his first invention, the centrifugal separator. Two years later, de Laval demonstrated the first continuous separator in the world. (Alfa Laval, 2012b) The centrifugal separator denoted a paradigm shift, and turned the time consuming task of separating milk from cream to an automated process. de Laval and his partner Oskar Lamm founded AB Separator (the name was changed to Alfa Laval in 1963) in 1883 and the separator was immediately a worldwide commercial success. Simultaneously, de Laval also developed products for other purposes. For example, in the same year de Laval patented an impulse steam engine and a rocket engine nozzle. (Tekniska Museet, 2011)

Alfa Laval continuously improved the separator and complemented the offering with pumps, pasteurizer, yeast-separator, milking machines etc., and in 1916 they introduced the first product for oil purification. With the extended product offering came Alfa Laval's global expansion with subsidies in e.g. Denmark, New Zeeland, South Africa, Finland, Poland, Yugoslavia, Australia and Ireland. In 1938 Alfa Laval introduced its first heat exchanger, with the production and development facility being located to Lund, Sweden. Lund later became the location of Alfa Laval's headquarters (Alfa Laval, 2012b)

During the 1950's and 1960's Alfa Laval continued to develop innovative products for the dairy industry and in the heat exchanger segment, among others self-cleaning centrifugal separators, sterilization process systems and computerized control systems. In the 1970's Alfa Laval made several substantial investments, e.g. they acquired a fluid handling business in Denmark, invested in a new production plant for marine separators in Tumba, Sweden and invested in an international production centre for plate heat exchangers in Lund. (Alfa Laval, 2012b)

Alfa Laval was listed on the Stockholm Stock Exchange in 1901 and was publicly traded until 1991 when Tetra Pak acquired Alfa Laval. The two largest shareholders were prior to the acquisition the Wallenberg family and the Swedish property developer Fredrik Lundberg, who had combined voting control of 54%. The offer from Tetra Pak, owned by the Swedish Rausing family, totalled SEK 16.25 billion. The offer was at the time corresponding to a 60% premium over current stock price. (Financial Times, 1991)

The acquisition resulted in that the Tetra Laval Group was created, simultaneously as Alfa Laval was split up into three entities. Alfa Laval's division for liquid food processing was integrated in the Tetra Laval Group whilst the farming equipment was organized under a new entity called Alfa Laval Agri. The third entity, mainly containing heat exchangers and separators, was kept under the Alfa Laval brand. (Alfa Laval, 2012b) Alfa Laval Agri later became DeLaval when Tetra Pak divested Alfa Laval in year 2000, and naturally stayed under the Tetra Laval Group. (DeLaval, 2012) By this time Alfa Laval had developed to a large multinational corporation with net sales of SEK 15 billion (Alfa Laval, 2008a).

4.2. Recent Developments

After ten years within the Tetra Laval Group, the investment company IK Investment Partners acquired Alfa Laval. However, Tetra Laval retained a significant shareholding position in the company. The new owner initiated a new value creation strategy that can be explained in four parts: (1) development of a customer-focused organization, (2) acceleration of operational improvement and restructuring programme, (3) a continued strengthening of 'after-sales' business and lastly (4) development of new industry applications. (IK, 2012) Additionally, Alfa Laval was streamlined with focus into the current three key technologies: separators, heat transfers and fluid handling (Alfa Laval, 2012b).

In 2002, Alfa Laval returned to the Stockholm Stock Exchange when IK Investment Partners made a partial exit, however retaining a 26.9% ownership. The ownership was thereafter incrementally reduced until 2005 (IK, 2012). Concurrently with the initial public offering, Alfa Laval introduced a new growth strategy, implying to grow profitably both organically and through acquisitions. The acquisitions were intended to be motivated either by a prominent product, distribution channel, and/or a geographic presence. The acquisition strategy is exemplified by Alfa Laval's 32 acquisitions since 2002. At the same, no significant divestments have been made. (Alfa Laval, 2012a) Below follows a selection of significant events and acquisitions in the period of 2002-2012:

2002: Alfa Laval acquired two Danish companies, DSS, a specialist in membrane filtration and Toftejorg Group, a leading supplier of advanced tank cleaning systems (Alfa Laval, 2012b).

2003: Alfa Laval disclosed a new breakthrough heat transfer, AlfaNova, which is based on their patented technology of brazing the plates called AlfaFusion. The new heat transfer enabled usage in extreme conditions, e.g. regarding temperature, pressure and fatigue, in combination with a further extended applicability. (Alfa Laval, 2012b)

2004: Alfa Laval replaced the former CEO Sigge Haraldsson after a 40 year long career with the Alfa Laval/Tetra Pak group, with Lars Renström (Alfa Laval, 2012b)

2004: Alfa Laval formed Alfdex, a joint venture project with Haldex, to develop a new solution for cleaning crankcase gases from diesel engines (Alfa Laval, 2004). This joint venture has resulted in several big orders, e.g. one from DaimlerChrysler in 2006 of SEK 250 million and one from one of the world's largest heavy truck producers in 2012 of SEK 500 million. (Alfa Laval, 2006a; 2012c)

2005: Alfa Laval closed down the life-science facility in Canada, for strategy reasons. Furthermore, they moved the production of high-speed separators from Spain to China, due to rationalisation purposes. (Alfa Laval, 2005)

2005/2006: In 2005 Alfa Laval acquired Tranter, a US-based developer of plate heat transfers (Alfa Laval, 2005). The acquisition was motivated by Tranter's geographical spread and global sales and distribution network (Alfa Laval, 2010).

2007: Alfa Laval strengthened its position within the product line of air heat exchangers, with two additional acquisitions, Fincoil and Helpman. Both companies were integrated in the Alfa Laval group. (Alfa Laval, 2007).

2007: Alfa Laval presented very strong financial figures after a year with 18% increase in order intake, 65% higher profit margin, and increased divided from 6.25 to SEK 9 per share. (Alfa Laval, 2007)

2008: Alfa Laval updated its growth strategy with four specific focus segments and geographical areas: Brazil – ethanol, Russia – refinery, India – food, and China – marine. (Alfa Laval, 2008b)

2010: Alfa Laval received its largest order ever for a decanter centrifuge, worth SEK 250 million. The decanter is the largest in the world and will be used in a wastewater treatment plant in Chicago, serving around 2.5 million people. (Alfa Laval, 2010)

4.2.1. Acquisition of Aalborg Industries

In May 2011 Alfa Laval completed its so far largest acquisition when acquiring Aalborg Industries for SEK 5 billion. Aalborg Industries is a world leader in marine boilers with around 2600 employees, generating sales of about SEK 3.1 billion. The purchase was motivated with the following words:

"The acquisition, which adds complementary energy-efficient and environmental solutions, represents a significant business opportunity as it supports Alfa Laval's existing offer to the marine and off-shore markets. Another opportunity lies in the introduction of Aalborg's products to customers in completely new end markets, through Alfa Laval's sales network." (Alfa Laval, 2011c)

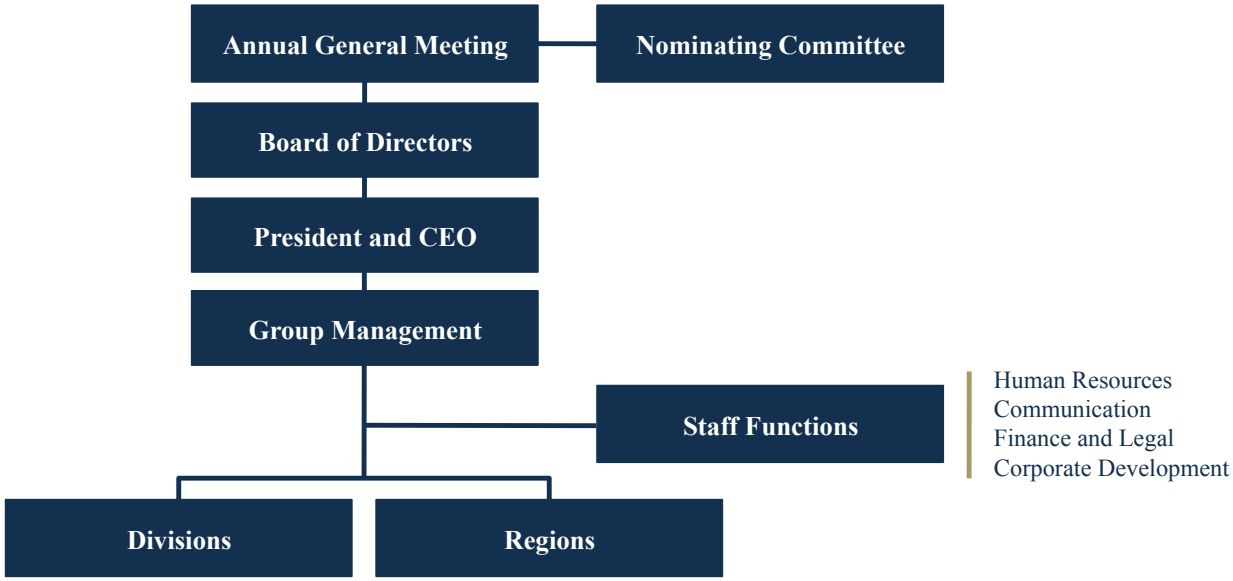
The acquisition strengthened Alfa Laval's already strong aftermarket service network as wells as it was estimated to generate SEK 100 million in cost synergies (Alfa Laval, 2012a). Shortly after its integration in the Alfa Laval Group, Aalborg Industries won a large prestigious order of SEK 230 million from Mitsubishi Heavy Industries Ltd to deliver exhaust gas economizers for vessels. (Alfa Laval, 2012d). The order is a typical example of Alfa Laval's ability to rapidly capitalize on its acquired companies' resources and capabilities.

4.3. Corporate Governance

The term corporate governance focuses on the system that ensures the control and direction of a company, i.e. ownership, boards, incentives, company law and other mechanisms (Thomsen, 2008). The figure below presents an overview of the governance model being used in Alfa Laval. The following subchapters will present an overview of the ownership structure and how the company is organized. The aim is to illustrate the relationship between the company and the individual shareholder.

Since Alfa Laval is publicly listed on the NASDAQ OMX Exchange Stockholm, the company's governance is based on the Swedish Companies Act, the Annual Accounts Act and the rules of the exchange. (Alfa Laval, 2012a)

Figure 4.1. Governance Model



Source: Own illustration based on data from Alfa Laval (2012a)

4.3.1. Ownership Structure

In the table below the 10 largest shareholder of Alfa Laval is listed. It is evident that Tetra Laval B.V., the former owner of the company (between 1991 and 2002), still possesses a large share – 26,1%. Furthermore, it can be seen that the five largest shareholders account for 45,9% of the total 419.5 million shares and that the largest ten shareholders accounts for 51,9%. Accordingly, it is apparent that there is one quite strong owner and that the majority of the shares are concentrated to a few actors. (Alfa Laval, 2012e)

According to Thomsen (2008), such an ownership structure comes with both potential benefits and issues. Firstly, a certain level of ownership concentration is often regarded as beneficial since a large owner has the power and incentives to maximize firm performance, hereunder to control that the management maximizes the performance. Naturally, this is valuable for all shareholders. However, beyond a certain point of ownership concentration, the so-called entrenchment effect might kick in. This is when an owner becomes so big that the owner possesses complete control and thereby manages the company. (Thomsen, 2008) In the case of Alfa Laval, it is suggested that this is not the case since Tetra Laval only posses about one forth of the shares – thereby excluding them from total control of the company.

Table 4.1. Ownership Structure as of February 29, 2012

Owner	*Holdings (%)*
Tetra Laval B.V.	26,1
Alecta Pensionsförsäkring	7,1
Foundation Asset Management	6,0
Swedbank Robur Fonder	3,8
AMF Försäkring och Fonder	2,9
Folksam	1,5
Handelsbanken Fonder	1,4
Andra AP-Fonden	1,1
Lannebo Fonder	1,0
SEB Investment Management	1,0
Total	***51,9***

Source: Own illustration based on data from Alfa Laval (2012e).

4.3.2. Annual General Meeting and Nominating Committee

Each year, the highest decision-making organ within Alfa Laval, the Annual General Meeting (AGM) appoints the Chairman and the members of the Board of Directors. This procedure is based on proposals from the Nominating Committee. During the AGM, all shareholders are entitled to participate, with one vote each. (Alfa Laval, 2012a) Naturally, these meetings shall ensure that the company is run in the interest of the shareholders.

The Nominating Committee is comprised of not more than five members, of which the majority shall not be board members. Each year, by the end of the third quarter, the Chairman of the Board shall contact the largest shareholders to ask them to appoint a candidate for the Nominating Committee. As can be seen from the table below, the Nominating Committee consist of five representatives out of the eight largest shareholders. (Alfa Laval, 2012a)

Table 4.2. Nominating Committee Composition

Name	Representing	Sharholding in Alfa Laval (%)
Finn Rausing, Chairman	Tetra Laval	26,10
Bo Selling	Alecta	7,10
Claes Dahlbäck	Foundation Asset Management	6,00
Jan Andersson	Swedbank Robur Funds	3,80
Lars-Åke Bokenberger	AMF Pension	2,90
Total		***45,90***

Source: Own illustration based on data from Alfa Laval's (2012a).

4.3.3. Board Composition

As can be seen from the table below, Alfa Laval's board consists of eight members and three employee representatives, the latter a result of Swedish Law. All members of the board are considered to be independent in regards to the operations of the company, except for the President and CEO Lars Renström and the employee representatives. Furthermore, it is only Arne Kastö and Jan Nilsson that can be considered to be independent in regard to the shareholders. (Alfa Laval, 2012a) Due to Finn Rausing's and Jörn Rausing's close connection to the major shareholder Tetra Laval, as part of its board, they are not regarded as independent (Tetra Laval, 2012).

Table 4.3. Board Composition

Name	Position	Appointed	Born	Number of Shares
Anders Narvinger	Chairman	2003	1948	40 000
Gunilla Berg	Board Member	2004	1960	1 000
Björn Hägglund	Board Member	2005	1945	12 000
Ulla Litzén	Board Member	2006	1956	15 600
Finn Rausing	Board Member	2000	1955	-
Jörn Rausing	Board Member	2000	1960	-
Lars Renström	Board Member	2005	1951	40 400
Arne Frank	Board Member	2010	1958	8 000
Arne Kastö	Employee Representative	2000	1948	-
Jan Nilsson	Employee Representative	2000	1952	-
Susanna Norrby	Employee Representative	2003	1992	5 000

Source: Own illustration based on data from Alfa Laval (2012a).

4.3.4. Management

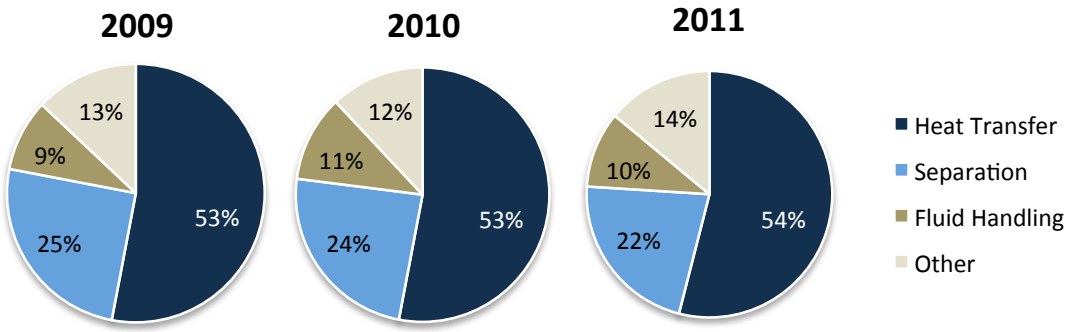
The majority of the group management members in Alfa Laval are seniors within the company. Among the most recently employed is the President and CEO Lars Renström who joined the company for this position in 2004. Excluding Lars Renström, there are only two more out of the ten group management members that have been employed at the company for less than twenty-four years. Furthermore, all members have possessed their management position for several years. (Alfa Laval, 2012a) Indications are therefore given that the composition of the management board is stable. As a result, the chances of big future changes are regarded as quite limited.

4.4. Products and Segments

4.4.1. Products

Alfa Laval's products comprise three key technologies: *heat transfer*, *separation* and *fluid handling*. The company's products are of crucial importance in many industrial processes. Furthermore, the company is regarded as the market leader in all of the three technology areas. In 2011, as can be seen in the figure below, heat transfer products accounted for 54% of the group's net sales, separation products for 22% and fluid handling products stood for 10%. Over the last three years, the distribution between the three segments has been quite stable, with a small increase in heat transfer products and other sales in favour of primarily separation products. (Alfa Laval, 2012a; Alfa Laval, 2011a; Alfa Laval, 2010b)

Figure 4.2. Group Sales per Technology, 2009-2011



Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

In the three sections below, the technologies will be presented more thoroughly.

Heat transfer

As can be seen in the figure above, heat transfer products accounts for the majority of Alfa Laval's net sales – naturally being the main product in Alfa Laval's product offering. On a worldwide basis, Alfa Laval estimates their market share in this technology to more than 30%. Customers of heat transfer products are e.g. found in the following areas: chemical, food processing, oil and gas production, power generation, marine, and construction industries. (Alfa Laval, 2012a)

The products are used in most industrial processes, for heating, cooling, freezing, ventilation evaporation and condensation of fluids. Usually, a heat exchanger transfer heating or cooling from one fluid to another, but it can also be done with the help of air. These products are often of great importance for ensuring effective manufacturing processes – resulting in both cost efficiency and more environmental friendly processes. (Alfa Laval, 2012a)

Separation

As mentioned above, separation products accounts for 22% of Alfa Laval's net sales. Separation technology has been a core operation since the company was founded. Today separators and decanter centrifuges dominate Alfa Laval's products in this field. Alfa Laval estimate their market share in separation technology to stand for 25-30% on a worldwide basis. (Alfa Laval, 2012a)

The products are vital in a wide range of industrial processes, e.g. processing of food and pharmaceutical, biotechnology, chemical and petrochemical processes, extraction and production of crude oil and treatment, and recovery of drilling fluids. They are also used in the management and treatment of fuel and lubricating oils for vessels and electric power plants, as well as dewatering of sludge in wastewater plants. Separators are primarily used for separating liquids – which is done by high-speed rotation. Decanter centrifuges are on the other hand working at slower speeds. They are e.g. used in the dewatering of sludge in wastewater treatment. Alfa Laval also produces a third separation product, so-called membrane filters, which are used for separating very small particles. (Alfa Laval, 2012a)

Fluid handling

As could be seen in the figure above, fluid handling today accounts for 10% of Alfa Laval's net sales. Alfa Laval estimates their world market share in this technology to be between 10-12%. (Alfa Laval, 2012a)

In many industries, it is crucial to be able to transport and regulate fluids in a safe and efficient manner. The company's products in this technology – which include pumps, valves and installation material – are e.g. used in the production of beverages, dairy products, food, pharmaceuticals as well as health and personal care products. They also offer tank-cleaning equipment. (Alfa Laval, 2012a)

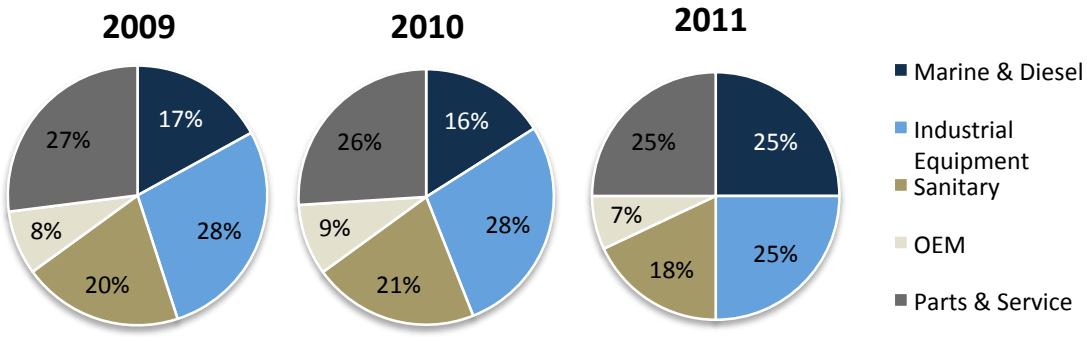
4.4.2. Segments

Alfa Laval has chosen to divide the group into three divisions: *Operations Division*, *Equipment Division* and *Process Technology Division*. The Operations Division is responsible for purchasing, production and supply of the company's products. The Equipment Division and Process Technology Division are focused on selling products to five segments respectively. (Alfa Laval, 2011a) In the two sections below, The Equipment Division and The Process Technology Division will be presented more thoroughly.

The Equipment Division

The Equipment Division is responsible for the following five market segments: *Marine & Diesel*, *Industrial Equipment*, *Sanitary*, *Original Equipment Manufacturer (OEM)* as well as *Parts & Service*. In this division, heat transfer products and separation products are sold to all segments, while fluid handling products are sold to Marine & Diesel and Sanitary. The figure below shows the distribution of the Division's total order intake among the segments. It is evident that the segment Marine & Diesel, percentage wise of the distribution, increased significantly in 2011. This was mainly due to the acquisition of Aalborg Industries (Alfa Laval, 2011a)

Figure 4.3. Equipment Division, Order Intake per Market Segment, 2009-2011



Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

In the section below, the Equipment Division's five segments will be introduced.

Marine & Diesel: The company's products are used for e.g. cleaning of tanks, treatment of sludge and oily water, fuel and lube oils, engine cooling and production of freshwater. The customers primarily include shipyards, ship-owners and manufacturers of diesel engines. Alfa Laval's products are being used in about three-fourths of the world's oceangoing vessels. Among others, the customers include A.P. Moller-Maersk, Hyundai and MAN/B&W. (Alfa Laval, 2012a)

Industrial Equipment: Alfa Laval's products are primarily used in systems for district heating, cooling and air conditioning of plants, offices and shopping malls. They are also used for cooling and freezing solutions for food, beverage and pharmaceutical industries and supermarkets. Examples of customers are VodoKomfort, YIT and Cummins. (Alfa Laval, 2012a)

Sanitary: The company's products are used for producing liquid and viscous foods, pharmaceuticals and hygiene products. The customers are active within beverage, diary, food, pharmaceutical and biotechnology industries – industries with stringent requirements in terms of hygiene and safety. The by far largest customer is the supplier of process and packaging systems to the food industry, the former owner Tetra Pak. (Alfa Laval, 2012a)

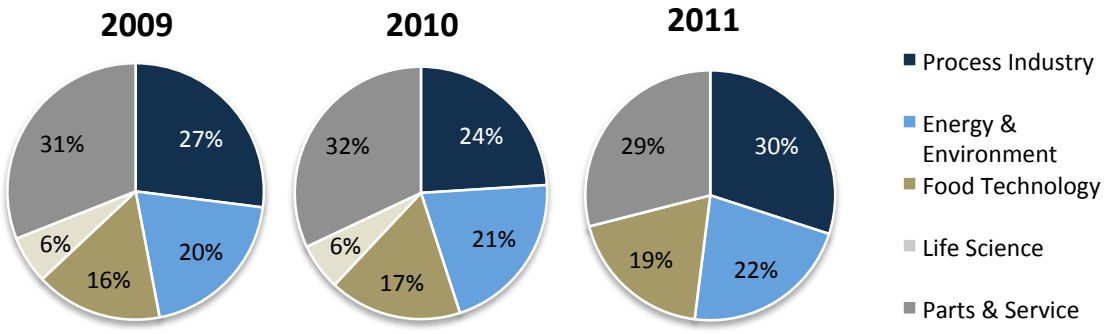
OEM: In this segment, Alfa Laval's products are mainly sold to customers manufacturing air-conditioning systems, air compressors, air dryers and gas boilers. Customers integrate Alfa Laval's products – mainly brazed plate heat exchangers – into their own end products. Among others, the customers include Bosch, Mitsubishi Electric and Vestas. (Alfa Laval, 2012a)

Parts & Service: This segment is a prioritized area for Alfa Laval and the overall strategy is to further develop and expand spare parts and service operations. Customers are active in all of the Division's segments, however excluding OEM. (Alfa Laval, 2012a)

Process Technology Division

The Process Technology Division is responsible for the following four market segments: *Process Industry*, *Energy & Environment*, *Food Technology*, and *Parts & Service*. In this division, heat transfer products and separation products are sold to all segments, while fluid handling products are sold to Process Industry and Food Technology. The figure below shows the distribution of the Division's total order intake among the segments. Important to note is that that there until 2011 was one additional segment in the Process Technology Division, *Life Science*. In 2011, due to re-organization, this segment was mainly incorporated into the Process Industry segment and to a smaller extent into Energy & Environment and Food Technology. The increases in all segments are mainly caused by this re-organization. (Alfa Laval, 2012a) Interesting to see is that the Parts & Service segment has fallen in 2011.

Figure 4.4. Process Technology Division, Order Intake per Market Segment, 2009-2011



Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

In the section below, the Process Technology Division's four segments will be introduced.

Process Industry: In this segment, Alfa Laval's products are used in the manufacturing of petrochemical products, plastics, polymers, metals, minerals, biofuels, starch, paper and sugar. Among the customers, the following can be mentioned: BASF, Bayer, Dow Chemical and Roche. (Alfa Laval, 2012a)

Energy & Environment: In the energy sector, their products, modules and systems have a major role in the extraction of oil and gas for production of energy in power plants. Alfa Laval also supplies systems and products to the environmental sector. These products can be useful for helping customers to fulfil strict environmental requirements and legislation. Examples of customers are Shell, Total, Statoil and Petrobas. (Alfa Laval, 2012a)

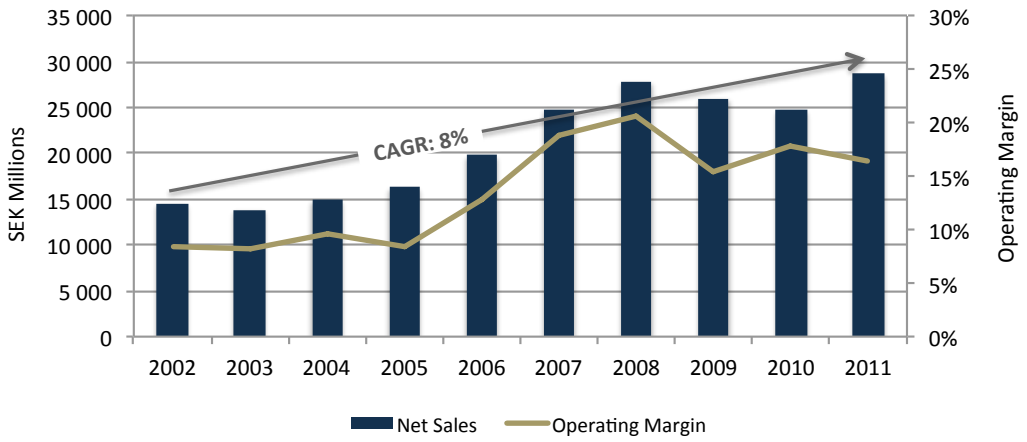
Food Technology: The company also offers process solutions for the food and beverage industries. These solutions are e.g. used in the production of beer, wine, fruit concentrates, milk proteins and milk sugars, liquid foods, vegetable proteins and meat and fish proteins. The customer base comprises, among others, Cargill, Nestlé and Carlsberg. (Alfa Laval, 2012a)

Parts & Service: As within the Equipment Division, this is a prioritized area. In addition to that it creates value for the customers, this area of business brings the customers closer to the company. Furthermore, this segment is less sensitive to variations in the business cycle. The customers are active in all of the Division's segments. (Alfa Laval, 2012a)

4.5. Financial Overview

In the figure below, an overview of Alfa Laval's financial development since 2002 is presented. As can be seen, the company has experienced a CAGR (Compound Annual Growth Rate) of 8% in net sales during this time-period. After the peak of almost SEK 28 billion in 2008, the net sales dipped for two years but reached SEK 28.6 billion in 2011. Since 2002, the operating margin has averaged 14%. However, this number is markedly higher in the last five years, where it has averaged 18%. (Alfa Laval, 2012a)

Figure 4.5. Net Sales & Operating Margin, 2002-2011



Source: Own illustration based on data from Alfa Laval (2012a).

4.5.1. Recent Performance per Division

The figure below presents recent development in selected key-ratios for the two divisions. It is evident that Alfa Laval experienced an increase during 2011 in both net sales and operating income in the two divisions. Furthermore, it can be seen that the company experienced a decrease in operating margin for the Equipment Division and an increase in the Process Technology Division. It is also evident that the order backlog has increased for both divisions, with a larger increase for the Equipment Division than for the Process Technology Division.

Table 4.4. Performance per Division, 2010-2011

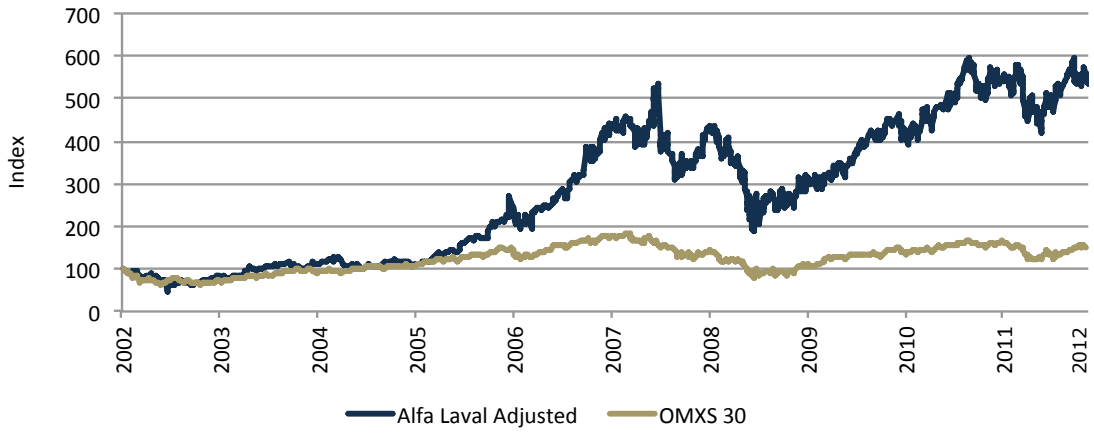
	Equipment	Process Technology
Net Sales	16 490	12 160
Change in Net Sales	17,2%	14,4%
Operating Income	2 994	2 508
Change in Operating Income	15,0%	16,2%
Operating Margin	18%	21%
Change in Operating Margin	-1,9%	1,6%
Order Backlog	6 847	6 889
Change in Order Backlog	37,4%	4,9%

Source: Own illustration based on data from Alfa Laval (2012a).

4.5.2. Share Price Development

As formerly mentioned, Alfa Laval went publicly listed for the second time on the 17th of May 2002. The stock is listed on Nasdaq OMX Stockholm and is part of the OMXS 30 Index (Nasdaq OMX, 2012a). The figure below contains an overview of the development of the share price and the OMX Stockholm 30 Index since the second listing. It is evident that Alfa Laval has experienced an extensive increase in its share price during the last ten years. The share price rose sharply until mid 2007, where after it dipped until 2009. The share has there after recovered, however with a new dip in 2011, to a share price of SEK 136.10 as of 31st of March 2012. This implies a market capitalization of approximately SEK 57 billion**.** (Bloomberg, 2012a)

Figure 4.6. Alfa Laval Share Price & OMXS 30 Development, 17-05-2002 to 31-03-2012, Indexed: 2002=100



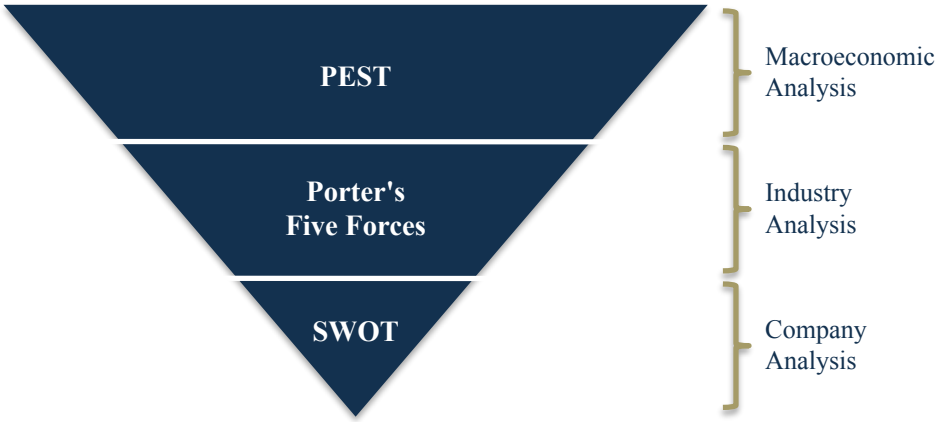
Source: Own illustration based on data from Bloomberg (2012a; 2012b)

5. Strategic Analysis

In business terms, strategy can be broadly defined as the means which a company achieve their objectives, linking the firm to its external environment. According to Grant (2010) a successful strategy often contains the following characteristics: simple and consistent long-term goals, a profound understanding of the competitive environment, an objective appraisal of resources and finally an effective implementation.

This chapter comprises a strategic analysis of Alfa Laval. The analysis is separated into three subchapters, hereby dividing the analysis in three levels: *Macroeconomic Analysis*, *Industry Analysis* and *Company Analysis*. The aim of the strategic analysis is to gain a comprehensive overview of all the major factors influencing Alfa Laval, both external and internal. As can be seen in the figure below, the frameworks used are PEST, Porter's Five Forces and SWOT. The PEST analysis will give an understanding of the external environment influencing Alfa Laval. The Porter's Five Forces analysis will thereafter provide an overview of Alfa Laval's industry and how Alfa Laval is positioned in this industry. The findings in these two analyses are thereafter summed up in the SWOT analysis and complemented with additional data. The SWOT analysis will subsequently be used as a base in the budget and forecast in Chapter VII.

Figure 5.1. Overview of Strategic Analysis



Source: Own illustration

5.1. Macroeconomic Analysis – PEST

A PEST-analysis is an analysis of the macroeconomic environment, embracing four variables: *Political*, *Economical*, *Social*, and *Technological*. These are external factors that a company has no, or negligible, possibilities to influence. Hence, the company has to adapt and change strategy after their given macroeconomic environment. (Gimbert, 2011)

2011 was a year of unfavourable shocks: the earthquake in Japan caused massive manufacturing disruptions; the 'Arab spring' caused steep increases in oil prices; there was financial distress and sovereign debt crisis in the Euro area; and a debacle about the debt ceiling in USA caused internal political inability (IMF, 2011a). 2012 partly continued in a similar pattern with political uncertainties, e.g. a prolonged Arab revolution in especially Syria. In addition, the economic turmoil intensified, creating fundamental changes for companies around the world. Macroeconomic events and shocks like these are strongly influencing Alfa Laval's business environment due its global exposure. Hence, this chapter aims at providing an overview of major macroeconomic forces affecting Alfa Laval.

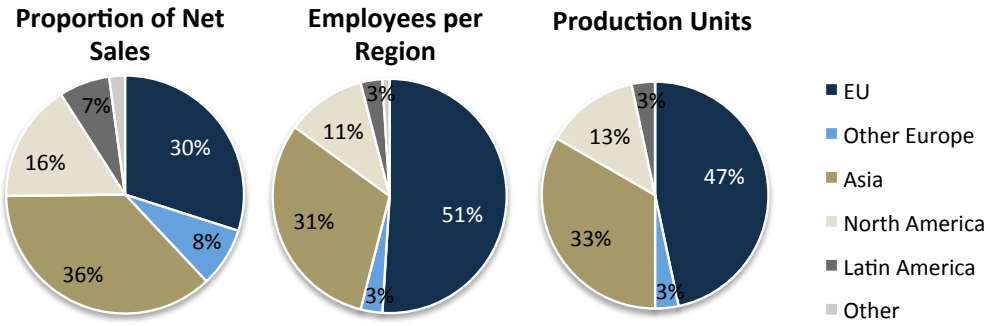
5.1.1. Political

The political environment is of great importance for a company's short- and long-term strategic and operational decision-making. The political factor comprises how, and to what extent, a national government or organization intervene with the economy, e.g. by taxes, labour laws, environment laws, food production requirements, tariffs and trade restrictions, education systems, health systems and infrastructure. (Gimbert, 2011) Alongside, government legislation and international organizations are of vast importance for Multinational Corporations (MNC) like Alfa Laval.

As mentioned before, Alfa Laval is widely spread over the world with customers in over hundred countries. Consequently, they are affected by many different national political factors. As can be seen in the figure below, locations for production and assembly are mainly concentrated to a few regions, with the majority of the employees being located in the European Union (EU). Hence, alterations in EU-legislations, e.g. regarding trade restrictions, labour laws and monetary issues, are influencing the company. However, it can be argued that the political environment in the EU is rather stable. On the other hand, it can be seen that Alfa Laval also has exposure to less stable political regions, e.g. Asia and South America, which is increasing the risk in the political factor. (Alfa Laval, 2012a) This risk could e.g. take the form of changes in import tariffs and

difficulties of retaining permissions for production plants, which historically has been problematic for similar foreign MNCs in these regions. So far, such issues have not considerably affected Alfa Laval.

Figure 5.2 Geographic Exposures



Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b)

Another important political factor to consider for Alfa Laval is the role of international environmental unions and other environmental legislators. Some of the most prominent unions and legislators are: United Nation Environment Programme, Intergovernmental Panel of Climate Change, EU, United States Environment Protection Agency, and Partnerships in Environmental Management for the Seas of East Asia. Such unions have a large influence on global environmental laws, and consequently have effect on many MNCs. Due to Alfa Laval's company profile, i.e. their offering of products that are improving the efficiency in production processes and reducing the environmental impact of the same, they are largely affected by these legislations. This influence could e.g. take the form of adapting to stricter emissions legislations. Conversely, harsher environment legislations might also imply opportunities for the company since it could result in increased sales. It can be argued that this influence will increase in the future due to larger focus on such issues, it has e.g. been stressed by the World Economic Forum that environmental risk is one of the principal global risks (WEF, 2012).

To concretize the complex political environment, the two subchapters below, present two fascinating cases, illustrating how the political environment affects Alfa Laval's current and future business. Hereby, it has been acknowledged that other cases of political intervention have influence on Alfa Laval, which naturally has been considered in the final assessment.

Case 1. Marine and Shipping Industry – Treatment of Ballast Water

The main political factor influencing the Marine and Shipping industry is the International Maritime Organization (IMO), which is a specialized organ under United Nations with responsibility for safety, security and prevention of marine pollution (IMO, 2012a). IMO has since 2004 been negotiating a new legislation of ballast water treatment, that would *"require all ships to implement a Ballast Water and Sediments Management Plan"* (IMO, 2012b). Since Alfa Laval is a world-leading supplier of equipment to the shipping industry and offers a complete product portfolio, including IMO-approved ballast water systems, decisions made by the IMO in this matter are truly affecting Alfa Laval (Alfa Laval, 2012a). Hence, a positive outcome of this legislation would be beneficial for Alfa Laval.

However, at the last IMO meeting, taking place in March 2012, the committee did not reach consensus regarding the ballast water agreement, and further discussions were postponed to the autumn of 2012 (BoAML, 2012). For the agreement to enter into force it must be ratified by at least thirty countries and represent at least 35% of the world merchant shipping tonnage. As of today, thirty-three countries have signed the convention, representing 26.5%. Consequently, the IMO is still waiting for ratification from large shipping countries like Panama. However, the market believes a consensus will be reached in the near future. (Dagens Industri, 2012c)

The delay might allow competitors to reduce the gap to market leading Alfa Laval. IMO did include five additional ballast water systems and is now totalling twenty-one approved systems. Among the approved were GEA and Siemens, two of Alfa Laval's toughest competitors in this sector. (BoAML, 2012) The market size of ballast systems is complex to estimate. Professor D. Wright at Marine Engineering Science and Technology in London estimated that totally 68.000 ships are concerned by the pending legislation, resulting in a market size for ballast water treatment-systems to approximately USD 70 billion[4]. ABG Sundal Collier estimated the market value to EUR 30 billion over a five-seven year period, and thereafter EUR 4 billion per year. (Dagens Industri, 2012c) Consequently, due to Alfa Laval's product offering this could most probably lead to a sales boost in the marine division. Naturally, Alfa Laval is favoured by a more immediate consensus in this matter.

[4] Valuing each purchase to USD 1 million.

Case 2. Heat Transfer – Improvements of Coal-fired Power Plants

Today coal-fired power plants provide more than 40% of the global energy supply and accounts for 28% of total carbon dioxide emissions. Power generated from coal is expected to grow to about 45% in 2035. One of many ways of reducing greenhouse gases is to improve the coal-fired power plants. (IEA, 2010) Vast amounts of money are invested in development of new type of coal-fired power plants, more specific in an Integrated Gasification Combined Cycle (IGCC)-plants with Carbon Capture and Storage (CCS) technology (Alfa Laval, 2012f). This technology has several environmental benefits e.g. increased efficiency[5], reduced NO_x and SO_x pollution, and captured carbon dioxide (WCA, 2012).

An IGCC-CCS plant requires plenty of cooling, heating, condensation, and re-boiling in the process, hence an efficient heat exchanger is of utter importance. In this process, Alfa Laval's products, through it subsidiary Packinox, can be applied. As of today about half of the world's thirty-forty small CCS pilot plants have Alfa Laval heat exchangers. Furthermore, in 2012 a 'carbon capture ready' IGCC plant is expected to go online, to which Alfa Laval in 2009 delivered heat exchangers. In addition, Alfa Laval will later this year deliver heat exchangers to the world's first full-scale IGCC plant in USA. (Alfa Laval, 2012f)

The investments in IGCC-CCS plants mostly come from USA and China, which both have expressed the goal to be the world leader in CCS-technology. For example, in 2010 the US Energy Secretary proclaimed the Obama-administration to be: *"strongly committed to the development of carbon capture and storage technology as a key part of the clean energy economy. We can and should lead the world in this technology…"*. (Energy, 2010)

It is difficult to predict and valuate the market of IGCC-CCS. However, it can be noted that two of the world's largest countries are investing vast amount of money in the technology and that Alfa Laval plays a vital part of the development. Consequently, it can be argued that this might result in boosted sales of such products.

[5] Increases the efficiency level to 50% from an average of 28% efficiency.

5.1.2. Economical

The economic factor is for most companies the most important of the macroeconomic variables. The factor entails among others of e.g. GPD development, inflation, unemployment rates, interest rates, exchange rates, and stock exchange development. (Gimbert, 2011) Alfa Laval, as a MNC, is influenced by economic factors from all regions in the world. However the most important regions are Europe, Asia, and America (see previous figure). These regions have been analysed separately by looking at three major parameters. Additionally, a section handling the shipping industry is described.

For the regional analysis, the first parameter the report investigated was GDP. GDP is one of the most used indicators and a central measure for the health of an economy. It evaluates the economic activity, expressed as the value of all goods and services, less the value of any goods and services used in the creation. The reports used the price adjusted measure *real GDP* for illustration purposes. Therefore, price movements do not inflate the illustrated GDP. (Eurostat, 2012) GDP-growth rates for Alfa Laval's important countries and regions are shown in Appendix 5.1.

Secondly, the report used Markit's[6] (Purchase Manager Index) PMI in the regional analysis. PMI is a leading indicator of the state of the private sector economy and is tracking variables such as output new orders, stock levels and prices within manufacturing, construction, retail and service sectors. (Markit, 2012a)

Additionally, the report used three stock market indices, Nasdaq OMXS 30, New York Stock Exchange (NYSE), and Shanghai Stock Exchange (SSE), in the regional analysis. Namely, a stock market index is also a leading economic indicator, reflecting the investors' expectations of the future economy and interest rates. These stock markets were chosen due to their relevance in terms of Alfa Laval's current and future sales.

5.1.2.1 Europe

Gross Domestic Product

After the deep financial crisis in 2007-2009 the European economy was marginally recovering in 2009-2010. The European countries substantially differed in terms of economic recovery as well as of magnitude of the crisis. Greece, Spain, Portugal, Italy and Ireland suffered from high private indebtedness, collapsing assets

[6] Markit is a well-renowned provider of financial information.

prices, weakened credit institutions and damaged competitiveness. Other countries like Germany and Sweden, free from major imbalances, took advantage of an initial strong position and remained barely affected by the euro crisis. Two of the worst troubled countries, Greece and Portugal, are expected to remain in recession until mid 2012 or early 2013. Two other troubled countries, Italy and Spain, are suffering from high interest costs and front-loaded fiscal adjustments, which will afflict an already weak economic activity. Meanwhile a slow global growth momentum is expected to hit Northern Europe, resulting in slightly lower growth. Germany, Europe's biggest economy, is expected to see its growth rate drop from 2.7% in 2011 to a 1.3% in 2012. The European economy as an entirety is, measured in real GDP, expected to grow with approximately 1.8% in 2012. This growth rate is expected to remain until at least 2013. (IMF, 2011b)

However the emerging Europe will remain less affected from the euro crisis, thus experience a higher GDP growth in range from around 2% to 5%. The area grew with 5.4% last year, strongly driven by a double-digit growth in Turkey. The area has less trade relations with Western Europe, hence lower dependency and subject to lower spill over effects. (IMF, 2011b)

Purchase Manager Index

The latest PMI publications showed marginally higher output and indicated a stabilized Euro area after last year's contraction. However the 'storm clouds' are still not over or as Markit's Chief Economist Mr Williamson expressed it: "… *new orders continued to fall, meaning companies generally remain reluctant to expand capacity and take on new workers, often preferring instead to cut costs and prepare for tough times ahead*" and "*The periphery remains the major concern. The rate of decline of the Greek manufacturing economy accelerated further, with output and orders dropping at the fastest rates since the survey began 1999*". (Markit, 2012b) A report from March 2012 showed a strong output recovery in three European sectors, namely pharmaceutical & biotechnology, industrial engineering and industrial metals & mining. The wider financial sector[7] was unchanged due to a decline in the real estate business. The financial sector is normally a leading indicator for manufacturing and service output. Consequently, growth inclinations in the region can be expected to be a bit bouncy in the coming period. (Markit, 2012c)

[7] Includes banks, financial services and real estate (Markit, 2012c).

Stock Market

Nasdaq OMXS, where Alfa Laval is listed, is the largest stock market in the Nordic region. OMXS 30[8] was hit hard during the crisis years 2007 and 2008. The index fell from 1311 to 568 in only 18 months. The Swedish industrial companies are generally strongly export dependant and suffered from weak global demand for capital goods. OMXS 30 has since the beginning of 2009 been recovering and is now back at above 1100. In 2012[9] OMXS 30 has risen with about 10%, which is well above the major European stock markets. (Bloomberg, 2012b) Indications are therefore given of a recovery.

5.1.2.2 Asia

Gross Domestic Product

The year of 2011 began with a tragic earthquake in Japan, which naturally had a large impact on the country. The effects are expected to continue in 2012, e.g. due to reconstruction investments. The disaster had not only impact on Japan, but caused lower industrial production and export across Asia. However, as with Europe, the Asian countries are quite diverse. Consequently, high growth rates could nevertheless continue in East Asia[10], mainly driven by strong domestic demand. Lower public investments were offset by higher private investments. Similar development was seen in India. The Southeast Asian[11] countries were positively influenced by risen commodity prices as well as domestic growth. (IMF, 2011c)

Asia was also negatively affected by lower external demand, partly due to the euro crisis and budget imbalances in USA. The lower external demand might lead Asian countries to choose to cultivate domestic sources of demand, e.g. intensifying infrastructure investments, social expenditures and structural reforms, to compensate the slower global growth rate. The domestic demand remained resilient with increased real wages. Some countries had tendencies of overheating economy with high credit growth and inflation. Despite the moderate growth rates, inflation pressure across the Asian region remained rather elevated. Inflation rose particularly in China, Hong Kong, Korea and Vietnam, mainly driven by higher commodity prices and demand pressure. (IMF, 2011c)

[8] OMXS's index of the 30 most traded companies on the exchange. Alfa Laval is included in this index.
[9] Until the 31st of March.
[10] China, Hong-Kong and Korea.
[11] Indonesia and Malaysia.

Last year's development in the Middle East, mirrored in the 'Arab spring', also had an impact on Asia. Political and social conflicts infected the whole region's economic activity. However the oil-exporting countries[12] gained from increased oil and energy prices. (IMF, 2011d)

The outlook for Asia as a region is still very positive, notwithstanding the International Monetary Fund's (IMF) downgraded growth forecast in October compared to April. IMF is estimating the growth for the region to be around 6% in 2012. The downgrade mainly reflects the weakening outlook for exports to advanced economies. Nevertheless, the impact will be smaller for less export dependent countries like China, India and Indonesia, which are more domestic-demand driven. (IMF, 2011c) The oil-exporting countries in the Middle East are expected to grow with 3.5% and the oil-importing countries with 3.1%. The World Bank expect China's GDP to grow with 8.5% in 2012 and slightly higher 2013. India's GDP growth rate for the coming years is akin. (World Bank, 2012b).

Purchase Manager Index

Markit's China report showed several negative indicators, e.g. the slowest industrial growth in 2.5 years; lower than expected retail sales; and the growth rate in fixed asset investments was the lowest in nine years. However, the latter showed positive short-term indications with the sharpest increase since October 2011. (Markit, 2012d) The PMI figures from March 2012 disclosed a fifth successive quarter with lower growth. The downturn reflected a decline in manufacturing output and a drop in employment. (Markit, 2012e) However, it is important to consider that the numbers have evolved from a high level.

The report from the Indian market indicated a weakened business activity, marginally decreased employments, and eased inflationary pressure. However, the Indian economy is continuing to report strong manufacturing production and an optimistic service sector. (Markit, 2012f)

The Japanese market has recovered significantly the last couple of months with increased manufacturing output and export. The growth was mainly originated form earthquake-related investments. (Markit, 2012g)

[12] Algeria, Libya, Saudi Arabia, Iraq, Iran, Oman, Yemen, UAE, Qatar and Kuwait

Stock Market

The SSE experienced an impressive boom-market from 2005 until the global financial crisis in late 2007. During these years, the SSE rose with more than 400%. The financial crisis affected the SSE severely and dropped 70% in value. The leading Chinese stock index has however recovered slightly, but still characterized by highly volatility. (Bloomberg, 2012c)

5.2.1.3 America

Gross Domestic Product

After the deep recession in 2008-2009 the North American economy was strongly recovering in 2010. However, in 2011 the GDP growth rates once again fell to a low level, growing with only 1.8%. In the near future, these numbers are expected to increase to about 2-3% range. The US-dependant neighbouring countries, Mexico and Canada, also experienced slower GDP growth in 2011. Though, in a slightly higher pace than in the U.S.. The slower pace was mainly driven by, apart from issues mentioned above, uncertainties regarding the U.S. fiscal outlook, higher U.S. Treasury rates and overly indebted households and students. In contrast, U.S. companies are reporting strong balance sheets and a depreciating U.S. dollar. The latter is consequently stimulating the export sector. (IMF, 2011a)

The fast growing South American region is estimated to continue to grow in a high rate, mainly driven by high commodity prices and demand from emerging countries in Asia. However, the weak progress in the advanced economies has a negative impact on the region. The entire South American region grew with 4.6% last year, and is expected to remain in the range of 4.5-5% in 2012 and 2013. Risk of overheating and inflation is at a moderate level despite an expanding domestic demand. (IMF, 2011a)

Purchase Manager Index

The U.S. economy experienced its strongest three-month period in manufacturing output in the period of December-February. However, the wider industrial production index remained unchanged, dragged down by fallen mining output and low automobile production. This was seen as a temporary downturn and not as a general decrease in demand. (Markit, 2012h) The Brazilian economy reported a continued recovery with the fastest GDP rise since March 2010. (Markit, 2012i).

Stock Market

The NYSE is not only reflecting the result and outlook for US-based companies, it is also the leading economic indicator of the overall condition and risk level for the global economy. NYSE ignited the extreme bear market in 2007, which hit the bottom in the end of 2009. The US stock market has since recovered, yet influenced by the global economic uncertainties. In 2012[13], the NYSE has increased with 8.6%. (Bloomberg, 2012d)

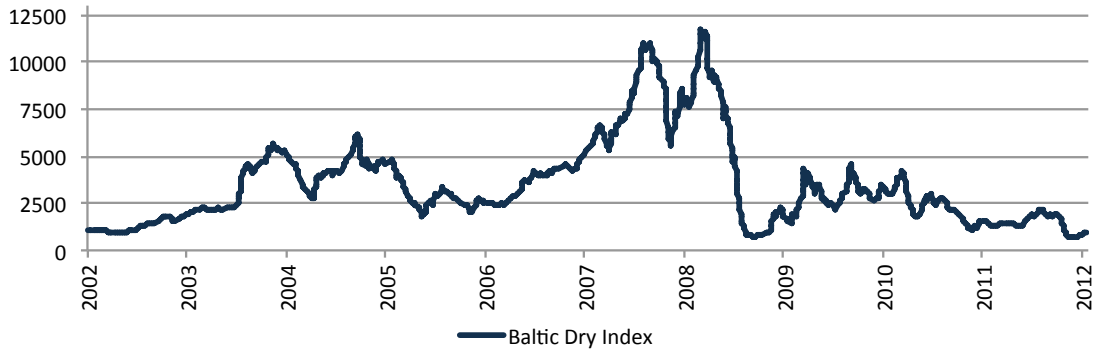
5.2.1.4 The Shipping Industry

The shipping industry is also a good barometer of the general health of the world economy, since it is highly dependant of the general macroeconomic condition. Historically, western countries have dominated the industry, but in recent years many developing countries have gained larger market shares. (UNCTAD, 2012) As mentioned before, Alfa Laval is offering an extensive number of equipment for this industry and holds a market leading position with as much as 75% market share in some submarkets. Furthermore, the shipping segment is expected to be of increasingly importance for the company, especially after the acquisition of Aalborg Industries.

The seaborne transportation industry has the last years been struggling with record low freight rates and overcapacity. The overcapacity is mainly a result of that shippers ordered new vessels during the boom years 2007-2008, and are now forced to take delivery of these ships. (IBT, 2012) However, the seaborne transportation is still the most used form of global transportation and further the most cost-efficient and environment friendly. The figure below shows the development of the leading shipping index: the Baltic Freight Index. The current level is evidently in level with previous years of recession, e.g. 2002 and 2008. As can be seen, after the tough year of 2009, the world seaborne trade rose with 7% in 2010 but fell in 2011. The generally negative trend in the industry is expected to drag through 2012 and to reach a turnaround in the end of the year or beginning of 2013. (UNCTAD, 2012)

[13] Until the 31st of March.

Figure 5.3 The Baltic Freight Index



Source: Own illustration based on data from Bloomberg (2012e)

A ship is generally scrapped at an age of twenty years and the average age of today's global fleet is 8.3 years. Hence, a "natural" large-scale scrapping is quite unlikely. (Financial Times, 2012a) However, large-scale scrapping has been used before, mainly in East Asia, as a way of adjusting the supply of capacity. The scrap value is further increasing in the pace of steel prices, which as mentioned in the subsequent Industry Analysis currently is expected to rise in the future, consequently making scrapping more attractive. (UNCTAD, 2012) Lastly, falling prices on ships/vessels, combined with substantial engine-technology improvements, encourage ship-owners to order new ships. (Financial Times, 2012a) Furthermore, the current conditions increase the demand for cost-efficient solutions, which Alfa Laval offers. Consequently, the historically low fright rate does not automatically imply negative outlooks for Alfa Laval in this segment. Further strengthening this reasoning is Alfa Laval's last years' improved sales, despite the low fright rates in 2009-2012.

5.1.3. Social

The social factor in the macroeconomic analysis includes e.g. population growth rate, urbanization level, health consciousness, age distribution, career attitudes, and cultural aspects (Gimbert, 2011). The social factor is also of importance for Alfa Laval, especially in the long run. Namely, it is generally something that has long-term effects, or is of continuous character. Consumption behaviours, or trends like health-food awareness, are influencing societies and companies in different way compared to more direct macroeconomic factors, e.g. GDP growth. Nevertheless, the social factor is of great importance to include and exploit.

The world population has recently reached seven billion people and the global age expectancy is approaching 70 years old. Consequently, urbanization is rapidly increasing and the standard of living is improving. Simultaneously, peoples' disposable income is increasing, which results in higher demand. This development is particularly significant in India and China, and additionally something that has an impact on Alfa Laval. (CIA, 2012) First and foremost, with improved level of standard of living comes increased demand for safe and clean processed food, e.g. processed fruits and vegetables, beer, vegetable oils and dairy products. As mentioned before, Alfa Laval has a long history of developing products and processes for this industry and still holds a strong position. Consequently, this development is naturally beneficial for the company.

5.1.4. Technological

The technological factor includes aspects of research and development (R&D) activity, automation, technology incentives, and the rate of technological transition that influence a company. Since many of the industries where Alfa Laval is active are characterized by continuous technology development, this factor is important to consider.

As is mentioned in the Industry Analysis, Alfa Laval is driven by a strong R&D focus. Due to this niche, the company is exposed to global changes in technology. The likelihood that Alfa Laval will experience technological changes in its context is increased due to its exposure to Western countries. Namely, these countries all rank high when it comes to property rights and patent laws, which is accelerating technological development (Heritage, 2012a). Consequently, the company need to be both proactive and reactive in regard to technological development. This could e.g. take the form of adapting their products to new type of vessels or food process solutions. A recent example is when Alfa Laval and Haldex, as mentioned in Chapter IV, jointly developed a new product for usage in modern truck-technologies (Alfa Laval, 2004).

5.1.5. Summary of Macroeconomic Analysis

In general, the macroeconomic analysis showed several important aspects to consider in regard to Alfa Laval and the industry. Firstly, it became evident that government legislation and international organizations are of high importance for Alfa Laval. Their influence could e.g. take the form of; trade tariffs, political instability, regulations of treatment of ballast water, and governmental investments in coal-fired power plants.

In the economical analysis, it became clear that Alfa Laval, as a MNC, is influenced by the economic situation in various regions in the world, with the most important ones being Europe, Asia and America. The analysis showed that despite the last couple of years' economic turmoil, the outlook regarding GDP, PMI and stock markets where generally positive for Alfa Laval. Namely, the uncertainty characterizing Western Europe and North America is weight up by the outlook for Asia, South America and Eastern Europe.

The shipping industry is currently struggling with low freight rates and overcapacity. Nevertheless, the medium- to long-term outlook for Alfa Laval in this market is positive, mostly due to Alfa Laval's strong market position, projected environmental regulations and an increased long-term demand for transportation.

The analysis also showed that the social factors important to consider when looking at Alfa Laval. Generally, the social changes that currently are occurring, as well as the ones that are expected, are promising for the company. For example, the demand for safe and clean processed food has increased due to the increase in world population, longer age expectancy and intensified urbanization, naturally creating business opportunities for Alfa Laval.

Finally, the industries where Alfa Laval is active are generally characterized by technological development. Namely, new technologies might completely change some industries, or at least lead to significant evolves. Consequently, Alfa Laval needs to be proactive and reactive to be able to manage the technological developments in their context.

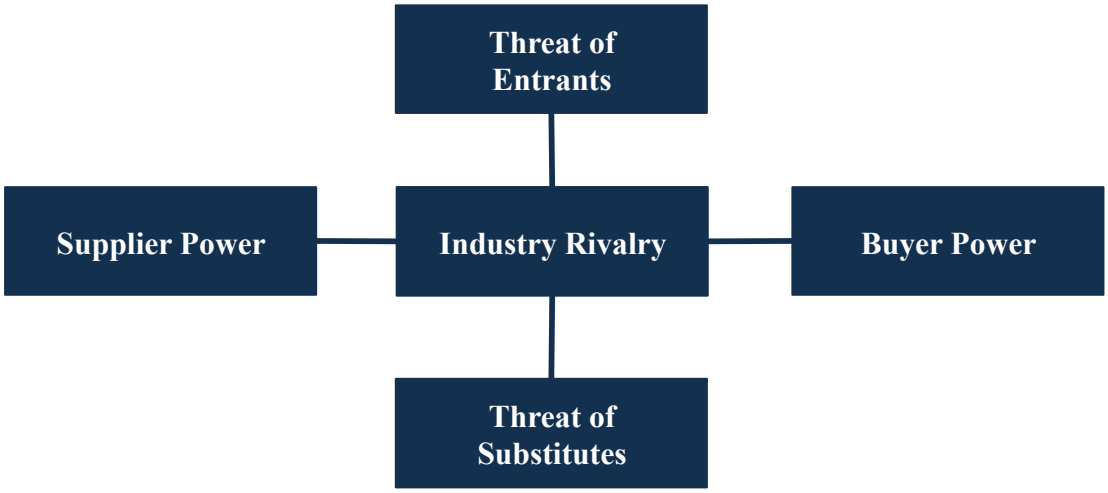
5.2. Industry Analysis – Porter's Five Forces

The following chapter contains an analysis of the industry where Alfa Laval's operates. Defining the industry is somewhat complex since the company offers various products, being used in a wide range of industries. Consequently, we define it broadly as *"the heat-transferring, separating and fluid-handling product industry"*.

This analysis will be executed by using the Porter's Five Forces Framework, one of the most widely used models for industry analysis. The objective of the model is to understand the forces characterizing and influencing the industry, and how these affect the industry's profitability. The forces being analysed are: *Threat of Entrants*, *Threat of Substitutes*, *Buyer Power*, *Supplier Power* and *Industry Rivalry*. (Grant, 2010)

Generally the framework is exclusively used as a macro-analysis of a particular industry. However, since we are seeking to get an overview of Alfa Laval's position in relation to the industry, i.e. a microanalysis approach, we have chosen to adapt the framework to these needs. Therefore, the analysis will contain information about the industry in general, in combination with examples of Alfa Laval.

Figure 5.4. Industry Analysis – Porter's Five Forces Framework



Source: Own illustration based on Grant's (2010) illustration.

5.2.1. Threat of Substitutes

Generally, it can be argued that the level of threat of substitutes is low in the industry. This is the case along all three technologies, i.e. heat-transferring, separating and fluid-handling. Primarily, this is due to that the products often are core components in the industries where they are used, in combination with that the number of substitutes fulfilling the same needs are limited. To enable substitution, usually the whole industry process must be changed. If even feasible, this can be assumed to be both costly, as well as resulting in severely lower efficiency. Important to notice is that there is higher substitutability inside the industry since there are different solutions within each technology.

By looking more specifically at Alfa Laval, it is evident that they have a broad product offering in each technology. For example, in the heat-transferring segment they are offering products in eleven categories. Naturally, the product strategy of offering different types of solutions within each technology limits the risk of

substitution from competing products. In addition, Alfa Laval's niche in the market is to offer high-quality products with longer product life cycles and higher efficiency (Avanza, 2011). This further limits the threat of substitutes since lower-cost products usually lack some characteristics, e.g. in terms of efficiency and product life cycle, and hereby excludes them from fulfilling the same needs.

5.2.2. Threat of Entrants

First of all, it can be argued that the industry is rather capital-intense. Generally, large amount of capital is required, e.g. in terms of production facilities and R&D. For example Alfa Laval's R&D investment in 2011 was approximately 2.3% of sales, and GEA Group's R&D investment was approximately 1.5% of sales. (Alfa Laval, 2012a; GEA, 2012a) For a technology-driven producer like Alfa Laval, this is a necessity if they wish to keep the high quality and proactive edge in the future. Alongside with the significant R&D costs in the industry, comes the existence of patent rights, as mentioned in the macroeconomic analysis. Consequently, it can be argued that the capital requirements and the existence of patent rights create high entry barriers.

Furthermore, a moderate level of concentration generally characterizes the heat-transfer, separation and fluid-handling industries. For example, in many of Alfa Laval's US markets for their products, the four biggest firms usually stand for about 40% of the market share (US Census Bureau, 2007). Accordingly, the big firms can be assumed to be able to reach a certain level of economies of scale, as well as absolute cost advantages, e.g. in terms of purchase of raw material. Most companies have also been active in the industry for a long period of time, assumingly resulting in so-called economies of learning. These implications are further strengthening the entry barriers. (GEA, 2012b; Hisaka, 2012; APV, 2012; Mitsubishi, 2012a)

Another important factor to consider is that the customer's switching costs usually are quite high in the industry, often due to the heavy investments. For example, a purchase of one of Alfa Laval's products is generally a rather substantial investment, especially since their prices are higher than many competitors. Alfa Laval markets their products as being a better long-term investment, resulting in both lower final cost and shorter payback time. (Avanza, 2011; Alfa Laval, 2011a) Naturally, this facilitates high loyalty to the company since customers have strong economical incentives to keep the products, namely to obtain higher return on their investment. A parallel could be drawn to the fact that the company has considerable incomes from the *Parts & Service* divisions, about 25% of total sales (Alfa Lava, 2012a). Indications are therefore given that customers rather repair their existent equipment, than buying totally new ones. At the same time, it

indicates that Alfa Laval's products, with proper maintenance, have the quality to be used for a long period. An example of the strong loyalty towards the company, and good customer satisfaction, is the above mention SEK 250 million decanters order in 2010 from a customer in Chicago. Namely, the decanters are replacing decanters delivered by Alfa Laval twenty years ago. Naturally, the above-mentioned conditions are creating entry barriers to the industry. There are also strong incentives for the companies to maintain high entry barriers, e.g. in terms of superior after sales since this is generally very profitable[14].

It is very important for a company in the industry to have access to distribution channels. In the case of Alfa Laval, during the last five years, nine out of their twenty-five acquisitions have been for channel access purposes (Alfa Laval, 2012a). The most prominent channel acquisition was the one of Tranter in 2006, with a price of SEK 900 million. The importance of distribution access becomes extra evident when considering that Alfa Laval already prior to these acquisitions was a major player with worldwide sales and service. Namely, despite their long history of industry presence and financial strength they still wish to strengthen their distribution network. Distribution channels can therefore be regarded to be a crucial success factor in the industry, creating a distinctive entry barrier.

Another fact indicating that there are substantial entry and exit barriers is that the industry has experienced constant profits over the years – Alfa Laval's profit margin average for the last five years is e.g. in a range of 9-17% and GEA Group around 7% (Alfa Laval, 2012a; GEA, 2012; GEA, 2010; GEA, 2008). The companies' profits are discussed more thoroughly in Chapter VI. According to theory, industry profit should approach zero if a profitable industry is lacking entry and exit barriers (Grant, 2010). Consequently, it can be argued that there exist rather high entry and exit barriers.

5.2.3. Buyer Power

As can be seen in Chapter IV, Alfa Laval's customer base is very broad and spread over a large number of segments, industries and companies. This is also true for the industry in general (GEA, 2012a; SPX, 2012; SWEP, 2012). As a result, the majority of the individual buyers stand for a minor share of the companies' total sales. Naturally, this limits the clients' bargaining strength since smaller companies, compared to larger players, generally have greater difficulties of putting pressure on suppliers (Grant, 2010). Important to notice

[14] Generally, there are low costs combined with maintaining customers, relative to attracting new ones. In addition, margins are often high in after sales, at the same time as the company usually exclude substantial R&D costs.

in this discussion is that different clients have different bargaining power. For example, Tetra Laval is the only customer of Alfa Laval that represents more than 1% of net sales (Alfa Laval, 2012a), naturally strengthening Tetra Laval's buyer power. Their power is further strengthen by their ownership share in Alfa Laval. Consequently, it is not possible to exclude that some players have significant buyer power.

Naturally, a customer's buyer power is dependent of the size of the order. Since many of the industry's customers are big global corporate groups, it can be argued that these customers' orders can take big forms. In general, the bigger the order volume, the greater is the power that the customer can exercise. Once again, this is dependent on the specific customer's characteristics.

Another important factor to consider when discussing buyer power is the differential advantage, i.e. the uniqueness, of a company's products compared to its competitors. Namely this influences the price sensitivity of the buyers. (Grant, 2010) In the case of Alfa Laval, their proactive focus naturally imply a certain level of uniqueness – a fact strengthened by their four-hundred patents. Furthermore, in 2011 Thomson Reuters appointed Alfa Laval to be one of the world's most innovative companies (Thomson Reuters, 2011). Thus, it can be argued that Alfa Laval's cutting-edge focus increases their negotiation power relative to customers since it reduces the substitutability of their products, hereby lowering the customers' price sensitivity. In general, the industry's products possess a certain degree of uniqueness towards competing products, often in terms of innovation such as energy efficiency (GEA, 2012a; SPX, 2012; Flottweg, 2012).

5.2.4. Supplier Power

In general, due to the size of Alfa Laval and the characteristics of their material needs, it can be argued that the company generally has a moderate bargaining power relative to their suppliers. This is also true for the industry, especially since the industry, as mentioned before, is relatively concentrated.

When investigating Alfa Laval it can be seen that the company has a quite big network of suppliers. About 80% of the company's total purchase comes from 340 suppliers and approximately 67% of the purchases are from international suppliers (Alfa Laval, 2012a). It can be argued that the high number of suppliers' limits their dependency on a single supplier, which ought to result in greater negotiation power for Alfa Laval. In addition, having an international approach when buying materials facilitates for additional supplier opportunities, further weakening the suppliers' power.

The majority of the industry's supply needs are in terms of base metals. For example, in the case of Alfa Laval, steel is the most utilized one. In addition the industry uses several metals for alloy purposes, e.g. nickel, chrome, molybdenum, copper, aluminium and titanium. (Alfa Laval, 2011a) When investigating the supplier power it is important to analyse the nature of the material needs, namely to what degree the inputs are differentiated (Grant, 2010). In the case of base metals, differentiation is regarded as being rather limited. This is further strengthened by the fact that there are well-functioning markets for base metals, e.g. the London Metal Exchange, which requires homogeneous products. Naturally, lack of differentiation results in weakened supplier power since it makes the individual supplier's products more exchangeable, hereby increasing the buyers' price sensitivity (Grant, 2010). In addition, the steel industry is currently characterized by intense competition and overcapacity. As a result, prices are low and steel companies are sometimes even forced to sell at a loss. Currently, the steel producers are therefore experiencing weakened power. However, the prices are projected to increase and the overcapacity decrease due to an expected rebound of steel demand. (Zacks, 2011)

Despite the above-mentioned limiting factors of the base-metal suppliers' bargaining power, it is not adequate to regard their power as being low. Namely, Alfa Laval and its competitors are largely depending on such metals since these are crucial for the production process. Naturally, this significantly weakens the buyers' power. In addition, there are a limited number of producers of many metals, e.g. titanium and steel, which normally increases these suppliers' power (Alfa Laval, 2012a; Grant, 2010; Zacks, 2011). As a result, it can be argued that the bargaining power of this group of suppliers is moderate.

Another important aspect to consider is the supplier's switching costs relative to the industry's switching costs (Grant, 2010). It can be argued that there are contradicting forces. Namely, due to the well-functioning market for base metals there are both many potential sellers and buyers, which enables the industry and its suppliers to relatively easy find new business partners. Naturally, this results in lower switching costs for both parties. However, important to notice in the discussion of Alfa Laval, is that their supplier network is well established (Alfa Laval, 2012a). This indicates that there is a mutual dependency between Alfa Laval and its suppliers, which naturally complicates a switch. At the same time, Alfa Laval states that they put much effort in ensuring that their suppliers fulfil the company's criteria, e.g. in terms of prices, delivery reliability and lead times (Alfa Laval, 2012a). Along with this, they are continuously reviewing existing suppliers and searching

for new ones (Alfa Laval, 2012a). This indicates that Alfa Laval is positive for supply chain changes if suitable. Naturally, this openness towards new suppliers weakens the existing suppliers bargaining power.

It could be argued that the large size of the companies characterizing the industry is an advantage in most of their supplier negotiations. In the case of Alfa Laval, it can be argued that they as a customer stand for quite big shares of many of their suppliers' sales, excluding base-metal suppliers – naturally, weakening the supplier power. This is of course dependent of the supplier type and the extent of their exposure to Alfa Laval.

5.2.5. Industry Rivalry

Generally, the industry can be regarded as being relatively competitive. Alfa Laval has however managed to gain a favourable position and hereby avoid some of the competition.

An important factor to consider when discussing industry rivalry is product differentiation. As formerly mentioned, the industry products' have a certain level of differentiation. The products fulfil the same basic needs, e.g. transferring heat or cold in the heat-transferring technology, but they are differentiated in terms of the technology used for this purpose. Hereunder also in regards of efficiency and price level. The existence of product differentiation is a limiting factor on the industry rivalry.

A factor increasing the industry rivalry is the existence of exit barriers. Since the resources used are both quite durable and specialized, the barriers to exit can be regarded as being more substantial than in some comparable industries. Furthermore, as can be seen in Chapter VI, the industry is rather cyclical, which naturally implies excess capacity in downturn periods. However, a limiting factor is that the industry has experienced stable growth over the years, which ought to limit the excess capacity. Generally, high exit barriers in combination with excess capacity results in higher rivalry and lower profitability, especially during recessions (Grant, 2010). Important to note is that the above mentioned industry characteristics does not seem to have had a substantial impact on Alfa Laval – an assumption based on their stable profit margins over the last couple of years, despite experience of the economic turmoil.

Another important factor to consider is the relationship between fixed and variable costs, since this have an influence on the competition level and hereunder the profitability (Grant, 2010). In the industry in general, the ratio of fixed to variable costs is not as high as in several other industries, e.g. compared to the airline and

hotel industries. Alfa Laval generally has a ratio of approximately 32% and the same number for GEA is about 31%. This fact has a limiting effect on the industry rivalry.

5.2.6. Summary of Industry Analysis

The industry analysis has shown some interesting results that will be summarized in the following section. First of all, it is evident that the industry is quite competitive but that Alfa Laval has gained a favourable market position.

Firstly, the threat of substitutes was analysed, which is regarded as being low. Primarily due to that the products are a core element in the processes where they are used, as well as there are limited number of substitutes fulfilling the same need. Alfa Laval has also managed to avoid strong threat from substitutes by offering many different solutions within each technology. In addition, they have differentiated themselves by offering high-quality products with high efficiency, and hereby limiting them from substitutes that can fulfil the same needs.

When investigating the threat of entrants, it was evident that there were factors creating major entry barriers, e.g. that the industry is capital-intense, the existence of patents, moderate concentration-ratio, high switching costs and the importance of distribution channel networks. Alfa Laval's differentiation has further strengthened these entry barriers.

In the discussion of buyer power, it was concluded that this was quite limited since the customers often stand for a small share of the companies' net sales, especially in the case of Alfa Laval. This is of course dependent on the specific customer characteristics, e.g. the size of the order. Naturally, Alfa Laval's differentiated focus often strengthens their negotiation ability, due to the limitations in substitutability this creates.
Generally, the supplier power is regarded as being moderate in the industry. As in the case of the buyer power, this is dependent on the specific supplier's characteristics. For some of the suppliers' it can be argued that Alfa Laval has moderate negotiation power. However, in terms of e.g. metal suppliers, the company's negotiation power is lower.
When it comes to industry rivalry there are contradicting forces. The product differentiation that exist in the industry is lowering the rivalry, further strengthened by the low fixed to variable cost ratio. However, the high exit barriers in combination with that the industry is rather cyclical, increases the rivalry.

5.3. Company Analysis – SWOT

The following contains a company analysis of Alfa Laval. The analysis will be undertaken by using the SWOT Framework, one of the most used models for gaining overview of internal and external factors influencing the success of a company. In the internal part of the analysis, the company's *Strengths* and *Weaknesses* are investigated. Thereafter, the external factors influencing the company are analysed in *Opportunities* and *Threats*.

This part of the strategic analysis intends to sum up the previous two subchapters, i.e. the macro-analysis and the industry-analysis, into a perspicuous mass. Naturally, additional information will be used to make the analysis as comprising as possible. The main findings are summarized in the figure below.

Figure 5.5. SWOT Analysis Overview

Source: Own illustration.

5.3.1. Strengths

Alfa Laval's long presence in the industry, with technologies dating back to 1883, has enabled them to gain valuable experience and skills. Throughout the years, they have had continuous focus on R&D, which has resulted in substantial know-how within the company. This has evolved in several groundbreaking technologies and naturally an innovative and proactive image of the company. In addition, it has resulted in

many patent rights, naturally being of great value for Alfa Laval. In combination with several other factors, this has allowed them to gain a favourable market position and becoming the market leader in the three technologies of their operations.

Another result of their innovative focus is their broad product offering with several solutions in their respective technologies. This both widen their customer base as well as limit their substitutability. The focus has also enabled the company to offer premium products with high-quality standards and efficiency, which is beneficial for the company. For example, this competitive edge enables Alfa Laval to sell the products for higher prices and gaining better margins. It has also resulted in high customer-loyalty, which can be seen in many returning customers.

Another important strength for Alfa Laval is their large network and worldwide presence. Namely, as could be seen in the industry analysis, access to a comprising distribution network is of major importance. In addition, having global operations spreads the risk of the company.

Alfa Laval's long-term relationship focus with suppliers and customers is also strengthening the company. It is not only cost-saving, e.g. in terms of lower raw-material costs and less financial means spent on finding new business partners, but it also ensures that the clients considers the company for future projects. In line with this is that Alfa Laval has a strong focus on offering superior service, e.g. by having secured the availability of strategic metals and components in order to be able to deliver. Their customer focus can also be seen in the organization of the company, where the operations are split up in divisions based on customer segments, enabling customer focused market penetration. (Alfa Laval, 2012a)

A more general factor strengthening Alfa Laval is that the industry is characterized by having high entry-barriers. The company has also been able to further strengthen these barriers, e.g. by their patents and broad product offering. Naturally, this limits the risk of new entrants and strengthens the company's position.
It can be argued that many of Alfa Laval's strengths have been facilitated by their strong financial position, which is illustrated and analysed in Chapter VI. Namely, this has e.g. facilitated continuous investments in R&D and acquisitions of complementary products.

5.3.2. Weaknesses

Alfa Laval's large dependency of access to raw materials is naturally a weakness. Namely, without raw materials they cannot maintain their production. This is further strengthened by the company's relatively weak bargaining power in regard to these suppliers. As a result, they have limited influence on price levels etc., and are hereby exposed to the risk of price fluctuations. This is discussed more thoroughly under *Threats*.

Another weakness, during economic downturns, is their premium market positioning. Namely, despite their focus on being cost-efficient in regards of quality and efficiency it can be argued that customers might consider cheaper alternatives when financial means for investments are limited. This can partly be an explaining factor for the large decrease in orders received during 2009. In line with this is the fact that the company is exposed to many cyclical industries. However, it is important to stress that 2008 was a very strong year for the company. Consequently, it is not surprising that the company experienced reductions, compared to 2008, during such significant economic turmoil that was the case in 2009.

5.3.3. Opportunities

In general, the current economic climate, in combination with positive forecasts of the same, implies promising future business opportunities for Alfa Laval. For example, many of the markets where the company is active are expecting strong economic growth the next couple of years, especially the markets in Asia, South America and Eastern Europe. Since the emerging markets have become more and more important for the company, these forecasts are naturally positive. At the same time, the Western European and North American regions are expected to grow at a lower rate. However, it is important not to underestimate the company's future business opportunities in these two regions. Namely, despite the slow economic growth that has characterized Europe and North America the last couple of years, Alfa Laval has experienced an increase in orders received of about 20% in these regions during 2010 and 2011 (Alfa Laval, 2012a). Of course, this increase might partly be explained by a postponed investment need resulting from the large decrease of orders received during 2009.

Another important factor is the social changes that will characterize many of Alfa Laval's markets in the future, e.g. population growth and urbanization. In combination with better living standards in these areas, these factors have a positive influence on the demand for Alfa Laval's solutions. For example, it will imply a boosted demand for processed food, a market where the company holds a strong position.

Currently, the world is undergoing an ever-strong focus on the environment, which is expected to increase in the future. Since Alfa Laval's products are highly focused on being efficient and environmental friendly, this development is very beneficial. If societies, governments and organizations around the world continue to demand energy efficient solutions, new business opportunities will naturally open up for Alfa Laval. An example of this is the legislation, mentioned in the macroeconomic analysis, regarding ballast water treatment that is under discussion by the IMO. Since the marine sector is one of Alfa Laval's major segments, this legislation is highly important for the company. Alongside, if the legislation does not get realized, it might constitute a threat since it will enable competitors to catch up. In addition, the expected growth of goods transport by sea, as mentioned in the macroeconomic analysis, naturally implies great opportunities for Alfa Laval. Another promising area for Alfa Laval is of course the opportunities that comes along with the vast amount of money invested in IGCC-CCS.
As mentioned under *Strengths*, Alfa Laval has a strong innovative focus. This focus can naturally open up for promising future business opportunities if they develop new profitable solutions. At the same time, such developments can increase the already strong entry-barriers to the industry, naturally being positive for Alfa Laval.

Throughout the years, Alfa Laval has acquired many companies. Future acquisitions could naturally open up for several opportunities, e.g. in terms of access to distribution networks and new technologies.

5.3.4. Threats

At the same time as the economic forecasts looks promising, the risk of continued turmoil is also significant. Some analysts expect future downturns before the economy recovers. Due to Alfa Laval's exposure to many cyclical industries, e.g. marine and several process-industries, this constitutes a threat to their future profitability. However, important to consider is that they have, as mentioned under *Strengths*, a natural diversification owing to their broad customer base, which naturally limits the effect of fluctuations.

At the same time as new technologies can open up opportunities, it might also constitute a threat. Namely, if competitors develop new technologies this might result in weakened competitiveness for Alfa Laval. This could for example be if competitors develop cheaper solutions or technologies with superior characteristics. Alfa Laval is trying to limit this risk by their strong R&D focus.

Since Alfa Laval is highly dependent on raw materials, price fluctuations in such materials constitute a threat. The company has e.g. experienced large price fluctuations in recent years in when purchasing stainless steel, copper and titanium (Alfa Laval, 2012a). As mentioned in the industry analysis, the steel price is e.g. expected to increase in the future and if the company do not hedge their activities successfully this might threaten the profitability of their sales. Namely, Alfa Laval cannot always pass higher input costs over to the end customers (Alfa Laval, 2012a).

Due to Alfa Laval's international business activities and geographical spread, another important risk to consider is currency risk, which also can be seen in Chapter VI to historically have influenced the operating profit. Currency risk can be divided into transaction exposure[15] and translation exposure[16] (Alfa Laval, 2012a). However, due to the company's former mentioned spread over the world they are to a certain extent 'naturally diversified' – namely, exchange rate fluctuations rarely correlate perfectly. In addition, they have their sales and costs in local currencies, which results in a natural risk coverage. This risk is therefore not regarded as being severe.

As mentioned in the macroeconomic analysis, political risk must also be considered. However, the company is mainly operating in countries where the political risk is regarded as being low, and they have only limited operations in politically unstable countries. Alongside with political risk, comes also the discussion of environmental risk[17]. This risk can be a result of both political pressures, as well as pressure from consumers and organizations. However, this risk is not regarded as being substantial, primarily due to the company's high ambitions in this field in combination with that their production is not considered to have a significant environmental impact. (Alfa Laval, 2012a)

In addition, Alfa Laval has financial risks in terms of e.g. interest risk, market risk, liquidity risk, refinancing risk, cash flow risk and counterpart risk. They have also operational risks in terms of e.g. risk for bad debts, risk for claims, risk for litigations, risk for technically related damages, business interruption risks, insurance risks and risks connected to credit terms. (Alfa Laval, 2012a) However, we regard these risks as being quite low for Alfa Laval, due to the proactive activities undertaken by the company to limit these risks.

[15] This is related to exchange rate fluctuations affecting currency flows, which in turn arise due to business activities.
[16] This is related to the translation of the subsidiaries' financial statements from local currency to SEK.
[17] The risk of costs that might incur in relation to e.g. restore land at previous or current industrial sites and following stricter environmental legislation.

5.3.5. Summary of Company Analysis

In the SWOT-analysis it became clear that there are contradicting forces influencing the company. For example, the company has some weaknesses, primarily in the form of large dependency of access to raw materials, weak bargaining power to certain suppliers and many cyclical-sensitive customers. On the other hand, we believe that these weaknesses are outweighed by Alfa Laval's many strengths. Among the strengths the following can be mentioned: significant experience and know-how, strong market position, innovative focus, strong networks, worldwide presence and long-term relationships with customers and suppliers.

Some external factors can both take the form of opportunities and threats, dependent on the perspective. For example, new innovations can strengthen Alfa Laval if developed by them, but can on the other hand constitute a threat if it is innovations developed by competitors. In general, despite many threats, e.g. in terms of future economic turmoil, risk of raw material fluctuations, currency fluctuations, political risk and environmental risk, we regard the company's opportunities to be stronger. One of the many promising opportunities is the positive economic forecast, which if managed properly can result in improved future sales. At the same time, there are positive forecasts for many of Alfa Laval's segments, as well as they expect positive social changes in many of its geographic markets.

By summing up, it can be argued that Alfa Laval's strengths and market opportunities are stronger than their weaknesses and potential threats.

5.4. Chapter Conclusion

When reviewing the findings of the strategic analysis, it is evident that Alfa Laval possesses a strong position, both as of today and for the future. Generally, the forecasted economic outlook looks promising for the company, naturally implying possible business opportunities.

Firstly, the macroeconomic analysis showed that the company is highly influenced by its context, primarily by the political and economical factors. In general, these factors look promising, e.g. due to positive economic outlook in most of the company's regions and because political interventions might open up business opportunities. In addition, the social and technological factors are influencing the company, with the social factor being the most important one in the near future. Generally, these factors also look promising for the company, e.g. due to increased urbanization and population growth.

Secondly, the industry analysis shows that the industry is quite competitive but that Alfa Laval possesses a strong market position. Their niche of being innovative and a premium-product producer is favourable in many aspects, e.g. when it comes to threat of substitutes, buyer power, threat of substitutes and industry rivalry. It is also favourable when it comes to supplier power – however, the niche has not enabled them to gain as much in this parameter as in the others.

Finally, when combining the macroeconomic and industry analysis into the company analysis, it is evident that Alfa Laval's weaknesses and threats are outweighed by their strengths and opportunities. Alfa Laval should therefore be regarded as being in a positive situation for the future. Throughout the years they have showed financial and strategic strength, both during economic growth and recessions. This fact, in combination with their awareness of the opportunities and challenges that lay ahead of them, places them in a strong position for managing the future business climate in an adequate manner.

6. Financial Analysis

The objective of financial statements is to provide information about a company's financial position, financial performance and cash flows (Penman, 2010). Financial statements generally take the form of income statement, balance sheet and cash flow statement.

This chapter contains a financial analysis of Alfa Laval. The analysis is separated into six subchapters: *Choice of Peers Preparation of Financial Statements*, *Profitability Analysis*, *Growth Analysis*, *Cash Flow Analysis* and *Risk Analysis*. The first two subchapters contain information about the procedure prior to the numerical analysis. Since the value of a company is highly driven by profitability and growth, the subsequent two chapters contain an analysis of Alfa Laval's historical performance in these parameters in the six-year period of 2006-2011 (Koller et al., 2010). Thereafter, the financial analysis proceeds with an analysis of the historical cash flows during the same period, since the final valuation will be based on the company's ability to create cash flows. The motivation for analysing a six-year period is that it enables a five-year comparison of profitability measures. Finally, the analysis ends by an identification of different risk factors uncovered in the financial statements.

6.1. Choice of Peers

To be able to evaluate Alfa Laval's performance in an adequate manner, an analysis of the company's peers has been conducted. The reasoning behind this process is to facilitate an identification of firm specific conditions for Alfa Laval's performance.

The following four companies are regarded as being appropriate for peer comparison: *Atlas Copco*, *GEA*, *Sandvik* and *SKF*. These companies are also commonly used as peers in analysis reports of Alfa Laval. However, Atlas Copco, Sandvik and SKF are not direct competitors to Alfa Laval and will merely be used in the multiple comparison. These three companies do, nevertheless share many characteristics with Alfa Laval, among others in terms of that they are Swedish industrial MNCs, sell capital goods, follow the same accounting standards and are listed on Nasdaq OMXS. They are therefore regarded as being highly suitable as peers. The main reasoning for not exclusively having competitors as peers is that the majority of Alfa Laval's competitors are regarded as being significantly different in some crucial aspects. At the same time, GEA is the only competitor providing solution in all three of Alfa Laval's technologies.

Since GEA is the only competitor in the peer group, and at the same time the company's main competitor, they are regarded as being most suitable for in-depth benchmarking. They are furthermore regarded as an appropriate comparable when it comes to e.g. size, geographical exposure and market position. The three other companies are not regarded as being appropriate for a comprehensive benchmark since they are not competitors to Alfa Laval. However, they are seen as highly suitable for the final multiple comparison.

6.2. Preparation of the Financial Statements

To enable an adequate analysis of the economic performance, a reformulation of the shareholders' equity, balance sheet, income statement and the statement of cash flow have been undertaken. In accordance with Koller et al. (2010) the items are ordered into three categories of components: *operating*, *non-operating* and *sources of financing*.

Reformulation of financial statements implies higher degree of detail compared to the statements reported in respective company's annual report, since footnotes and accounting standards have been analysed for information, enabling separation of operating and non-operating items. The reasoning for undertaking this process is that operating items are regarded as being more permanent and should therefore form the base for the prediction and valuation process. The reformulations of the financial statements have been executed in accordance with Koller et al. (2010), Penman (2003 & 2010), and Petersen & Plenborg (2012). In the following four subchapters, the most important considerations to account for when understanding the reformulated statements are presented.

6.2.1. Accounting Policies

Both Alfa Laval and GEA apply to *International Financial Reporting Standards (IFRS)*, as adopted by the European Union (Alfa Laval, 2012a ; GEA, 2012a). In addition, Alfa Laval applies to the recommendation *RFR 1 Supplementary accounting principles for consolidated groups* from the Council for Financial Reports in Sweden. The parent company's accounting and valuation principles also comply with the *Swedish Annual Accounts Act* as well as the recommendation *RFR 2 Accounting for legal entities* from the Council for Financial Reports in Sweden. (Alfa Laval, 2012a) In addition to the IFRS, GEA's legally required single-entity financial statements are prepared in accordance with the *Handelsgesetzbuch*[18]. Furthermore, the Audit Committee discusses half-year and quarterly reports with the Executive Board as recommended in the

[18] German Commercial Code

German Code of Conduct, as well as that the company's communication is adopted to the requirements of the *Wertpapierhandelsgesetz*[19]. (GEA, 2012a) In the subsequent section, the most critical accounting policies for Alfa Laval are presented.

6.2.2.1. Critical Accounting Principles

The first principle to be recognized is the *IFRS 3 Business Combinations*, which implies that goodwill and intangible assets with indefinite useful life are not amortised, but instead tested annually and when there is an indication. This might affect the net income of the Group and consequently the financial position – the reasoning being the potential risk of goodwill write down if the Group's, or part of the Group's, future profitability goes down. (Alfa Laval, 2012a)

Secondly, the Group has defined benefit and pension plans, reported according to *IAS 19 Employee Benefits*, implying that the plan assets are valued at fair value. Independent actuaries calculate the present value of these obligations yearly. Consequently, there is a risk that the value of the plan asset decreases, at the same time as actuarial assumptions increase the value of the benefit obligations – the results could be substantial deficits. (Alfa Laval, 2012a)

Thirdly, the Group reports provisions according to *IAS 37*, meaning that SEK 2.1 billion in 2011 was reported as other provisions. This constitutes about 6.2% of the Group's total assets. The risk of this approach is that eventual changes in these practices could have a substantial impact on the Group's financial position. (Alfa Lava, 2012a)

Finally, the Group's reporting according to *IAS 39 Financial Instruments: Recognition and Management* has a significant impact on the company's comprehensive income and equity. Furthermore, it could also have an effect on the Group's net income if the used derivatives do not turn out effective. (Alfa Laval, 2012a)

6.2.2. Reformulation of the Statements of Shareholders' Equity

The purpose of the reformulation of the shareholders' equity statement is to distinguish between the creation of value and the distribution of value to shareholders through net dividends. The reformulation identifies so-called dirty-surplus items in the statement, yield comprehensive income and Return On Equity (ROE).

[19] German Securities Trading Act

(Penman, 2010) Alfa Laval's and GEA's reformulated statements of shareholders' equity are shown in Appendix 6.1 and 6.2.

6.2.3. Reformulation of the Balance Sheets

The purpose of the reformulation of the balance sheets is to distinguish between the company's operating and financing assets and liabilities, as a mean of revealing the company's ability to generate profits. The reasoning behind this procedure is to compute the invested capital, i.e. the capital that stockholders have invested in the company. (Koller et al., 2010) Alfa Laval's and GEA's reformulated balance sheets are shown in Appendix 6.3. and 6.4. The following subchapter explains in important balance sheet issue, namely off-balance sheet financing.

6.2.3.1. Capitalization of Operating Leases

Both Alfa Laval and GEA are using operating leasing as a form of financing, also known as off-balance sheet financing. Operating lease that is fulfilling certain accounting criteria does not have to appear on the company's balance sheet. Only the periodic rental expense is reported in the income statement. Consequently, the companies' operating assets and financial debt will be under-valued, simultaneously as the operating profit will be artificially low. Which in turn can create biases on return figures. (Koller et al., 2010) The present values of the operating leases are not revealed in either of the companies' annual reports. Hence, an estimated valuation has therefore been performed, called a *capitalization of operating leases*.

There are several methods to calculate the asset value. There are however, two standard methods for how to estimate the value of the operating lease. The first is based the periodic rental expenses and is preferred by among others Koller et al. (2010). The second approach is based on the present value (PV) of future minimum rental expenses and is among others preferred by Damodaran (1999). The two equations are presented below, in respective order: (Koller et al., 2010; Damodaran, 1999)

$$\text{Asset Value}_{t-1} = \left(\frac{\text{Rental Expense}}{r_{COL} + \frac{1}{\text{Asset Life}}} \right)$$

and

$$\text{Asset Value}_{t-1} = \sum^{n} \text{PV of Future Rental Expenses} + \text{PV of Annuity Expenses}$$

Since there is not only one correct solution to an approximation problem, this report has applied both methods. The applied values in this report are therefore the arithmetic average of the two methods' results. See Appendix 6.5. and 6.6. for more detailed calculations.

Rental expenses and future minimum rental expenses for leases are revealed in both companies' annual reports. Alfa Laval and GEA note in the their respective annual report that the operating lease is a mixture of assets, i.e. both premises and equipment. Hence, this report has applied an asset life of *10.9 years*. The approximate assets life of 10.9 origins from a research by Lim, Mann and Mihov (2003) in which they examined 7,000 firms over 20 years.

Cost of operating leases (r_{COL}) can, according to Koller et al. (2010), be estimated by the use of an AA-rated corporate bond yield and not by using the company's overall cost of debt. This is also the approach used in Chapter VIII. This estimation can be applied, since the operating lease is secured by the underlying asset and is therefore less risky than the company's unsecured debt. (Koller et al., 2010). This report has used an arithmetic average of three different 10-year corporate bonds for proximity of the cost of debt: UK Corporate bond AA-rated; US Corporate All Industries Aaa-rated[20]; and US Corporate All Industries Baa-rated[21]. Together, the two latter are regarded as being a good approximation of a US AA-rated bond, since this yield almost certainly would be in between the yields of the two. The selection of bonds is based upon the importance of UK and US bond markets and their global influence, resulting in high adequateness as a basis for the approximation. See Appendix 6.7 and 6.8 for calculations and corporate credit ratings.

[20] Aaa is a credit rating by Moody's, and indicates a "prime" long-term credit rating
[21] Baa is a credit rating by Moody's, and indicates a "lower medium grade" long-term credit rating

Asset value is added to operating non-current assets and to debt and debt equivalents in the reformulated balance sheet. Cost of operating leases multiplied by asset value gives the imputed rental expense for operating leases, which in turn is added to the reformulated income statement as positive accounting item.

Finally, the capitalization of operating leases shall not change the intrinsic value of neither company, if the items are incorporated correctly in calculations of debt, free cash flow and cost of capital. (Koller et al., 2010)

6.2.3.2. Adjustment of operating cash

A firm holds cash and cash equivalents, which normally are considered as excess cash. Excess cash can in turn either be paid out as dividends, share buy-back, or debt instalments, without affecting the firms' operations. However, the reported cash and cash equivalents also include operating cash. Operating cash, which is non-interest bearing, is the amount of cash a firm needs for upcoming investments, inventories and payment of unforeseen bills. Hence, operating cash should be treated as operating activities, and excess cash as financing activities. This distinction is not provided in annual reports and thus must be adjusted. (Penman, 2003) This report has used 2% of revenue as an adequate estimate of operating cash. See Appendix 6.9 and 6.10.

6.2.4. Reformulation of the Income Statements

The main purpose of the reformulation of the income statements is to compute Net Operating Profit After Tax (NOPAT) (Penman, 2010). As with the reformulation of the balance sheet, the items in the statement are grouped according to operating, respectively financing activities. This has implied a thoroughly analysis of the notes as a mean of revealing eventual mixing of operating and financing items. In addition, the reformulated statement is on comprehensive basis, implying that it also includes items reported within the equity statement. Finally, an allocation of taxes is carried out, resulting in that the income in respective statement is net of taxes (Penman, 2010). Alfa Laval's and GEA's reformulated income statements are shown in 6.11. and 6.12.

6.2.4.1. Pensions

Minor adjustments have been made regarding cost and income for pension assets called net plan costs. The adjustment is necessary to distinguish operating and non-operating pension items. Hence, it determines how much of the cost of pension that is for compensating employees (operating), excluding the actual gains and losses on pension investments (non-operating item). (Koller et al., 2010)

Service costs and amortization of prior service costs are operating items, whilst interest costs, expected return on plan assets, and past service costs are related to performance of the pension and belong to financial activities. Thus, the latter items should be deducted when calculating NOPAT. (Koller et al., 2010) Alfa Laval's and GEA's pension calculations are shown in Appendix 6.13. and 6.14.

6.2.4.2. Taxes

The companies' respective tax rates have been calculated using effective tax rate. Effective tax has been applied in favour of respective countries' tax rate, mainly due to the fact that both companies' are paying taxes in multiple countries. Hence, no single statutory tax rate can be applied.

NOPAT has been calculated by deducting the tax shield, which is the tax benefit a company gets from having financial debt. The tax shield is calculated as net interest expenses multiplied by effective tax rate. This has to be done to get NOPAT, which is a company's profit from its core business irrespective of how it has been financed. (Petersen & Plenborg, 2012) See Appendix 6.15. and 6.16.

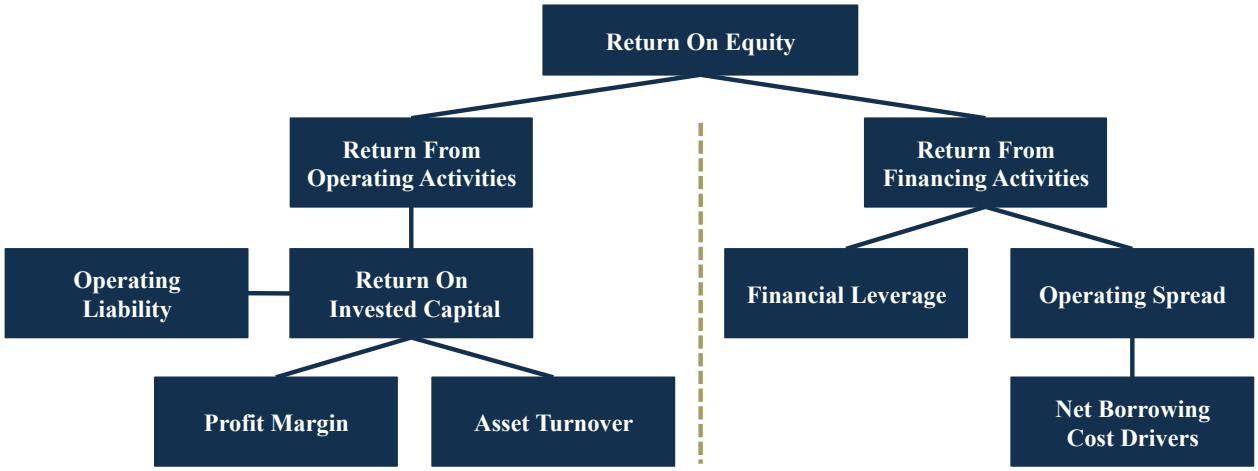
6.3. Profitability Analysis

A profitability analysis establishes a fundamental view of how a company is currently doing and discovers what factors drive the profitability. The analysis was commenced by an investigation of Alfa Laval's and GEA's Return On Equity (ROE), which is a measure of the profit level a company generates from the money invested by its shareholders. (Petersen & Plenborg, 2012) The analysis was undertaken by the use of Penman's (2010) *Analysis of Profitability model.* By understanding and analysing a firm's profitability one can execute a more comprehensive and reinforced forecast and budgeting. (Penman, 2003)

The profitability model can be broken down into three phases of analysis: *effect of a company's financing leverage, effect of a company's operating liability leverage*, and *identification of drivers of operating*

profitability. The chapter starts by presenting the current and historical levels of ROE and then continues by distinguishing operating and financing activities and the effect of leverage. The figure below illustrates the framework for the profitability analysis.

Figure 6.1. Profitability Analysis



Source: Own illustration based on Penman's (2010) illustration.

6.3.1. Return on Equity

ROE can be derived by the use of several different formulas. The most straightforward formula, which also is the one used in this analysis, is the following:

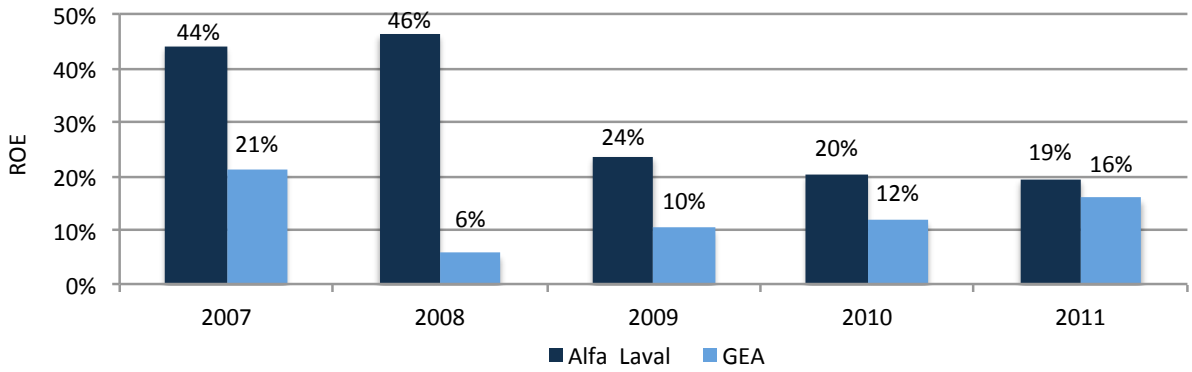
$$\text{ROE} = \frac{\text{Comprehensive Income}}{\text{Average Equity}}$$

The denominator is an arithmetic average of the start-of-year to end-of-year book value of equity in the balance sheet. The reason for applying the average value is because income streams generally are considered to be generated over the entire fiscal year, at the same time, as the balance sheet number is the measure of the end-year date. Hence, the average smoothens the number over the year. The average method will henceforth be used in the analysis regarding balance sheet figures. Further, equity is calculated as *equity to common share* plus *minority interests*. The reason for calculating the equity with minority interests is that this post, unlike debt holder interests', does not affect the overall profitability of equity. (Penman, 2003) For calculations see

Appendix 6.17. and 6.18. The numerator entails net income and other income reported in changes in consolidated equity. Other comprehensive income can be cash flow hedges, translation differences and deferred tax.

The figure below shows how Alfa Laval's ROE consistently has declined since 2007, from a high level at 44% to a more moderate level at 19% in 2011. Despite the negative ROE trend, Alfa Laval has outperformed GEA in all comparable years, even though the difference has narrowed down to 3 percentage points. GEA's ROE has been fluctuating between 6-21%, ending with a ROE of 16% in 2011.

Figure 6.2. Alfa Laval's and GEA's Return On Equity, 2007-2011



Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b) and GEA (2012a; 2010 & 2009).

To enable a more exhaustive analysis of the ROE, the subsequent subchapters investigate the two drivers of the ROE, in accordance with figure 6.1, namely *Return From Financing Activities* and *Return From Operating Activities*. The following expression emanates the continued analysis and clarifies the impact of the two drivers:

$$\text{ROE} = \overbrace{\text{Financial Leverage} \times \text{Operating Spread}}^{\text{Return From Financing Activities}} + \overbrace{\text{Return On Invested Capital}}^{\text{Return From Operating Activities}}$$

6.3.1.1 Return From Financing Activities

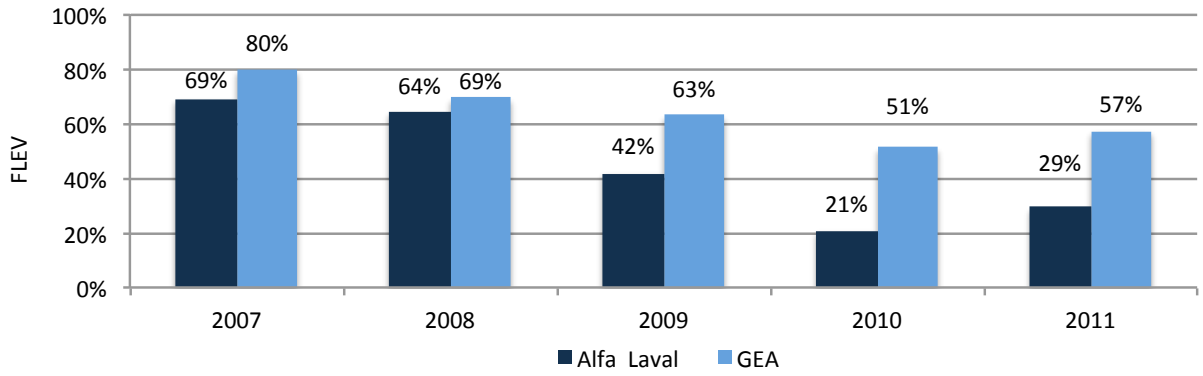
Financial Leverage

The first driver of return from financing activities is a company's Financial Leverage (FLEV). The FLEV ratio shows to which degree a company's Net Operating Assets (NOA) are financed by Net Financial Obligations (NFO) or by Equity. (Penman, 2003) The equation for FLEV is illustrated below:

$$\text{FLEV} = \frac{\text{Average NFO}}{\text{Average Equity}}$$

As can be seen from the figure below, Alfa Laval's and GEA's FLEV have followed a similar pattern over the last 5 years. However, GEA's FLEV has been constantly higher. The ratio is below one in all years, implying that equity exceeds the net financial obligations. Alfa Laval's declining level of FLEV is an explaining factor for the decreasing ROE.

Figure 6.3. Alfa Laval's and GEA's Financial Leverage Ratio, 2007-2011



Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b) and GEA (2012a; 2010 & 2009).

Operating Spread

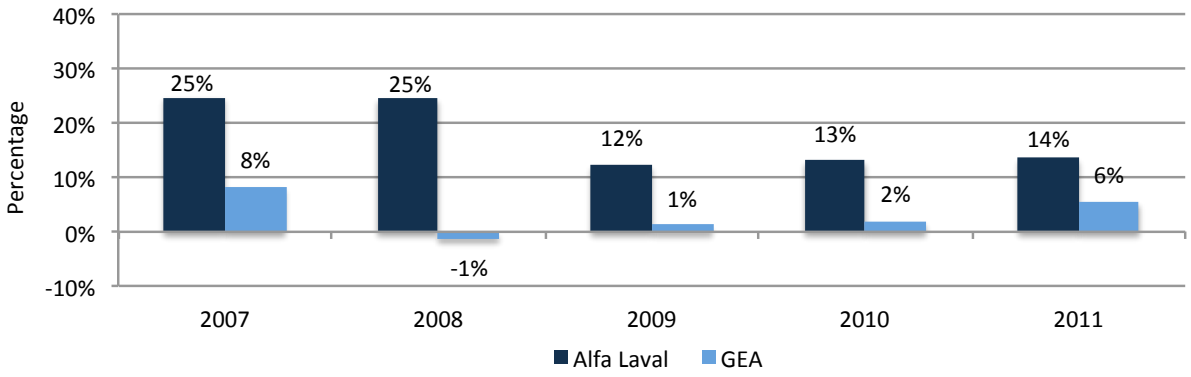
The next component in the profitability analysis is the operating spread, visualized in the equation below. The ROE is levered up with a high FLEV, but only if the operating spread is positive. A positive spread is created when the Return Of Invested Capital (ROIC) is greater than Net Borrowing Costs (NBC). (Penman, 2003)

$$\text{Operating Spread} = \text{ROIC} - \text{NBC}$$

A positive spread, combined with financial leverage, gives a higher ROE, which is also called a favourable leverage. Contrary, a negative spread will yield a lower ROE. Financial leverage is in that case harmful for shareholders and should therefore be reviewed carefully. (Penman, 2003)

As can be seen in the figure below, Alfa Laval has had a significant positive spread, however, with a slight negative trend, varying from 25% in 2007 to 14% last year. Consequently, it can be argued that this development is an explaining factor for the decreasing ROE. The situation has been different for GEA, who had a negative operating spread in 2008 and a marginally positive spread in 2009 and 2012.

Figure 6.4. Alfa Laval's and GEA's Operating Spread, 2007-2011



Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b) and GEA (2012a; 2010 & 2009).

NBC is calculated as the weighted average of the cost of net financing sources. The relation is explained in the equation below. A breakdown of NBC is preferred, hereby gaining a more comprehensive and analytical picture of NBC.

$$\text{NBC After Tax} = \frac{\text{Core Net Financial Expenses}}{\text{Average NFO}} + \frac{\text{Operating Lease Expenses}}{\text{Average NFO}} + \frac{\text{Unusual Financial Items}}{\text{Average NFO}}$$

In the figure below, a breakdown of respective companies' NBC is displayed. Alfa Laval has had lower NBC consistently over the comparable period. Consequently, the difference in NBC is an explaining factor to Alfa Laval's higher operating spread compared to GEA. Lower core net financial expenses mainly drove Alfa Laval's lower NBC in 2010 and 2011. However, the declining NBC cannot be regarded as an explaining factor of the decreasing ROE.

Table 6.1. Alfa Laval's and GEA's Breakdown of Net Borrowing Cost After Tax, 2007-2011

Alfa Laval	*2007*	*2008*	*2009*	*2010*	*2011*
Core Net Financial Expenses	2,6%	6,7%	5,7%	1,4%	0,4%
Operating Lease Expense	1,8%	2,2%	2,2%	3,4%	2,2%
Unusual Financial Items	0,2%	0,2%	1,0%	1,8%	0,7%
Tax Shield	-1,4%	-2,6%	-2,4%	-1,9%	-1,0%
Net Borrowing Costs After Tax	**3,3%**	**6,5%**	**6,5%**	**4,7%**	**2,2%**

GEA	*2007*	*2008*	*2009*	*2010*	*2011*
Core Net Financial Expenses	4,5%	4,1%	5,3%	5,6%	4,9%
Operating Lease Expense	2,9%	3,9%	3,5%	3,5%	2,3%
Unusual Financial Items	2,0%	2,2%	2,3%	2,5%	2,0%
Tax Shield	-3,0%	-2,4%	-2,5%	-2,6%	-2,0%
Net Borrowing Costs After Tax	**6,3%**	**7,7%**	**8,5%**	**8,9%**	**7,2%**

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b) and GEA (2012a; 2010 & 2009).

6.3.1.2 Return From Operating Activities

Return Of Invested Capital

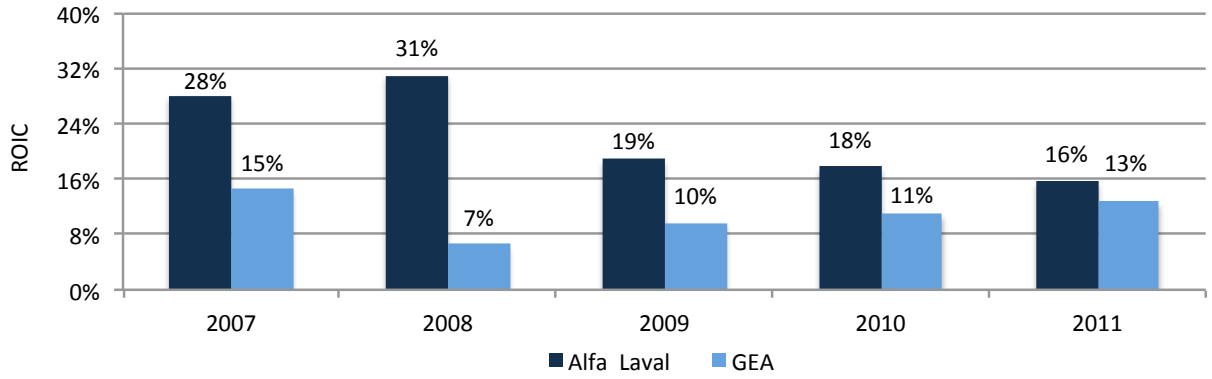
Return Of Invested Capital (ROIC) is a central measure of operating profitability and is expressed as the ratio between NOPAT and the balance sheet figure Invested Capital (IC). This is illustrated in the equation below: (Penman, 2003)

$$ROIC = \frac{NOPAT}{Average\ IC}$$

NOPAT is an adjusted profit measure where the tax gain from interest expenses, i.e. the tax shield, is excluded. IC is how much the company has invested in the operating activities i.e. free from interest-bearing assets and liabilities. (Petersen & Plenborg, 2012)

The figure below shows a significant relationship between ROIC and the above illustrated ROE, hence similar 5-year trend. 2007 was evidently a strong year for both companies, with high ROIC as well as ROE. In 2008 the ROIC noted 31% for Alfa Laval, and has since continued in a negative trend with consistently declining ROIC to 16% last year. Consequently, the arithmetic average of ROIC in the period is 22%. The ROIC development for GEA has, as with ROE, been fluctuating between 7-15%, resulting in an average ROIC of 11%.

Figure 6.5. Alfa Laval's and GEA's Return Of Invested Capital, 2007-2011



Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b) and GEA (2012a; 2010 & 2009).

Operating Liability

ROIC is driven by the Return On Operating Assets (ROOA) and the Leverage Premium, which in turn is driven by Operating Liability Leverage (OLLEV)[22] and Operating Liability Leverage Spread (OLSPREAD) (Penman, 2003). A company's OLLEV can lever up ROIC in a similar way as FLEV can lever up ROE. Namely, operating liabilities, e.g. accounts payables, can reduce the company's IC, resulting in higher ROIC. The difference between ROOA and a short-term borrowing cost after tax[23] is the OLSPREAD (Penman, 2003). The equation below, visualizes how ROIC is driven by ROOA and the Leverage Premium. For detailed calculations see Appendix 6.19. and 6.20.

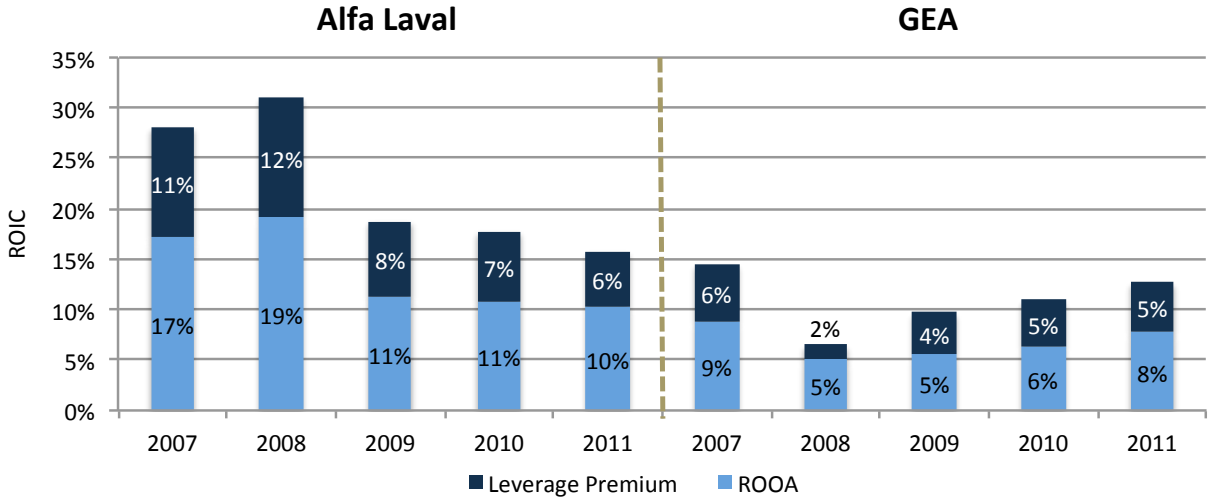
$$ROIC = ROOA + \overbrace{OLLEV \times OLSPREAD}^{\text{Leverage Premium}}$$

The figure below displays how ROOA and Leverage Premium have developed for Alfa Laval and GEA. First and foremost, it can be concluded that both companies have had favourable OLLEV. Namely, ROOA is greater than the short-term borrowing cost, which is indicated by a positive Leverage Premium. It can also be concluded that Alfa Laval has had higher Leverage Premium than GEA in every comparable year. However, from 96.17. and 6.20, it can be seen that GEA's OLLEV has been higher in all years. Simultaneously, their OLSPRED has been significantly lower which has offset the higher OLLEV's influence on the Leverage Premium.

Secondly, it can be seen that Alfa Laval's ROOA has been higher than GEA's in all years, which has mainly been driven by Alfa Laval's higher NOPAT. Consequently, it is evident that Alfa Laval's higher ROIC is a result of both higher Leverage Premium and ROOA. Furthermore, it can be seen that their decreasing ROIC is a result of both decreasing Leverage Premium and ROOA. Namely, these numbers have been declining from 11 to 6% and 17 to 10% respectively, while GEA's numbers have been relatively stable. The sharp increase in NOA is the most contributing factor for the fallen numbers. This in turn is a consequence of Alfa Laval's many acquisitions post 2006, especially in connection with last year's acquisition of Aalborg Industries.

[22] OLLEV is the ratio between operating liabilities and IC.
[23] In this report, for Alfa Laval, calculated as Stockholm Interbank Offered Rate (STIBOR) and for GEA, calculated as Euro Interbank Offered Rate (EURIBOR), both with the average fixing three months rate after tax.

Figure 6.6. Alfa Laval's and GEA's ROOA and Leverage Premium, 2007-2011



Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b) and GEA (2012a; 2010 & 2009).

Profit Margin and Asset Turnover

The last phase of the profitability analysis is the identification of what drives operating profitability. To facilitate this analysis, ROIC was decomposed one more time to what is known as the Du Pont model (Penman, 2003). ROIC is, as can be seen in the equations below, driven by two sources. The first component is a profitability measure whilst the second is an efficiency measure, which together create ROIC.

$$\text{ROIC} = \overbrace{\text{Profit Margin}}^{\text{Profitability Measure}} \times \overbrace{\text{Asset Turnover}}^{\text{Efficiency Measure}}$$

where

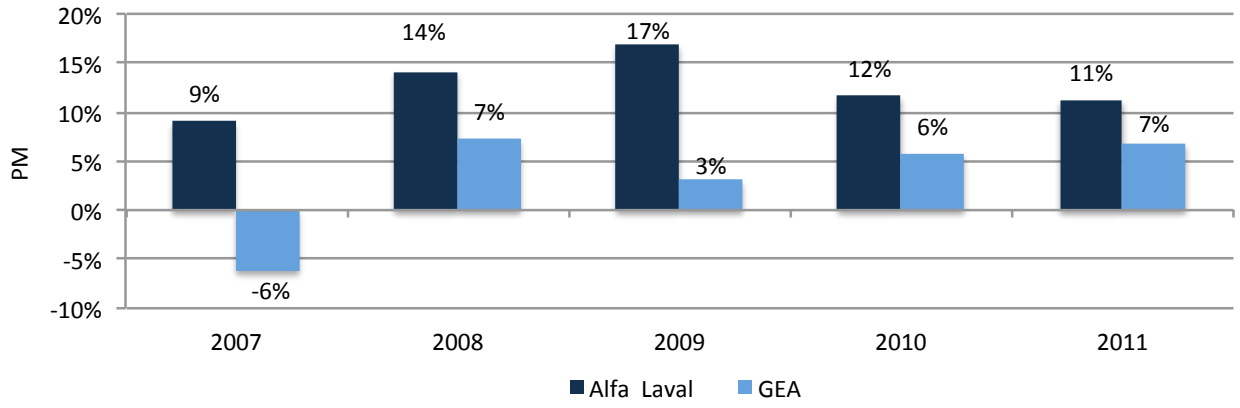
$$\text{Asset Turnover} = \frac{\text{Net Sales}}{\text{Average IC}} \qquad \text{Profit Margin} = \frac{\text{NOPAT}}{\text{Net Sales}}$$

In general, the result of these ratios describes an industry's characteristics well. According to Petersen & Plenborg (2012), capital intense industries, such as the ones where Alfa Laval and GEA are present, is generally characterized by high PMs and low ATOs. Consequently, companies in such industries need to generate high PMs to be able to attract capital and to compensate for the lower ATO. The higher PM is

normally realized from selling products with special properties and a distinguished competitive advantage, which is e.g. the case for Alfa Laval, as described in Chapter V. Consequently, all things equal, a high turnover ratio is attractive. (Petersen & Plenborg, 2012)

Alfa Laval has, as the graph below illustrates, higher PM in every comparable year. Alfa Laval's PM has since 2007 been relatively unstable, fluctuating between 9-17%. One of the reasons for the fluctuating PM is the large impact translation differences have had to NOPAT. GEA on the other hand has had significantly lower PM, with an average of around 5% in the period 2008-2011. In 2007 GEA had negative result, mostly due to a loss from discontinued operation.

Figure 6.7. Alfa Laval's and GEA's Profit Margin, 2007-2011

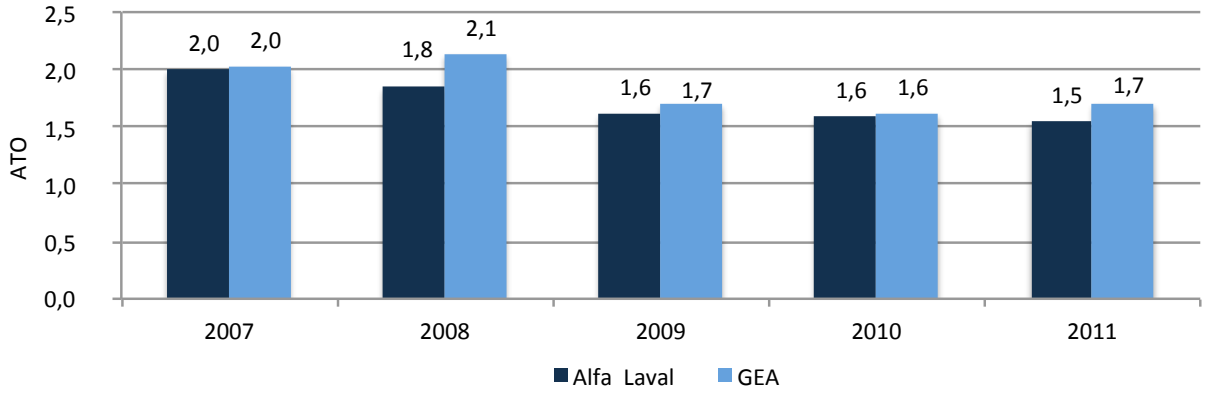


Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b) and GEA (2012a; 2010 & 2009).

Further, as can be seen in the figure below, Alfa Laval's turnover of IC has consistently been decreasing since 2007, from a level of above 2.0 times IC to 1.5. Furthermore, it is evident that Alfa Laval's ATO is lower than GEA in all years, except for 2007, implying lower capital efficiency. As mentioned before, Alfa Laval has invested heavily the last decade and mostly in acquisitions. This has resulted in a 100% increase in IC and a 166% increase in intangible assets, whilst sales have increased with 45%. Consequently, the ATO has fallen.

It can be argued that the declining level of ATO is a main explanation of Alfa Laval's decreasing ROIC. Consequently, the development and level of PM has had a lower influence.

Figure 6.8. Alfa Laval's and GEA's Turnover of Invested Capital, 2007-2011



Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b) and GEA (2012a; 2010 & 2009).

6.4. Growth Analysis

This chapter contains an analysis of Alfa Laval's historical sales development. The purpose is to extract growth trends, classify the sources of growth and identify sales patterns. The chapter starts with a brief introduction to growth and the origins of growth. It continues with a mapping of net sales and order intake, broken down on organic vs. acquisition, division and segments, and finally on geography.

Growth is, for several reasons, of paramount importance for most companies. For example, growth is perceived to create value for shareholders, attract top-talented managers and to enable an ability to acquire other companies (Koller et al., 2010; Petersen & Plenborg, 2012). Growth is also vital when valuing a company, especially when applying a discounted cash flow model. However, growth is merely creating value if the company's business generates higher ROIC than cost of capital. (Kolller et al., 2010)

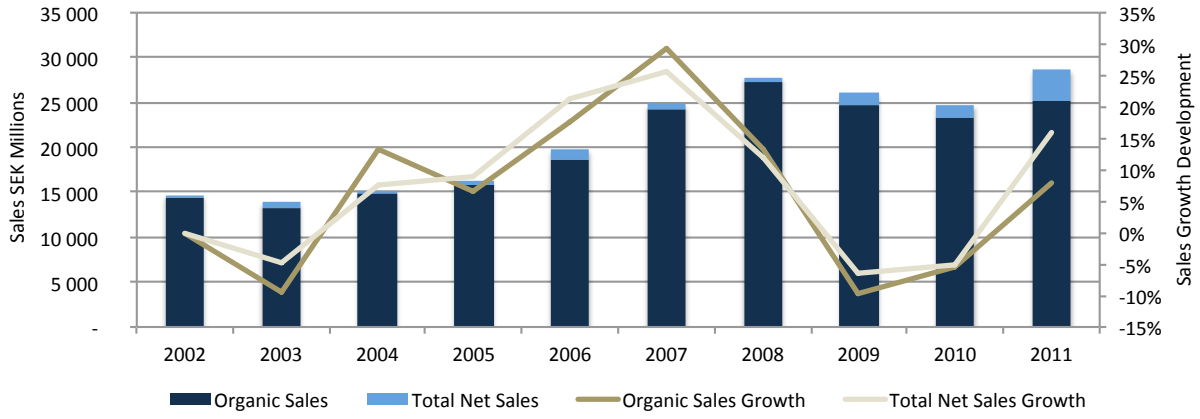
According to Koller et al. (2010), there are three main components of growth. The first is *portfolio management*, which is the organic revenue growth related to the overall expansion of the market. The second is *market share performance*, which is organic revenue growth related to the company's larger market share. The final one *is mergers and acquisitions (M&A)*, which is the nonorganic growth achieved by acquiring or divesting businesses. (Koller et al., 2010).

6.4.1. Organic vs. Acquisition Breakdown

The figure below displays Alfa Laval's ten-year net sales development, year-to-year organic sales growth and non-organic sales growth. Alfa Laval has, as the figure illustrates, experienced a period of high sales growth with a CAGR of 8% over the period. The figure also shows that Alfa Laval has experience three years with negative growth, 2003, 2009, and 2010, where net sales dropped 3, 7 and 5% respectively. Throughout the whole period, net sales have almost doubled, from SEK 14.6 to 28.7 billion. Indications are also given that Alfa Laval has a cyclical character.

The figure also illustrates how much of the net sales that is a result of acquisitions. It can be seen that acquisitions' contribution to net sales has increased the last three years. For example, 2011's net sales are significantly affected by acquisitions, mainly driven by the Aalborg Industries acquisition in 2010. Namely, Aalborg Industries contributed with over SEK 3.3 billion in net sales, boosting Alfa Laval's sales growth to 16%. Important to note, is that the sales growth excluding the acquisition was 8%, which is in line with the historical CAGR. The underlying reason for that it was the 2011 figures that were affected, instead of the 2010 figures, is that the two companies first were first fully consolidated in 2011.

Figure 6.9. Alfa Laval's Net Sales Growth, Organic vs. Acquisition Breakdown, 2002-2012

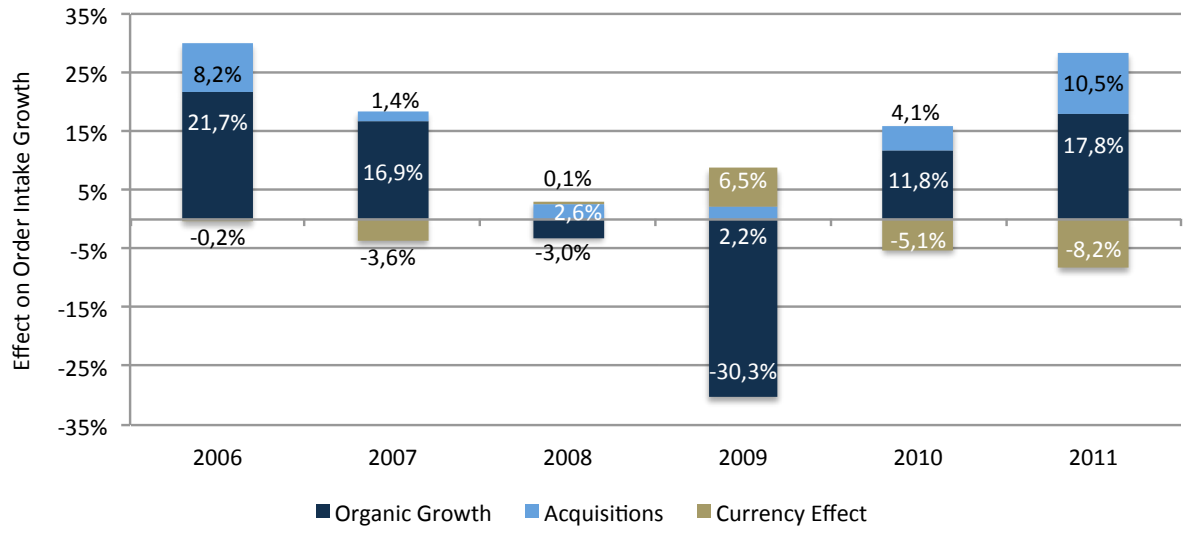


Source: Own illustration based on data from Alfa Laval (2012a; 2011a, 2010b, 2009, 2008a, 2007b).

The figure below illustrated the growth for order intake, broken down to organic growth, acquisitions, as well as currency effects, in the period of 2006-2011. Alfa Laval defines order intake as goods and services sold

during the year. Naturally, order intake is an indicator of the current demand for Alfa Laval's products and services.

Figure 6.10. Alfa Laval's Order Intake Growth, Organic vs. Acquisition Breakdown, 2006-2011



Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

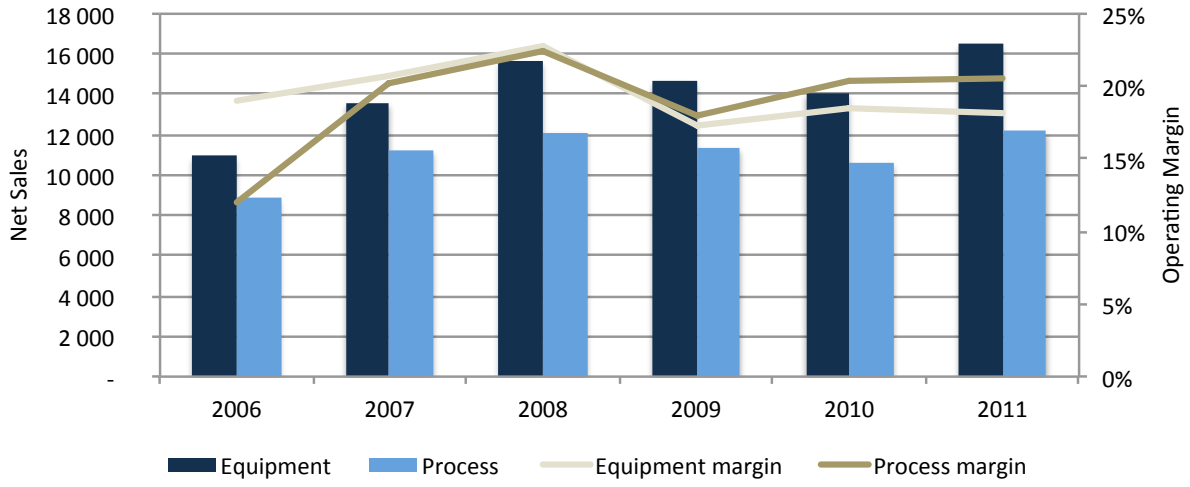
As can be seen, currency effects, as noted before, have some years had a rather significant impact on Alfa Laval. Last years' currency effects affected order intake growth with about -8%. An explaining factor of the two last years' higher effects is the strongly appreciated SEK in this period (Riksbank, 2012b). Another important aspect to consider is the hefty fluctuations in organic growth during the period. The periods of 2006-2007 and 2010-2011 were two periods of high organic growth, whilst 2009 showed a remarkable 30% negative organic growth. The major decrease was partly offset by positive currency effects. A third point worth noting is that Alfa Laval tend to make acquisitions in 'good' years, i.e. where also the organic growth is high.

6.4.2. Division and Segment Breakdown

Alfa Laval is, as mentioned in Chapter IV, divided into three divisions and nine segments including two Parts & Service (P&S) segments. The figure below illustrates the net sales split between the Equipment and Process divisions – the Operations division was excluded since it does not generate sales. From the illustration, it is evident that both divisions have been growing since 2006, with a rather similar development. Furthermore, it

can be seen that the Equipment division is larger, and has also passed Process in terms of operating margin. In the period of 2006-2011 Equipment's CAGR was 9%, with the same number for Process being 7%.

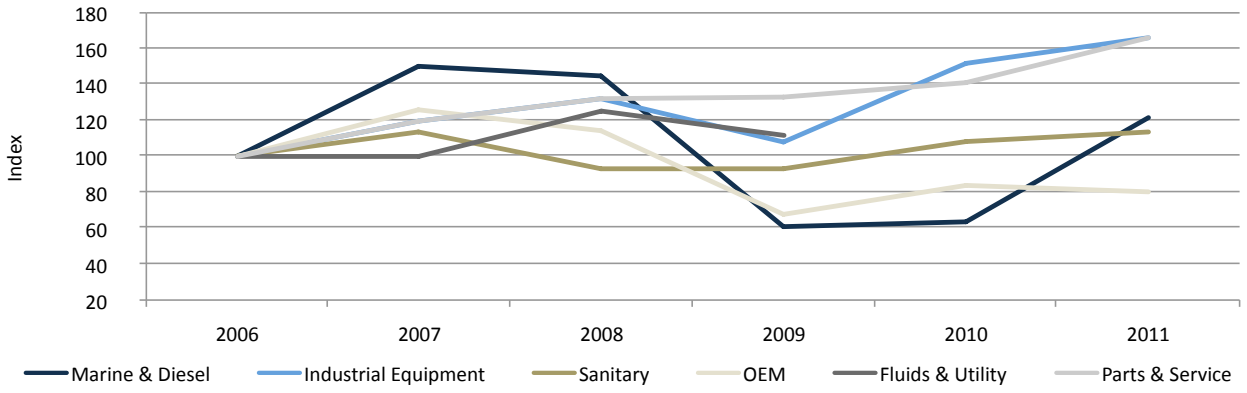
Figure 6.11. Alfa Laval's Net Sales and Operating Margin Growth, Division Breakdown, 2006-2011



Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

The two figures below shows the Equipment and Process division's sales in the period of 2006-2011, broken down into their respective segments. The graphs are indexed with 2006 as starting date.

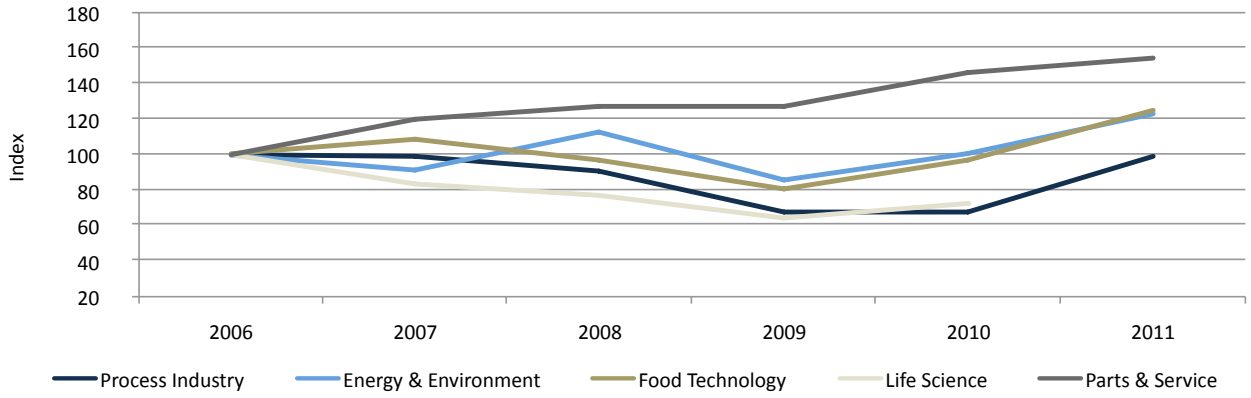
Figure 6.12 Equipment Division's Order Intake, Segment Breakdown, 2006-2011



Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

First and foremost, it is evident that OEM is the only segment that has declined since 2006. Secondly, it can be seen that the segments' development have been quite fluctuating, with the Marine & Diesel segment fluctuating the most. Namely, as mentioned in Chapter V, the Marine & Diesel segment is quite dependant of the overall economy and has consequently experience a volatile development in the last couple of years' financial turmoil. For example, between 2008 and 2009 the order intake of this segment fell with 60% and last year it rose with 92%.

Figure 6.13 Process Division's Order Intake, Segment Breakdown, 2006-2011



Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

From the figure above, it can be seen that the Process division's segments have developed slightly smoother than Equipment's. Furthermore, it is evident that all segments have had a positive development except for Process Industry. Finally, it can be seen that the Parts & Services segment is the segment that experienced the highest growth, while Energy & Environment and Food Technology have shown strong figures since 2009.

6.4.3. Geographic Breakdown

In Appendix 6.20. a table over geographic breakdown can be viewed, illustrating how large shares of Alfa Laval's order intake coming from each geographic region. From the table, it is evident that Alfa Laval's products are roughly spread evenly across Asia, Europe and America. Europe is the largest market, followed by Asia, North America and South America. Oceania represents the rest of the order intake. The important issues being stressed from this breakdown is Alfa Laval's global spread of customers and the change of proportion between the regions. Western and Eastern Europe's proportions have declined from 29 to 22% and

from 10 to 8% respectively since 2006. Conversely, Asia and South America have experienced the steepest increase, from 29 to 35% and from 4 to 7% respectively. North America and Nordic have stayed unchanged in the same period.

6.5. Cash Flow Analysis

This section analyses Alfa Laval's level and development of *Free Cash Flow to the Firm (FCFF)*. The cash flow analysis is built on the reformulated financial statement and is fundamental in the subsequent Discounted Cash Flow valuation. FCFF excludes non-operating cash flows related to the company's capital structure. It can be thought of as *"if the company held only core operating assets and financed business entirely with equity"*. (Koller et al., 2010) FCFF further determines a company's ability to repay debt and claims from equity holders. The table below distinguishes between Alfa Laval's FCFF and Gross Cash Flow (GCF). The latter is cash flow generated from operations, hence cash available for investments and dividends without having to raise additional capital. (Koller et al., 2012)

Table 6.2. Alfa Laval's Free Cash Flow to Firm and Gross Cash Flow to Firm, 2007-2011

(SEK Millions)	2007	2008	2009	2010	2011	Average
GCF	4102	5249	3750	3569	3799	4094
FCFF	959	1900	3814	3051	-3304	1284

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

Alfa Laval's GCF has, as illustrated above, been quite stable around SEK 4 billion. Last year's GCF was SEK 3.8 billion, which was the third year of increasing numbers. FCFF, on the other hand, has evidently developed in a more volatile matter. Chang in IC is included in this post. Consequently, last year's acquisition of Aalborg Industries had a significant impact on Alfa Laval's FCFF. Namely, it included SEK 3.6 billion of goodwill and SEK 1.4 billion of asset value. As a result, Alfa Laval's IC rose with almost SEK 7 billion and created a significant fall in FCFF. Net working capital and net investments were naturally also affected by this event.

6.5. Risk Analysis

The final subchapter contains an assessment of Alfa Laval's risk profile. There are many methods of analysing and estimating a company's risk. Firstly, it is an important distinction between operating and financing risk, and the impact they have on the ability to influence and control the risk. Naturally, a controllable risk is more

attractive for a company. (Petersen & Plenborg, 2012) Subsequently, Alfa Laval's operating and financing risk will be assessed respectively. In Chapter VIII, a more detailed explanation and calculation of Alfa Laval's risk (beta of equity) will be provided. (Petersen & Plenborg, 2012)

6.5.1 Operating Risk

Operating risk includes three components: external, strategic and operational risk. The two first components, external and strategic, have been treated in the Chapter V, hence will not be analysed here. However, they will naturally be included in the overall risk assessment of Alfa Laval. Penman (2003) has used insight from the profitability model to assess a company's operational risk, thus this section analyses PM risk and ATO risk. (Penman, 2003)

Net sales are naturally fluctuating and are, amongst others, dependant on current business climate and industry profile. Important to consider in this discussion is also how much the PM is fluctuating, which is measured by so-called PM risk. PM is naturally driven by expense risk, i.e. the risk of expense (sales costs, administration costs, labour costs etc.) increases in relation to sales increases. (Penman, 2003) As can be seen in Appendix 6.22., Alfa Laval's PM level has historically been stable relative to net sales fluctuations. This is also illustrated when looking at turnover of sales and administrative cost. These two ratios have both been on as stable level since 2007.

ATO risk is related to the elasticity of NOA to sales changes. If, for example, a company has substantial inflexible asset and the sales are falling, ATO will consequently fall. Hence, lower ATO causes lower ROIC. (Penman, 2003) Alfa Laval has, as mentioned above, experienced a decreasing level of ATO, which is indicating a rather inflexible nature of assets. Consequently, Alfa Laval could face the risk of lower levels of ATO with falling net sales. For detailed numbers see Appendix 6.23.

To conclude, Alfa Laval has a rather low risk level considering PM risk, but higher risk level when considering ATO risk.

6.5.2. Financial Risk

The financial risk, in this case, is the effect of debt or FLEV on the company's risk profile. This can be assessed in several ways. The report has chosen to evaluate FLEV, variations in NBC and the characteristics of the debt. (Petersen & Plenborg, 2012)

Alfa Laval's FLEV, as discussed above, was concluded to be relatively low, as well as to be decreasing with time. FLEV does not only lever up ROIC, but it also comes with a certain amount of risk and higher required rate of return from equity holders. Alfa Laval's NBC has fluctuated between 6.5 and 2.2% since 2007, which can be seen in table 6.1 above. This is significantly lower than GEA. Low NBC enhances the opportunity for favourable operating spread, and consequently has a positive effect on FLEV.

A company's debt can have several characteristics: e.g. fixed or variable interest rates, short or long durations, and differences in currencies and repayment. Consequently, a company can influence its financial risk by structuring the debt portfolio. How to optimally arrange its portfolio is dependant on factors such as interest rate climate, capital structure, business model, currency exposure etc. For example, a company can with a significant exposure to foreign currency, hedge the cash flow by taking on debt in the same currency. A company can also combine different debt maturities and interest rates to minimize financial risk. Alfa Laval, as a MNC, has currency exposure to several currencies. However the Swedish Krona, Danish Krona, Euro and US dollar are the most important. Alfa Laval is using natural risk coverage as well as derivative hedging. Interest-rate swaps are further used to protect from interest risk. To handle liquidity and refinancing risk Alfa Laval has entered several loan obligations with different credit institutions. The loans are taken in different currencies, have different maturities, and different interest-rate characteristics.

6.6. Chapter Conclusion

The chapter aimed at giving an analytical and comprehensive picture of how Alfa Laval is currently doing, compared to historical performance and compared to its closest competitor GEA. Alfa Laval's ROE, the starting point of profitability analysis, has since 2007 been significantly decreasing, however from a high level. Since 2009 Alfa Laval's ROE has been relatively stable, ending at 19% in 2011.

To find explanatory factors to the drop in ROE the analysis was divided in two parts, financial and operational. The financial activity section resulted in insight about FLEV, operating spread and NBC. Alfa

Laval has a favourable leverage in every comparable year, which is created by their positive relation in operating spread.

The breakdown of operational activities showed a similar pattern for drivers of ROIC as of ROE, i.e. decreasing from an initial high value to a stabilized moderate value. Important insights when analysing the breakdown were among others: the positive leverage premium and the falling ROOA. The reason for the latter is likely a result of large material increase in operating assets the last years. Alfa Laval managed to keep a positive leverage premium despite the falling ROOA, which levered up ROIC.

The last part of the profitability analysis showed how PM and ATO affected ROIC. PM was fluctuating relatively much, which mostly was due to changes in unusual items. Slightly higher sales and administration costs in 2010 and 2011 were also affecting PM negatively. Alfa Laval's ATO has decreased from 2.00 in 2006 to 1.54 in 2011. Further explanation could be found in individual ATO figures. Alfa Laval has invested heavily in, first and foremost, intangible assets (whereof most is goodwill) but also in tangible assets. Goodwill origins from the many, and substantial, acquisitions Alfa Laval has made. The lower ATO has a negative impact on ROIC and ROE consequently.

To conclude, Alfa Laval has developed from a period with remarkably high profitability to a more moderate level. Nevertheless, Alfa Laval's current profitability level is considered as high. The negative trend mainly comes from lower turnover of investment, which is a consequence of the substantial investments. Hence, Alfa Laval has not managed to remain as capital efficient as before the acquisitions.

The profitability analysis was followed by analysis of how net sales and order intake have developed, and how it is divided between regions and division. Alfa Laval's net sales have almost doubled since 2002. As mention before, this is partly a result of substantial acquisitions but also due to organic growth. The total order intake has also been growing, however at a slower pace. It was also evident that the organic order intake growth has been highly volatile. Furthermore, currency effects have affected the total order intake, especially during the last two years due to a strongly appreciated SEK.

The breakdown of order intake into segments visualized that all segments, except OEM, have grown since 2006. Marine & Diesel showed high fluctuations over the years, which can be argued is due to the strong

correlation to the overall business climate. Generally, it was also seen that the segments in the Process division have been less volatile than the ones in the Equipment division.

As with other financial measures, FCFF was also strongly affected by Alfa Laval's acquisition of Aalborg, e.g. Alfa Laval reported a negative FCFF of SEK 3.3 billion last year. FCFF has other years been between SEK 1 and SEK 3 billion.

The final part of the chapter analysed Alfa Laval's risk profile. Alfa Laval' operating risk mainly consists of ATO risk, and to a lower extent of PM risk. The ATO risk is partly a consequence of the steeply rising goodwill. Alfa Laval's financial risk has been managed by using both natural hedging and derivative hedging. FCFF has, despite this, been strongly affected by currency changes. However, the long-term risk exposure is regarded as being well managed.

7. Budget and Forecast

The objective of the chapter is to estimate Alfa Laval's future financial performance, to be used in the valuation in Chapter VIII. The estimations are based on the findings in Chapter V and VI, resulting in what the report believes is the most likely future outlook. A Sensitivity Analysis of these numbers has been undertaken in Chapter VIII.

The chapter is divided into four subchapters: *Determination of Forecast Period*, *Income Statement Forecast*, *Balance Sheet Forecast* and *Return On Invested Capital (ROIC) and Free Cash Flow to Firm (FCFF) Forecast*. Together, these chapters form a sound and reliable base for the final valuation.

7.1. Determination of Forecast Period

Prior to the forecasting of Income Statement, Balance Sheet, ROIC and FCFF it is important to determine the forecast horizon. It is usually recommended to apply a forecasting period of about ten-fifteen years, since a shorter forecast period often result in undervaluation of the firm and a longer period is difficult to forecast reliably (Koller et al., 2010).

The chosen forecast horizon for the valuation of Alfa Laval was set to ten years. Hereby, the report regards the company as being able to retain their competitiveness in at least ten more years. Naturally, a long forecast period implies difficulties in terms of projecting individual line items into the future. As a result, the report, in accordance with Koller et al. (2010), uses a simplified model that splits the forecast period into two main periods with different detail levels. The first period comprises the first five years, i.e. 2012-2016, and is highly detailed. The second period comprises the subsequent five years, i.e. 2017-2021, and is more general – focusing on chosen key variables. Finally, there is an additional period, corresponding to the term *steady state*, which is a period simplifying at what constant rate Alfa Laval will develop after the ten-year period. Since it is impossible to forecast this period's growth-rate adequately, the rate was set according to Sweden's long-term inflation goal of 2% (Riksbank, 2012a). The reasoning for this assumption is that Sweden is the company's home base, in combination with that the company's reporting is in SEK.

7.2. Income Statement Forecast

For the forecasting of the Income Statement the report has estimated six parameters: *Net Sales Forecast*, *Cost Forecast*, *Unusual Items Forecast*, *Tax Rate Forecast* and *Net Operating Profit After Tax Forecast*. Respective parameters will be discussed in the following subchapters. The forecasted Income Statement can be found in Appendix 7.1 and 7.2.

7.2.1. Net Sales Forecast

The first post to estimate in the Income Statement Forecast was the Net sales expectations. This post is of great influence for the final valuation, especially since the majority of the items on the Income Statement are either directly or indirectly affected by the size of these numbers. As a result, extra emphasis was given to assure accurate forecasts.

In Chapter IV, V and VI it became evident that Alfa Laval yearly undertakes several acquisitions. However, the forecasting does not account for potential future acquisitions. This decision was primarily based on two reasons; it is impossible to estimate the size of future acquisitions and empirical evidence show that acquisitions rarely create value for the acquirer. As a result, it was regarded to be more appropriate to exclusively forecast the company's organic growth, since adding zero-NPVs (=Net Present Values) from acquisitions would not affect Alfa Laval's value, neither positively nor negatively. (Koller et al., 2010) An alternative approach would be to assess what future proportion of the revenue growth that would be provided by acquisitions, respectively organic growth. Simultaneously, an estimation of future goodwill would also have to be undertaken, most appropriately based on historical goodwill-to-acquired revenues ratios. Since the second approach was regarded to add additional uncertainty to the forecasting and valuation process, without attaining a more fair value, the first approach was considered more adequate.

As could be seen in Chapter IV, the company splits its operations on three divisions. In Chapter VI, it became clear that the development in respective division historically has varied. Furthermore, Chapter V showed that the future outlook for each division also differed. To enable a fair value of the company, a divisional split – excluding the Operations Division since it does not generate sales – of the net sales forecasts was therefore regarded as being most appropriate. In the table below, the forecasted net sales growth can be seen, in combination with the five-year historical development.

Table 7.1. Historical and Forecasted Net Sales Growth, Split on Divisions, 2007-∞

	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E-2021E	Terminal Period
Equipment	24,3%	15,2%	-6,3%	-4,1%	17,2%	5,0%	7,0%	8,0%	7,0%	5,0%	2,4%	2,0%
Process	27,3%	8,0%	-6,5%	-6,3%	14,4%	5,0%	6,0%	7,0%	6,0%	5,0%	2,4%	2,0%
Other	-46,2%	138,1%	-52,0%	-4,2%	-91,3%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Net Sales	***25,5%***	***12,1%***	***-6,5%***	***-5,1%***	***15,9%***	***5,0%***	***6,6%***	***7,6%***	***6,6%***	***5,0%***	***2,4%***	***2,0%***

Source: Own illustration based on the forecasted statements.

As can be seen, the Equipment division experienced an arithmetic average growth rate of 9% in the period of 2007-2011, compared to the Process division's 7%. In 2012, Equipment's net sales are projected to grow with 5%. In the two subsequent years, the post is expected to grow at a higher rate – mainly driven by an expected recovery in the global economy. This will be followed by a gradually slower growth before stabilizing at 2% in 2019 and thereafter. The lower growth rate in the long-run is mainly driven by intensified competition. Generally, it is evident that the projections for the Equipment division are relatively high. This is primarily a result of Alfa Laval's strong market positioning, especially in the important marine segment, which, as assessed in Chapter V, have good growth potential. In addition, their increased exposure to fast growing economies, is estimated to boost the sales. Namely, the positive outlook for Asia and South America is estimated to outweigh the uncertainty characterizing primarily Europe. Finally, the global focus on more energy and cost efficient processes is estimated to increase Alfa Laval's sales of technologies enabling this.

The net sales projections for 2012 in the process division have been set to a 5% level. In the two subsequent years the division is projected to experience a steady net sales growth curve, slightly lower than Equipment. The increase is mainly driven by the expected global economic recovery in combination with an expected investment eager, primarily in the Energy & Environment segment – e.g. due to stricter environmental requirements and legislations. Furthermore, the positive outlook for IGCC-CCS plants, as mentioned in Chapter V, is expected to be beneficial for the Energy & Environment segment's net sales. Furthermore, the social changes mentioned in the same chapter is expected to positively influence the net sales, e.g. in the Food Technology segment. The net sales estimations are thereafter lowered, primarily driven by expected intensified competition and maturation of some of the fast growing economies, before reaching 2% in 2019 and thereafter. The generally high growth rate projections are mainly a result of Alfa Laval's competitiveness in these segments in combination with expected global economic recovery and exposure to fast-growing

economies. Both divisions are also expected to experience an increase in respective division's Parts & Service.

Other sales have been set to 0% for the whole forecasting period. This is primarily due to that this post is not reflecting Alfa Laval's core sales operations, making it uncertain to estimate it adequately. Further strengthening this argument is the historical volatility in this post, excluding estimations based on historical development.

7.2.2. Cost Forecast

Instead of dividing the cost forecast on divisions, it has been assessed that the most appropriate approach is to estimate the cost of sales in terms of cost type. Firstly, this approach is more relevant for Alfa Laval, stemming from their high dependency on the development in different type of costs. Hereunder, especially raw material prices – as assessed in the Chapter V and VI. Secondly, a divisional cost split would not provide the report with as much depth, since the divisional cost development historically has been highly correlated. In the table below, the forecasted cost of sales (as percentage of net sales) for the five most relevant cost posts[24] can be viewed, in combination with the five-year historical numbers.

Table 7.2. Historical and Forecasted Cost of Net Sales, Split on Cost Type, 2007-∞

	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E-2021E	Terminal Period
Cost of Goods Sold	-59,8%	-57,7%	-60,9%	-58,3%	-59,8%	-59,0%	-59,0%	-59,0%	-60,0%	-60,0%	-61,0%	-61,0%
Sales Costs	-11,0%	-11,3%	-12,0%	-12,6%	-11,8%	-12,0%	-12,0%	-12,0%	-12,0%	-12,0%	-12,0%	-12,0%
Administration Costs	-4,5%	-4,2%	-4,1%	-4,7%	-5,3%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%
R&D Costs	-2,4%	-2,6%	-2,5%	-2,5%	-2,2%	-2,5%	-2,5%	-2,5%	-2,5%	-2,5%	-2,5%	-2,5%
Depreciation and Amortization	-3,0%	-2,4%	-2,0%	-2,8%	-3,2%	-3,0%	-3,0%	-3,0%	-3,0%	-3,0%	-3,0%	-3,0%

Source: Own illustration based on the forecasted statements.

The cost of goods sold has been projected to stay constant at 59% of net sales until 2014 and thereafter estimated to increase to 60% in 2015 and 2016. The lower cost of sales in the first three years is mainly driven by the findings in Chapter V, where it was assessed that raw material prices, especially steel, are currently low and will likely stay so in the close future. The same chapter points at significant risk of future cost increases.

[24] A forecast of all costs can be viewed in Appendix 7.1 and 7.2.

As a result, the cost level is gradually estimated to increase, first to 60% and then to 61% in 2017 and thereafter.

The estimations for the sales cost have been projected to be stable at 12%, since no indications of future changes in this post have been determined. The administration costs are also expected to stay stable at the 2011 level, i.e. 5%.

The R&D costs have been expected to stay constant at 2.5% of net sales in the whole forecasting period. As mentioned in Chapter V, Alfa Laval has historically had a strong R&D focus, which has been assumed to continue in the future.

The forecasted depreciation and amortization percentage is 3%, slightly below the unusually high 2011 number. Consequently, 3% has been regarded as better approximation for the future than using last year's percentage, which normally is common praxis (Koller et al., 2010)

7.2.3. Unusual Items Forecast

Unusual items are line items, i.e. incomes and expenses, reported separately on an income statement due to their irregular nature. Such items are generally categorized into on of the following three types: *extraordinary items*, *discontinued operations* and *adjustments due to a change in accounting methodology*. Generally, items reported under this post are not likely to occur again in the future. (Investopedia, 2012a) Consequently, the expected value of this post has been set to zero in the forecast period.

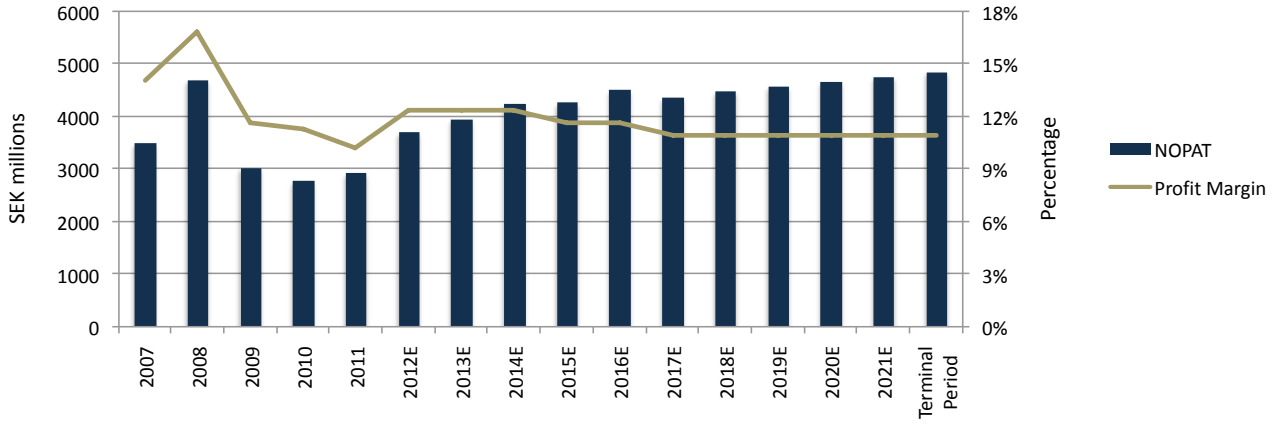
7.2.4. Tax Rate Forecast

For estimations of the future tax rate, the report has used Alfa Laval's last five years' arithmetic average effective tax rate of 29.04%. The usage of five-year average is a consequence of the yearly fluctuations in this post, making the average a better indicator of the future effective tax rate. An alternative to this approach would have been to use the Swedish statutory tax rate of 26.3%. However, since Alfa Laval has the majority of their sales abroad, the effective tax rate was regarded to be more adequate for attaining a reliable approximation.

7.2.5. Net Operating Profit After Tax Forecast

Once the other posts in the Income Statement were forecasted, the NOPAT-post and the profit margin (=NOPAT / Net sales) were determined. As mentioned in Chapter VI, NOPAT reflects the earnings of the company, without considering debt. In the figure below, the forecasted NOPAT and profit margin can be seen, in combination with the five-year historical numbers.

Figure 7.1. Net Operating Profit After Tax and Profit Margin, 2007-∞



Source: Own illustration based on the forecasted statements.

The figure illustrates that the company will experience a steady increase in NOPAT until 2016, mainly driven by the strong growth projections. This development is broken in 2017, and thereafter continues to grow in a slower pace. The slower growth pace is mainly a result of the expected intensified competition. The lower projected growth is also reflected in the profit margin estimations, which fall by almost a percentage point to slightly below 11%. Compared to many industries, a profit margin of 11% can be regarded as being relatively high. However, as mentioned in Chapter V, the industry has historically been characterized by high profitability and it can be argued that this to a large extent will continue in the future.

7.3. Balance Sheet Forecast

The objective of the Balance Sheet Forecast is to estimate Alfa Laval's future development in *Invested Capital (IC)*. This is undertaken by computing the difference between the estimated *Net Working Capital (NWC)* and *Net Non-Current Operating Assets (NNCOA)*, which are discussed respectively in the two subsequent chapters. The forecasted Balance Sheet can be found in Appendix 7.3 and 7.4.

7.3.1. Net Working Capital Forecast

Alfa Laval's NWC has mainly been driven by *Inventories*, *Accounts Receivable* and *Accounts Payable*. Historically, these numbers have had a stable development relative to net sales. As a result, the report has projected the future numbers in relation to net sales, since this correlation is assumed to continue. In the table below, the forecasted NWC can be seen, in combination with the five-year historical numbers.

Table 7.3. Net Working Capital Forecast, 2007-∞

	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E-2021E	Terminal Period
NWC	0,13	0,15	0,13	0,11	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12

Source: Own illustration based on the forecasted statements.

Since the numbers historically have been stable, the percentage has been set to 12% in the forecasted period, the same as the 2011 level. This number is both relevant compared to the historical arithmetic average and the future expectations. Furthermore, it is in accordance with theory (Koller et al., 2010).

7.3.2. Net Non-Current Operating Assets Forecast

This post has historically mainly been driven by *Tangible Assets* and *Goodwill*. Generally, the posts under *Operating Non-Current Assets* have increased more than the posts *Operating Non-Current Liabilities* in relationship to net sales, resulting in an increase of *NNCOA* from 37% in 2007 to 53% in 2012. As with the NWC forecast, a future projection based on each post's relation to net sales was regarded adequate. However, in accordance with the decision to exclude potential future acquisitions, goodwill was set to the 2011 level for the whole forecasting period (Koller et al., 2010).

In the table below, the forecasted NNCOA can be seen, in combination with the five-year historical numbers.

Table 7.4. Net Non-Current Operating Assets Forecast, 2007-∞

	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E-2021E	Terminal Period
NNCOA	0,37	0,39	0,48	0,53	0,53	0,58	0,56	0,54	0,52	0,51	0,53	0,52

Source: Own illustration based on the forecasted statements.

From the table, it is evident that NNCOA relative to net sales is projected to increase in 2012, to thereafter fall until 2017 and thereafter gradually fall again. The change in this post is mainly driven by goodwill and to lesser extent tangible assets, capitalized operating leases and other intangible assets. Namely, since goodwill was set to the 2011 level, its relation to net sales gradually falls throughout the forecasting period, influencing the ratio between NNCOA and net sales negatively. The three other posts were set to the 2011 level in the Detailed forecast, and thereafter increased with one percentage point each for the remaining forecast. The increase stems from the estimation that Alfa Laval will increase their investment level in these posts to be able to attain the long-term growth forecast.

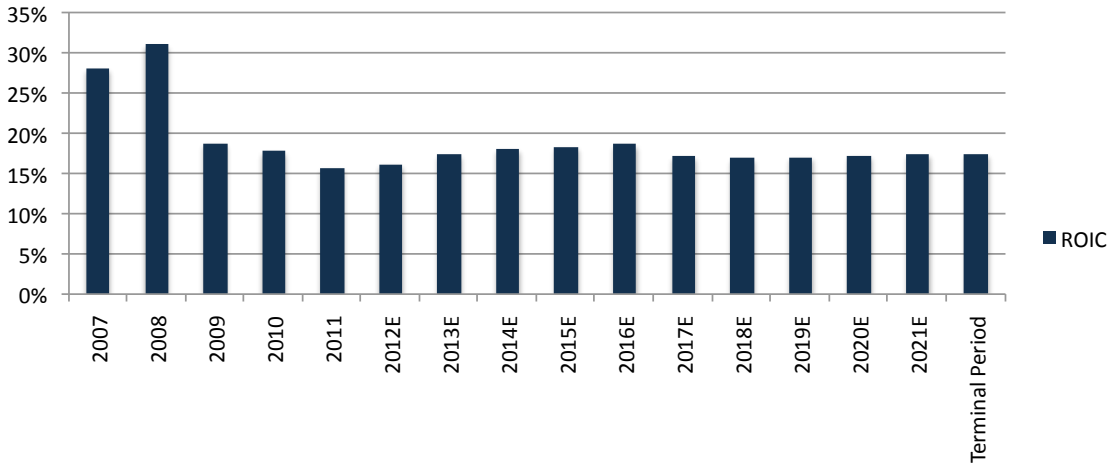
7.4. Return On Invested Capital and Free Cash Flow Forecast

The final part of Budget and Forecast was an estimation of *ROIC* and *FCFF*, which are discussed in the following two subchapters. The forecasted ROIC and FCFF can be seen in Appendix 7.5 and 7.6.

7.4.1. Return On Invested Capital Forecast

The ROIC forecast was derived by dividing NOPAT with the average IC. In the figure below, the forecast ROIC can be seen, in combination with the five-year historical numbers.

Figure 7.2. Return On Invested Capital Forecast, 2007-∞



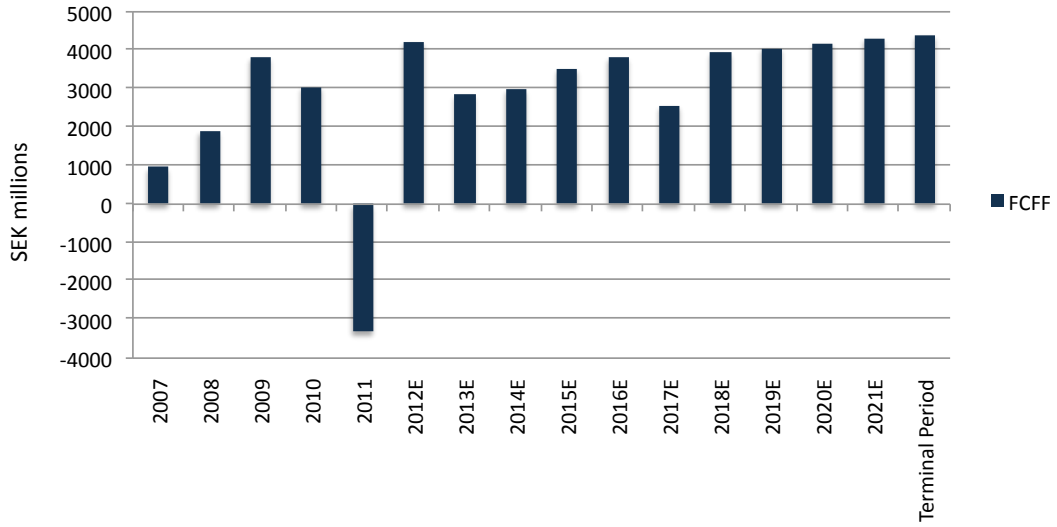
Source: Own illustration based on the forecasted statements.

The ROIC was projected to slightly increase and thereafter stabilize at lower level due to a lower profit margin in 2017 and onwards. As can be seen, the estimated ROIC values are in line with the historical numbers in the period of 2009-2011.

7.4.2. Free Cash Flow to Firm Forecast

The estimations of NOPAT, Depreciation & Amortization, Net Working Capital and Net Investments enabled the estimation of the future FCFF. In the figure below, the forecasted FCFF can be seen, in combination with the five-year historical numbers.

Figure 7.3. Free Cash Flow to Firm Forecast, 2007-∞



Source: Own illustration based on the forecasted statements.

The FCFF forecast reflects the formerly mentioned ROIC and the sales growth. As can be seen, the FCFF post is projected to steadily increase in the forecast period, except for a dip in 2017, which primarily was driven by an increase in net investments. Percentage wise of net sales, the forecasted FCFF is in line with the historical numbers.

7.5. Chapter Conclusion

Firstly, the forecast period was set to ten years, to enable a fair valuation process. The period was thereafter split into two parts with different level of detail: Detailed forecast and Simplified forecast. In addition, there was one period reflecting the value after the ten-year period, the so-called Terminal Period.

Secondly, the income statement was projected, being based on Alfa Laval's future organic growth. The statement was primarily driven by the net sales forecast, projected on a divisional basis, and the cost forecast, which was mainly affected by four cost categories. Generally, the expected positive development in net sales, in combination with a rather stable cost development and a stable tax rate, resulted in a growing NOPAT over time and a Profit margin of 11-12%. The projected net sales growth was mainly based on Alfa Laval's strong market position, an expected global economic recovery and a positive outlook for several segments.

Thirdly, the balance sheet was forecasted, with the objective of determining Alfa Laval's future NWC and NNCOA. NWC was projected to stabilize at 12% of net sales in the forecasted period. NNCOA on the other hand was projected to rise in 2012 to thereafter fall gradually until 2016. Subsequently, it was projected to rise in 2017 and thereafter gradually fall again. The change in this post's relation to net sales was mainly driven by that goodwill was kept constant at the 2011 level, which in turn was a prerequisite when exclusively forecasting the organic growth. The rise of NNCOA in 2017 stems from a higher level of tangible assets, capitalized operating leases and other intangible assets in 2017 and onwards. Naturally, the development in IC (=NWC - NNCOA) follows NNCOA's development since NWC was kept constant.

Finally, Alfa Laval's future ROIC and FCFF were determined from the formerly computed numbers. The ROIC was estimated to gradually increase until 2016, to thereafter fall in 2017 and stabilize at 17%. The FCFF post was estimated to gradually increase, except for a dip in 2017 – primarily due to an increase in net investments.

8. Valuation

The aim of the three previous chapters was to enable a sound analysis of Alfa Laval, to be used in the final valuation. The objective of this chapter is to combine these findings into an estimate of Alfa Laval's fair value as of the 31st of March 2012.

The chapter begins with an introduction of the models used in the valuation process, followed by an explanation and calculation[25] of the parameters used in these models. Thereafter, an estimation of Alfa Laval's fair value will be undertaken by application of these models. The chapter ends with a sensitivity analysis and a multiples comparison towards the peer group.

8.1. Valuation Models

For company valuations, there are several different applicable models and approaches. It has been decided to make use of two models: the *Discounted Cash Flow (DCF) model* and the *Economic Value Added (EVA) model*. These models are two of the most well respected and commonly used ones (Koller et al., 2010). DCF and EVA should compute the exact same value, which however requires accurate data input, time periods, and that it is applied in the correct way. In the subsequent two subchapters, the models are briefly introduced, including an overview of respective model's advantages and disadvantages.

8.1.1. Discounted Cash Flow

The objective of the Discounted Case Flow model is to calculate a company's Enterprise Value (EV), by discounting future expected Free Cash Flows to Firm (FCFF), i.e. cash available for equity holders, debt holders and other non-equity investors, with the Weighted Average Cost of Capital (WACC). The following equation provides an overview of how the model is applied in practice:

$$EV_o = \sum_{t=1}^{n} \frac{FCFF_t}{(1+WACC)^n} + \frac{FCFF_{n+1}}{(WACC - g)^n} \times \frac{1}{(1+WACC)^n}$$

[25] The calculations have been undertaken by original values. The numbers presented in the calculations have been rounded to facilitate for the reader.

where n is number of periods with extraordinary growth rates, t is time period and *g* symbolizes perpetuate growth (Petersen & Plenborg, 2012). As can be seen, the right hand part of the equation values the so-called horizon value. Furthermore, it is evident that the WACC has a significant impact on the EV – a more detailed discussion of WACC follows in *8.3. Weighted Average Cost of Capital*. Subtracting NFO form EV derives the equity value, which thereafter is divided with the total number of outstanding shares to get the value equity value per share.

One of the most important advantages with the DCF model, in addition to that it is easy and straightforward to use, is that it uses the WACC as the discount factor (Penman, 2010; Brealey, Myers & Marcus, 2012). Namely, by the use of WACC the DCF model accounts for the fact that equity and debt have different required returns. In addition, the WACC is adjusted according to risk factors. (Brealey et al., 2012) Another advantage with the DCF model is that it uses FCFF instead of accounting-based earnings, hereby excluding firm specific accounting biases. In addition, the DCF model derives the FCFF estimations from projected income statements and balance sheets, which facilitates the otherwise difficult forecast process. (Brealey et al., 2012)

However, the DCF model also has important disadvantages to consider. First of all, the model is highly dependent on the numbers inserted in the equation, hereunder both the FCFF estimations as well as the WACC, which in turn often are estimations based on assumptions. As a result, incorrect assumptions and estimations might bias the valuation and hereby the value of the firm. Another disadvantage is that a significant share of the calculation derives from the terminal value, naturally implying a bias-risk if these estimations are incorrect – this risk is strengthen by the difficulty of predicting long-term values. Finally, the model has limitations if the estimated FCFF-figures are negative, since this makes it impossible to calculate the EV (Penman, 2010).

8.1.2. Economic Value Added

The Economic Value Added (EVA) model, also called Residual Income, was developed by Stern Stewart & Co.. As with the DCF model, the EVA model calculates the EV of the firm, to later be divided by the total number of outstanding shares. According to the EVA model, the company's value is determined by the initial investment, called *Invested Capital (IC)* in this report, plus the present value of all future EVAs, which in turn are influenced by *NOPAT*, *WACC* and the terminal value. A company's EVA is the after tax operating

income, minus a charge for the cost of capital employed. (Brealey et al., 2012) The following equation provides an overview of how the model is used in practice (Petersen & Plenborg, 2012):

$$EV_o = IC_0 + \sum_{t=1}^{n} \frac{EVA_t}{(1+WACC)^n} + \frac{EVA_{n+1}}{(WACC - g)^n} \times \frac{1}{(1+WACC)^n}$$

where

$$EVA_t = NOPAT_t - WACC \times IC_{t-1}$$

As with the DCF-model, the company value per share is thereafter derived by dividing the Equity Value (EV – NFO) with the total number of outstanding shares.

The EVA model shares many of the advantages and disadvantages of the DCF model. Among the advantages it can be mentioned that EVA also relates earnings to respective risk factor. At the same time, the model also has the shortcoming of estimation difficulties. However, the EVA model has an additional drawback, namely it is influenced by a company's accounting principles. Hereby, the comparison possibilities of EVAs based on distinct accounting policies is limited.

8.2. Valuation Assumptions

This report is based on a number of assumptions, which are important to state prior to the valuation process. Firstly, the report regards Alfa Laval as a so-called going concern, implying that the company's business is regarded as continuing into perpetuity. This assumptions is crucial for being able to calculate the terminal value in the approach we regard being most appropriate.

Thirdly, since the date of the valuation is set to the 31st of March 2012, the discount factor has been adjusted accordingly. Namely, the discount factor corresponds to 9/12 for the first year, and 1+9/12 the second year and so forth. Furthermore, in accordance with Koller et al. (2010) the discount factor is adjusted upward by half a year. This stems from the assumption that cash flows are not regarded as generated as a lump sum in the end of the year, but instead continuously during the year. Discounting in full-year increments would therefore understate the adequate discount factor. (Koller et al., 2010)

8.3. Weighted Average Cost of Capital

In the valuation process, it is of crucial importance to use a correct rate of return. The main strength with the WACC model is that it accounts for the differences in required rate of return between equity and debt. Namely, the WACC is a weighted average of the total required rate of return in a company, i.e. the cost of capital. In other words, the WACC is the minimum return a company needs to earn to satisfy its investors. The following equation is used for calculation of the WACC:

$$WACC = \frac{E}{EV} \times r_e + \frac{NFO}{EV} \times r_d \times (1 - t)$$

where E is Equity, EV is Enterprise Value (sum of E and NFO), NFO is Net Financial Obligations, r_e is Required Rate of Return on Equity, r_d is Cost of Debt and t is Taxes. (Petersen & Plenborg, 2012) It is evident that the size of the WACC is dependent of the *capital structure*, r_e and the r_d *x(1-t)*.

As mentioned in Chapter VI, this report has chosen to capitalize the operating leases to enable a placement of them as assets on the balance sheet, and naturally an adjustment of the long-term debt accordingly. Consequently, the report uses an adjusted debt-to-enterprise value, including the capitalized operating leases. As a result, the valuation will make use of the so-called *adjusted WACC-formula*, which accounts for this change:

$$WACC = \frac{E}{AEV} \times r_e + \frac{NFO}{AEV} \times r_d \times (1 - t) + \frac{COL}{AEV} \times r_{COL} \times (1 - t)$$

where AEV is Adjusted Enterprise Value (sum of E, NFO and COL), COL is Capitalized Operating Leases and r_{COL} is Cost of Capitalized Operating Leases. (Koller et al., 2010) As can be seen, two additional factors will influence the WACC.

In the following five subchapters, an investigation of Alfa Laval's WACC parameters will be undertaken, followed by a calculation of the same.

8.3.1. Capital Asset Pricing Model

To derive the WACC, as stated above, an estimation of the investors' r_e is needed. One of the most used models for this is the so-called *Capital Asset Pricing Model (CAPM)*. The following equation is used for calculating CAPM:

$$r_e = r_f + \beta_e \times (r_m - r_f)$$

where r_f is Risk-free Interest Rate, $ß_e$ is Systematic Risk on Equity (Levered Beta), r_m is Return on Market Portfolio. (Petersen & Plenborg, 2012) The following four sections contains a discussion and estimation of each parameter as well as a final calculation of Alfa Laval's CAPM.

Risk-Free Rate

The risk-free rate express how much an investor can earn without incurring any risk and is usually estimated by reviewing government bonds. Ideally, in a DCF-analysis each future cash flow should be discounted using a government bond with a similar duration. However, due to several difficulties with this approach, it is common practice to use a ten-year government bond. (Koller et al., 2010) Since Alfa Laval is based in Sweden and has their cash flows in SEK, usage of Swedish government bonds for this purpose is regarded as being most adequate. The Swedish ten-year government bond as of the 31st of March 2012 was *1.98%*, and has as a result been used (Riksbank, 2012b).

Beta

The *beta (ß)* is an indicator of the relative risk of a company in relation to the market, i.e. it measures how much a company's stock changes compared to the market – the market in this case is the OMXS30. A high beta implies a high level of systematic risk and as a result large expected fluctuations in relation to the market. (Petersen & Plenborg, 2012) There are various approaches to the calculation of beta. This report has chosen to analyse Alfa Laval's and OMXS30' monthly return, in favour of daily or weekly return, since this approach limits the risk of systematic biases (Koller et al.).

Once the monthly returns have been calculated, they can be used to find beta in two different ways. One approach is to divide the *Covariance Between the Stock and the Market (Cov(R_i,R_M))* with the *Market Variance* σ_M^2 , by the use of the following formula: (Bodie, Kane & Marcus, 2009)

$$\beta_i = \frac{Cov(R_i, R_M)}{\sigma_M^2}$$

The other approach calculates the beta by the use of regression analysis of the company's and the market index's returns. The table below presents calculations of both approaches during three different time periods, 1 year, 5 years and 10[26] years:

Table 8.1. Historical Beta Estimations

	1 Year	5 Years	10 Years
Covariance/Variance	0,64	**1,04**	0,79
Regression	0,7	1,06	0,8
Number of Observations	12	60	119

Source: Own illustration based on calculations from data acquired from Nasdaq OMX (2012b) and Nasdaq OMX (2012c).

As can be seen, the results from the two methods results slightly differ. This results from that regression analysis assumes that this is the entire population while the first approach acknowledges that it is only a sample. Consequently, we make use of the first method. In accordance with Koller et al. (2010), the 5-year beta of *1.04* estimated from approach one will be used – namely, this time period provides the most reliable estimation. This decision is further strengthen by that the number is in line with other reliable beta estimations of Alfa Laval, e.g. Reuters (1.03) and Financial Times (1.03) (Reuters (2012a); Financial Times (2012b)).

Market Risk Premium

Market risk premium (MRP) is derived from the difference between market returns and returns from risk-free investments. Calculation of the MRP can be done by using different models, but is often both complicated and uncertain. The most complicated part in the calculation is the estimations of the market return – investors have two options, either basing these estimations on historical returns or future expectations. (Petersen & Plenborg, 2012) The table below lists MRP estimations from five well-renowned sources.

[26] The 10-year period is more specifically 9 years and 11 months, since it calculated from the date of the listing on the 17th of May 2002.

Table 8.2. Market Premium Estimations Sweden

Source	Period	Premium
Dimson, March & Staunton	1900-2002	4,8%
Sörensson	2010	4,5%
Aguirreamalloa, Corres & Fernández	2011	5,9%
Damodaran	2012	6,0%
PWC	2012	5,8%

Source: Own illustration based on data acquired from IESE Business School (Agguirreamalloa, Corres & Fernández (2011)), London Business School (Dimson, March & Staunton (2003)), Nasdaq OMXS (Sörensson (2011)), NYU Stern (Damodaran (2012)) & PWC (2012)

As can be seen, the Swedish MRP has historically been slightly below 5%. More recent estimations suggest a MRP between 5.8-6.0%. For the subsequent calculations and analysis it has been decided to use a market premium of *5.9%* – the arithmetic mean of the three latest figures. Namely, these figures are regarded as being most adequate for a fair estimation of the future MRP. These sources' estimations are furthermore considered to be highly reliable.

Calculation of Cost of Capital with CAPM
By making use of the data gathered in the three sections above, the following calculation can be undertaken:

$$r_e = r_f + \beta_e \times (r_m - r_f) = 0.0198 + 1.04 \times 0.059 = 0.08116 \approx 0.0812$$

8.3.2. After Tax Cost of Debt

For the calculation of the WACC, as stated above, an estimation of Alfa Laval's $r_d \times (1-t)$ is needed. First out is to estimate the cost of debt, which can be done by using the yield to maturity of the company's long-term option-free bonds. A requisite for using this method is that the company is investment-graded, which Alfa Laval is – they hold a BBB+ rating (Koller et al., 2010; Reuters, 2012b) Since the company's rating is above BBB, the risk of default is very low, enabling the use of yield to maturity as a suitable proxy (Koller et al., 2010).

Since the yield to maturity ideally shall be calculated on long-term debt, because short-term bonds do not match the duration of a company's free cash flow, we have exclusively included Alfa Laval's debt that have a

maturity of at least ten years (Koller et al., 2010). Currently, Alfa Laval has two debts fulfilling this requirement. One of the loans, SEK 893.5 million to the Swedish Export Credit, was entered in 2011 and matures in 2021. The other loan, SEK 758 million for a private placement in the U.S., was entered in 2006 and matures in 2016. The Swedish Export Credit loan accrue interest at a floating rate based on IBOR plus a mark up of 95 basis point and the private placement loan has a fixed interest of 5.75%. (Alfa Laval, 2012a)

To be able to estimate a fair value of Alfa Laval's cost of debt, we started by estimating the future cost of the Swedish Export Credit loan. Namely, considering the current low rate in Sweden and the expected increase in the same, usage of the current rate would be misleading. As a result, adding the 95 basis points to the expected yearly 10-year bond rate in the period of 2012-2015 derived the cost of this debt. The annual rates were thereafter divided into an average to be used in the estimation process.

Multiplying the expected cost of debt for the Swedish Export Credit Loan and the private placement loan's fixed rate with current weight between the two loans thereafter derived the final estimation of Alfa Laval's cost of debt. Finally, the group's last five-year average effective tax-rate of 29.04%, as calculated in Chapter VII, was subtracted from this number to reach an estimation of Alfa Laval's $r_D \times (t-1)$ .The reasoning for using the five-year average effective tax-rate is the same as mentioned in Chapter VII. The following table presents the results:

Table 8.3. Estimation of Alfa Laval's After Tax Cost of Debt

	Interest	*Weight*	*Cost of Debt*
Swedish Export Credit	3,88%	54,10%	2,10%
Private Placement	5,75%	45,90%	2,64%
Total Cost of Debt			4,74%
Total Cost of Debt (After-Tax)			***3,36%***

Source: Own illustration based on data acquired from Alfa Laval (2012a) & Riksbank (2012c).

8.3.3. After Tax Cost of Capitalized Operating Leases

Next parameter in the calculation process of Alfa Laval's WACC, as mentioned above, is the company's $r_{COL} \times (1-t)$. As mentioned in Chapter VI the cost of operating leases in the period of 2006-2011 was estimated as an arithmetic average of indexed UK AA-rated 10-year corporate bonds, indexed US Aaa-rated

10-year corporate bonds and indexed US Baa-rated corporate bonds. Naturally, these sources were also used for the estimation of the cost of operating leases on the 31st of March 2012, in accordance with the formerly mentioned assumptions. However, the AA-rated UK corporate bonds' index numbers are only updated quarterly, i.e. next time on the 31st of March 2012 – consequently, the index numbers for the 31st of December 2011 were applied, $r_{COL} \times (1-t)$ which is regarded as a good approximation (Tower Watson, 2012). As a result, the arithmetic average is based on this number and the two indexed numbers for the US bonds as of the 31st of March 2012. Thereafter, the last five-year average of the effective tax-rate, 29.04%, was subtracted from this number to estimate the . The reasoning for using the five-year average effective tax-rate is the same as mentioned in Chapter VII. The results can be seen in the table below:

Table 8.4. Estimation of Alfa Laval's After Tax Cost of Operating Leases

	Indexed UK AA-rated Corporate Bonds	*Indexed US Aaa-rated Corporate Bonds*	*Indexed US Baa-rated Corporate Bonds*	*Average*
Cost of Operating Leases	4,72%	4,04%	5,30%	4,69%
Cost of Operating Leases (After-Tax)				***3,33%***

Source: Own illustration based on data acquired from Tower Watson (2012), Moody's (2012a) & Moody's (2012b).

The reliability of Alfa Laval's estimated cost of operating leases is further strengthened by that it is close to the company's peers' corporate bonds, e.g. Sandvik's 5.5 years corporate bond of 4.15% (Sandvik, 2012). However, it shall be considered that the maturity-period is different, as well as that Sandvik's number is before-tax.

8.3.4. Capital Structure

The final step in the calculation process of Alfa Laval's WACC is to derive the capital structure, i.e. the distribution between *E*, *NFO* and *COL*. The most optimal approach is to use the market values for these parameters (Koller et al., 2010). This approach implies a somewhat paradoxical situation since the final company valuation, i.e. the valuation of Alfa Laval's E, requires the company's WACC, which in turn is influenced by the company's E. Namely, to enable an estimation of the future value of equity, an estimation of

the company's present equity value is needed to be used as a starting frame for the valuation process. (Koller et al., 2010)

The estimation of the market value of Alfa Laval's E was undertaken by multiplying the total number of outstanding shares with the share price on the 31st of March, i.e. 419 456 315 with SEK 136.10. The resulting value was *SEK 57 088 million*.

Following from that Alfa Laval's debt is not publicly traded, there is no adequate way of calculating the market value of NFO. Common practice is therefore to use the book value of debt as a proxy (Koller et al., 2010). Since there is no publicly available book value of the NFO on the 31st of March, it was assessed that this value is the same as the one reported on the 31st of December 2011, i.e. *SEK 4 507 million*. More information about these calculations is found in Chapter VI.

As with NFO, the report uses the book value of COL since the market value is impossible to compute satisfactory. Since there is no publicly available book value of COL on the 31st of March, the value was assumed to be the same as on the 31st of December, i.e. *SEK 2 025 million*.

Subsequently, the total value of the three posts was summed up into one number, i.e. into Alfa Laval's *AEV*, of *SEK 63 620 million*. To derive each post's share of the AEV, the posts' were divided with the AEV respectively. This resulted in the following numbers to be used in the calculation of the WACC: *E/AEV (89.73%)*, *NFO/AEV (7.08%)* and *COL/AEV (3.18%)*. Information about the calculations can be found in Appendix 8.1. The capital structure has been assumed to stay static in the future estimations.

8.3.5. Calculation of Weighted Average Cost of Capital

By making use of the data gathered in the three sections above, the following calculation was undertaken:

$$WACC = \frac{E}{AEV} \times r_e + \frac{NFO}{AEV} \times r_d \times (1-t) + \frac{COL}{AEV} \times r_{COL} \times (1-t)$$

$$WACC_{Alfa\ Laval} = 0.8973 \times 0.0812 + 0.0708 \times 0.0336 + 0.0318 \times 0.0333 = 0.0763$$

8.4. Valuations

The two table below, Table 8.5 and Table 8.6, illustrates the calculations applying the DCF-model and EVA-model respectively. Both models are provided with discount factor adjustment for smoothing cash flows. The equity value per share is further calculated as of the 31th of March. Alfa Laval's market value per share at this date was SEK 136.10.

Table 8.5. Discounted Cash Flow Valuation

(Million SEK)		*Detailed Forecast*					*Simplified Forecast*					∞
	31/3 2012	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	Terminal period
FCFF		4360	3187	3313	3392	3713	2583	3980	4225	4310	4396	4293
WACC (%)		0,0763	0,0763	0,0763	0,0763	0,0763	0,0763	0,0763	0,0763	0,0763	0,0763	0,0763
Discount factor		0,946	0,879	0,817	0,759	0,705	0,655	0,609	0,566	0,526	0,488	
PV of FCFF		4126	2802	2707	2575	2619	1693	2423	2390	2265	2147	
Sum of PV FCFF	25747											
Terminal value	76296											
PV of terminal value	37264											
Discount factor adjustment	1,038											
Enterprise value	65414											
NFO	6532											
Equity value	58882											
Number of shares (millions)	419											
Value per share	**140**											

Source: Own illustration based on the forecasted statements.

The FCFF values for each estimated year were acquired from Chapter VII. Subsequently, each year's discount factor was calculated by dividing 1 by 1 plus WACC raised to the power of respective year's number of time periods from 2011. Important to once again clarify is that the discount factor corresponds to 9/12 for the first year (2012), since the valuation is set to 31st of March, i.e. one quarter from the beginning of the year. Thereafter, multiplying each year's FCFF with respective discount factor derived the PV of each year's FCFF, which later was summed up into Sum PV FCFF. The PV of the terminal period's FCFF was derived by multiplying the FCFF value by 2012E's discount factor. The firm's EV was thereafter derived by multiplying the sum of the two calculated PVs by the discount factor adjustment value. Subsequently, this value was subtracted by 2011's NFO to derive the equity value. Finally, the equity value was divided by Alfa Laval's total number of outstanding shares. As can be seen the calculations resulted in an estimated value per share of *SEK 140.18*.

In the table below, respective numbers for the EVA-calculations are illustrated.

Table 8.6. Economic Value Added Valuation

(Million SEK)		*Detailed Forecast*					*Simplified Forecast*					∞
	31/3 2012	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	Terminal period
NOPAT		3698	3941	4239	4258	4495	4346	4477	4566	4658	4751	4846
IC		21676	21014	21768	22694	23560	24342	26106	26602	26944	27292	27647
WACC (%)		0,076	0,076	0,076	0,076	0,076	0,076	0,076	0,076	0,076	0,076	0,076
Cost of capital		1653	1603	1660	1731	1797	1856	1991	2029	2055	2081	2108
EVA		2044	2338	2579	2527	2698	2490	2486	2537	2603	2669	2737
Duration		0,75	1,75	2,75	3,75	4,75	5,75	6,75	7,75	8,75	9,75	
Discount factor		0,946	0,879	0,817	0,759	0,705	0,655	0,609	0,566	0,526	0,488	
PV of EVA		1935	2056	2107	1918	1903	1632	1514	1436	1368	1304	
Sum of EVA	17172											
Terminal value of EVA	48649											
PV of terminal value	23761											
PV of IC	22078											
Discount factor adjustment	1,038											
EV	65414											
NFO	6532											
Equity value	58882											
Number of shares	419											
Value per share	**140**											

Source: Own illustration based on the forecasted statements.

Respective year's NOPAT and IC values were acquired from Chapter VII. Subsequently, each year's cost of capital was calculated by multiplying each year's IC with the WACC. These numbers were thereafter used for subtracting each year's NOPAT, resulting in respective year's EVA. Deriving the PV of each year's EVA was subsequently calculated by multiplying the EVAs with respective discount factor, which in turn were calculated in the same manner as described in the DCF valuation. The PVs of all EVAs were thereafter summed up into Sum of PV EVA. Accordingly with the DCF-calculations, the PV of the terminal period's EVA was derived by multiplying the EVA value by the discount factor of 2021E. Thereafter, the firm's PV of IC was calculated by multiplying 2011's IC with 1 plus WACC raised to the power of 3/12, accordingly with the valuation date of 31st of March 2012. The firm's EV was subsequently derived by multiplying the sum of the two calculated PVs and the PV of IC by the discount factor adjustment. Accordingly with the DCF valuation, the equity value was thereafter derived by subtracting 2011's NFO from this value. Finally, the value per share was derived by dividing the equity value with the total number of outstanding shares. The resulting value per share was estimated to *SEK 140.18*.

As can be seen, both valuation models compute equal value per share, and thus can be considered as accurate. Alfa Laval's share price is, according to this report, valued to SEK 140 per share.

8.5. Sensitivity Analysis

This subchapter tests the accuracy of the previous valuation. The report has chosen a sensitivity analysis in favour of a scenario analysis, since it gives a more detailed picture of possible changes in value dependant variables. A sensitivity analysis is useful when assessing how changes in input variables influence the value of the company, e.g. how sensitive the value of Alfa Laval is to changes in cost of debt. Consequently, this kind of information provides important insights to take into consideration.

The report has further chosen to use a two-dimensional model, to see how two respective factors influence the value. The reasoning behind this is that value drivers usually are interconnected with each other. (Penman, 2010) A two-dimensional sensitivity model explains the value changes in a table with the depending value drivers on horizontal and vertical axis.

The tables presented below are each divided into two parts. Namely, the left part represents the actual change in DCF-value with the previously computed share value in the centre of the table. The right hand part represents the difference of the computed share value compared to the stock market price of Alfa Laval as of 31st of March 2012. The right hand comparison's purpose is to conclude under what circumstances Alfa Laval is undervalued, overvalued, or in-line with the stock market value. One of the tables contains one additional part, which is further described below.

The first section of this subchapter describes how changes in PM, ATO and Net Sales Growth affect the valuation. The other section takes another approach, namely to evaluate factors that influence the discount model, i.e. Terminal Growth, Cost of Debt, Cost of Operating Leases, MRP and Beta.

8.5.1. Value Sensitivity: PM, ATO & Net Sales Growth

The table below explains how the two value drivers PM and net sales growth affect the value of Alfa Laval. The value is evidently more sensitive in changes in PM than to sales growth changes. A 1-percentage growth in PM and unchanged net sales growth, gives a 12% increase in stock price. However, a 1-precentage positive change in net sales growth, with unchanged PM, "only" gives a 3% increase in stock price. Consequently,

Alfa Laval's stock value is more sensitive to changes in PM than it is to changes in net sales growth. If PM is 0.5% lower, net sales growth needs to increase by at least 1%, for the stock to be a good investment. On the other hand, the rate of net sales growth can decrease by 0.5%, with an unchanged PM, and still be considered to be an attractive stock.

Table 8.7. Value Per Share with Changes in PM and Sales Growth

		Actual change of DCF-value					Diff. to Stock Market Price				
		Change in Sales Growth					Change in Sales Growth				
		-1,0%	-0,5%	0,0%	0,5%	1,0%	-1,0%	-0,5%	0,0%	0,5%	1,0%
Change in PM	-1,0%	120	122	124	126	128	-12%	-10%	-9%	-7%	-6%
	-0,5%	128	130	132	134	136	-6%	-4%	-3%	-1%	0%
	0,0%	136	138	140	142	144	0%	2%	3%	5%	6%
	0,5%	144	146	148	150	152	6%	7%	9%	10%	12%
	1,0%	152	154	156	158	160	12%	13%	15%	16%	18%

Source: Own illustration based on the forecasted statements.

The table below shows changes in 1/ATO and sales growth. The measure 1/ATO is the inverse of ATO, which indicates the amount of IC that is used to generate SEK 1 of net sales. An ATO of 1.5 gives an inversed value of 0.7[27]. Consequently, for a company to generate SEK 1 of sales, SEK 0.7 of IC is needed. A lower inversed ATO is, all things equal, resulting in a higher company value. Inversed ATO is in turn driven by investments and sales growth. (Penman, 2003)

As can be seen in the table below, the share value is peaking in the southeast corner, which is where inversed ATO is decreased with 0.1 and net sales growth is increased with one percentage point. This change boosts the share value to SEK 155, +10.7% compared to the former calculated value. If the net sales growth is kept stable and inversed ATO is decreased with 0.1, the share value is increased with 8.5%. Conversely, if the inversed ATO is kept constant and the net sales growth is increased with one percentage point, the share value is increased with 3.6%. Consequently, the model is more sensitive to changes in inversed ATO than to changes in net sales growth.

[27] 1.5^-1 = 0.67

Furthermore, Inversed ATO cannot increase by more than 0.05 combined with a 0.5 percentage point improvement in net sales growth, in order for Alfa Laval to be a good investment.

Table 8.8. Value Per Share with Changes in Inversed ATO and Sales Growth

		Actual change of DCF-value					Diff. to Stock Market Price				
		Change in Sales Growth					Change in Sales Growth				
Change in 1/ ATO		-1,0%	-0,5%	0,0%	0,5%	1,0%	-1,0%	-0,5%	0,0%	0,5%	1,0%
	0,10	124	126	129	131	134	-9%	-7%	-5%	-3%	-1%
	0,05	130	132	135	137	139	-4%	-3%	-1%	1%	2%
	0	136	138	140	142	144	0%	2%	3%	5%	6%
	-0,05	142	144	146	148	150	4%	6%	7%	9%	10%
	-0,10	148	150	151	153	155	9%	10%	11%	13%	14%

Source: Own illustration based on the forecasted statements.

8.5.2. Value Sensitivity: Factors in the Discount Model

The second part of the sensitivity analysis presents an assessment of how the different components in the DCF-model influence the value of Alfa Laval. The DCF-model, presented in previously in this chapter, is based on several components, which in turn partly are based on assumptions and expectations about the future. This gives the model a certain amount of uncertainty, which further emphases the importance of a sensitivity analysis.

The terminal growth rate is, in accordance with finance theory, based on the target inflation rate of 2%. Further, as mentioned before, the Terminal Value represents a rather large proportion of computed EV. Hence, terminal growth rate is attributable to significant sensitivity to changes. Moreover, WACC is also exposed to several assumptions, e.g. in terms of cost of debt, cost of operating leases, beta, and MRP.

In the table below, WACC is combined with terminal growth rate. A one percentage point positive adjustment of terminal growth rate gives the value of SEK 160 per share, whilst a one percentage point decrease in the WACC increases the share value to SEK 173 per share. Hence, minor changes in WACC result in rather large deviations in the share value. However, WACC discounts all future FCFF, while the terminal growth rate only is influencing the Terminal Value. Consequently, the valuation is more sensitive to changes in WACC than to changes in terminal growth.

This is further stressed when reviewing the right hand side of the table. WACC cannot increase to more than 7.79%, all things being equal, whilst terminal growth can decrease to 1.7%, all things being equal, in order for Alfa Laval to remain an attractive investment.

Table 8.9. Value Per Share with Changes in WACC and Terminal Growth

		Actual Change of DCF-Value					Diff. to Stock Market Price				
		Terminal Growth					Terminal Growth				
		1,0%	1,5%	2,0%	2,5%	3,0%	1,0%	1,5%	2,0%	2,5%	3,0%
WACC	5,63%	187	203	223	250	288	37%	49%	64%	84%	112%
	6,63%	151	161	173	188	206	11%	18%	27%	38%	52%
	7,63%	126	133	140	149	160	-7%	-2%	3%	10%	18%
	8,63%	108	112	117	123	130	-21%	-17%	-14%	-9%	-4%
	9,63%	94	97	101	105	109	-31%	-29%	-26%	-23%	-20%

Source: Own illustration based on the forecasted statements.

WACC clearly is a critical determinant for the valuation, thus the sensitivity analysis continues with the underlying components of WACC. The table below presents how WACC, and the value per share are changing when different rates of the cost of debt and cost of operating leasing are applied. This sensitivity comparison results in three interesting insights.

Firstly, rates of cost of debt and cost of operating leases have trivial impact on WACC. A two percentage point increase in both cost of operating leases and cost of debt, results in an increased WACC to 7.8% (+2.7%). Secondly, the valuation of Alfa Laval doesn't change with more than about 3% if both parameters are adjusted with two percentage points each, which gives a value interval of SEK 136-145 per share. Lastly, the report's value of Alfa Laval is above the market value even though the rates of cost of debt and cost of operating leases increases with two percentage points each. This can consequently be explained by Alfa Laval's low level of financial leverage.

Table 8.10. Effects on WACC and Value Per Share with Changes in Cost of Debt and Cost of Operating Leasing

		Change in WACC					Actual Change of DCF-value					Diff. to Stock Market Price				
		Cost of Operating Leasing					Cost of Operating Leasing					Cost of Operating Leasing				
		1,3%	2,3%	3,3%	4,3%	5,3%	1,3%	2,3%	3,3%	4,3%	5,3%	1,3%	2,3%	3,3%	4,3%	5,3%
Cost of Debt	1,4%	7,4%	7,5%	7,5%	7,5%	7,5%	144	144	144	144	144	6%	6%	6%	6%	6%
	2,4%	7,5%	7,5%	7,6%	7,6%	7,6%	142	142	142	142	142	4%	4%	4%	4%	4%
	3,4%	7,6%	7,6%	7,6%	7,7%	7,7%	140	140	140	140	140	3%	3%	3%	3%	3%
	4,4%	7,6%	7,7%	7,7%	7,7%	7,8%	138	138	138	138	138	2%	2%	2%	2%	2%
	5,4%	7,7%	7,7%	7,8%	7,8%	7,8%	136	136	136	137	137	0%	0%	0%	0%	0%

Source: Own illustration based on the forecasted statements.

The MRP, as mentioned before, was calculated by using an arithmetic mean of three recent and reliable market sources. The table below shows how changes in MRP and terminal growth rate can affect WACC and the value per share.

Changes in MRP has a rather significant impact on WACC and consequently on the valuation. By decreasing MRP to 4.9%, which is close to Dimson et al.'s (2003) MRP, a higher share value of to SEK 170 is computed. This MRP results in a decreased WACC to 6.69%. MRP cannot be above 6.1%, all things being equal, in order for the stock to be a good investment. To conclude, the level of MRP is of substantial importance for the accuracy of the discount model.

Table 8.11. Effects on WACC and Value Per Share with Changes in MRP and Terminal Growth

		Actual change of DCF-value					Difference to stock market price				
		Terminal growth					Terminal growth				
MRP	WACC	1,0%	1,5%	2,0%	2,5%	3,0%	1,0%	1,5%	2,0%	2,5%	3,0%
3,9%	5,76%	181	196	215	240	274	33%	44%	58%	77%	102%
4,9%	6,69%	149	159	170	185	203	10%	17%	25%	36%	49%
5,9%	7,63%	126	133	140	149	160	-7%	-2%	3%	10%	18%
6,9%	8,56%	109	114	119	125	132	-20%	-16%	-13%	-8%	-3%
7,9%	9,49%	96	99	103	107	112	-30%	-27%	-24%	-21%	-18%

Source: Own illustration based on the forecasted statements.

The last part of the assessment of factors affecting the discount model is the impact of beta value. As assessed before, the beta was calculated to 1.04. Apparently, there are several methods of how to calculate the beta

value, naturally adding an uncertainty factor to the report's valuation. The discrepancy between the values per share, illustrated in the table below, from applying different beta values was rather high.

For illustrative purpose, beta is set to an interval between 0.94 and 1.14. The valuation would, with these beta values and unchanged terminal growth rate, alternate between SEK 156 (+11.4%) and SEK 127 (-9.4%) per share. The fact that the value alternates significantly with different beta values, naturally adds some uncertainty to the valuation. However, the beta value was in close proximity of two well-renowned sources, Reuters and Financial Times, which give support to the applied beta of 1.04.

Table 8.12. Effects on WACC and Value Per Share with Changes in Beta and Terminal Growth

		Actual change of DCF-value					Difference to stock market price				
		Terminal growth					Terminal growth				
Beta	WACC	1,0%	1,5%	2,0%	2,5%	3,0%	1,0%	1,5%	2,0%	2,5%	3,0%
0,94	7,10%	139	147	156	168	182	2%	8%	15%	23%	34%
0,99	7,36%	132	139	148	158	171	-3%	2%	9%	16%	25%
1,04	7,63%	126	133	140	149	160	-7%	-2%	3%	10%	18%
1,09	7,89%	121	127	134	142	151	-11%	-7%	-2%	4%	11%
1,14	8,16%	116	121	127	135	143	-15%	-11%	-6%	-1%	5%

Source: Own illustration based on the forecasted statements.

8.5.3. Summary of Sensitivity Analysis

This subchapter has discussed how the report's valuation is influenced by changes in applied variables. The first section showed that the valuation is more sensitive to changes in inversed ATO and PM than to changes in net sales growth. The second section assessed variables in the discount model. It was concluded that WACC had greater impact on the value than the terminal growth. Two of the components in WACC, beta and MRP, also had substantial influence on the share value. Cost of debt and cost of operating leases, on the other hand, only had minor impact on the valuation, a consequence of Alfa Laval's low financial leverage. Despite the valuations sensitivity to some underlying factors, the report regards the previous valuation calculations to be solid.

8.5. Multiples Comparison

Despite that the DCF-model is one of the most flexible models for valuation processes, it is important to consider that the results only are as accurate as the forecasts and assumptions it is based upon, which also

became evident in the previous subchapter. Consequently, the following section contains a multiple comparison, with the intention to challenge, alternatively support the final valuation.

Multiples comparisons are widely used for quick and easy measuring of a company's well being. Furthermore, they are commonly used for comparing performance of different companies. It is important to stress that multiples have several drawbacks in comparison with more thoroughly valuation methods, e.g. the DCF-model. As a result, it is crucial for the reliability of the numbers that the companies show similarities in some important factors – most importantly, the companies shall have similar accounting standards and have equivalent growth potential (Koller et al., 2010).

The peer group being used was the one mentioned in Chapter VI, i.e. *Atlas Copco*, *GEA*, *Sandvik* and *SKF* since all companies fulfil the above-stated requirements. Since the valuation was based on expected values, so was the multiples comparison. The adequateness of this approach is supported by the fact that these numbers usually are normalized, implying exclusion of impact from previous one-time charges (Koller et al., 2010).

The numbers used for the analysis was collected from Bloomberg, as well as from the projected values used in Chapter VII. Bloomberg's numbers are derived from an average of ten analysts who continuously follow respective company. This fact, in combination with that Bloomberg is a well-respected source of information, assures the reliability of these figures. The multiples used were: *EV/Sales*[28], *EV/EBITDA*[29], *EV/EBIT*[30] and *P/E*[31].

8.5.1. EV/Sales

The EV/Sales ratio describes the relationship between a company's enterprise value and its sales, indicating how much it costs to buy the company's sales. Generally, a low ratio indicates that the company is attractive or undervalued. (Investopedia, 2012b) It is important to note that there is a risk of bias in this comparison resulting from that the report's sales estimations are based on organic growth, whilst Bloomberg's estimations are based on total sales. The projected EV/Sales ratios and the estimated sales growth numbers are illustrated in the table below.

[28] Enterprise Value/Sales
[29] Enterprise Value/Earnings Before Interest Taxes Depreciation Amortization
[30] Enterprise Value/Earnings Before Interest Taxes
[31] Price/Earnings

Table 8.13. EV/Sales Multiple Estimations and Sales Growth Estimations

	EV/Sales			Sales Growth		
	2012E	*2013E*	*2014E*	*2012E*	*2013E*	*2014E*
Atlas Copco (Bloomberg)	2,40	2,28	2,16	0,07	0,05	0,06
GEA (Bloomberg	0,84	0,80	0,77	0,05	0,04	0,04
Sandvik (Bloomberg)	1,47	1,41	1,36	0,04	0,04	0,04
SKF (Bloomberg)	1,22	1,16	1,10	0,04	0,05	0,05
Peer Group Average	1,48	1,41	1,35	0,05	0,05	0,05
Alfa Laval (Bloomberg)	1,86	1,78	1,69	0,05	0,05	0,06
Alfa Laval (Report's Estimations)	***2,17***	***2,04***	***1,89***	***0,05***	***0,07***	***0,08***

Source: Own illustration based on data from Bloomberg (2012) and the report's estimations.

As can be seen, the report's estimations of Alfa Laval's EV/Sales is slightly higher than Bloomberg's. This might result from that the report exclusively forecasts organic growth, naturally implying lower sales figures compared to EV. In addition, a rather large share of the report's EV stems from the period after 2014, i.e. the report projects a positive outlook for Alfa Laval in the long-run. Naturally, this implies larger EV/Sales numbers in 2012-2014. The same factors will influence the EV/EBITDA and EV/EBIT ratios.

Generally it can be seen that Alfa Laval's EV/Sales ratios are higher than the peer group, excluding Atlas Copco. Consequently, the ratio regards Alfa Laval as the second most expensive company in the peer group. Worth noticing is that GEA is lowering the peer group average considerably.

When looking at the sales projections, it becomes clear that the report is more optimistic than Bloomberg in 2013 and 2014, while the projected sales growth is the same in 2012.

8.5.2. EV/EBITDA

The EV/EBITDA ratio is highly recommended in multiples comparison; it describes the relationship between a company's enterprise value and its EBITDA. This multiple's valuation is often regarded as being more accurate than the P/E ratio because it is independent of the capital structure and since it is calculated on an early stage in the income statement. (Koller et al., 2010) The projected EV/EBITDA ratios and the estimated EBITDA margins are illustrated in the table below.

Table 8.14. EV/EBITDA Multiple Estimations and EBITDA Margin Estimations

	EV/EBITDA			EBITDA Margin		
	2012E	*2013E*	*2014E*	*2012E*	*2013E*	*2014E*
Atlas Copco (Bloomberg)	9,82	9,26	8,72	0,24	0,25	0,25
GEA (Bloomberg	6,73	6,20	6,03	0,12	0,13	0,13
Sandvik (Bloomberg)	7,74	7,03	6,51	0,19	0,20	0,21
SKF (Bloomberg)	7,31	6,67	6,19	0,17	0,17	0,18
Peer Group Average	7,90	7,29	6,86	0,18	0,19	0,19
Alfa Laval (Bloomberg)	9,60	8,88	8,34	0,19	0,20	0,20
Alfa Laval (Report's Estimations)	***10,69***	***10,03***	***9,32***	***0,20***	***0,20***	***0,20***

Source: Own illustration based on data from Bloomberg (2012) and the report's estimations.

From the table, it is evident that the report's EV/EBITDA ratio is slightly higher than Bloomberg's. Bloomberg project values for Alfa Laval in line with Atlas Copco and higher than the three other companies. When looking at the EBITDA margins, the report's estimations are in line with Bloomberg's. Furthermore, it is evident that the projected values for the companies in the peer group differ significantly, especially for Atlas Copco and GEA.

8.5.3. EV/EBIT

Naturally, the EV/EBIT-ratio is very similar to the EV/EBITDA ratio, differentiating in that it accounts for depreciation and amortization. Despite that they are similar, this ratio is highly valuable for peer comparison, especially if the depreciation and amortization posts are large. The projected EV/EBIT ratios and the estimated EBIT margins are illustrated in the table below.

Table 8.15. EV/EBIT Multiple Estimations and EBIT Margin Estimations

	EV/EBIT			EBIT Margin		
	2012E	*2013E*	*2014E*	*2012E*	*2013E*	*2014E*
Atlas Copco (Bloomberg)	11,23	10,53	9,94	0,21	0,22	0,22
GEA (Bloomberg	8,25	7,56	7,30	0,10	0,11	0,11
Sandvik (Bloomberg)	10,11	8,98	8,38	0,15	0,16	0,16
SKF (Bloomberg)	8,81	7,93	7,33	0,14	0,15	0,15
Peer Group Average	9,60	8,75	8,24	0,15	0,16	0,16
Alfa Laval (Bloomberg)	11,33	10,41	9,73	0,16	0,17	0,17
Alfa Laval (Report's Estimations)	***12,54***	***11,76***	***10,93***	***0,17***	***0,17***	***0,17***

Source: Own illustration based on data from Bloomberg (2012) and the report's estimations.

As with the EV/EBITDA ratios, the report's EV/EBIT ratios are slightly above Bloomberg's estimations, which in turn follow them of Atlas Copco. According to Bloomberg, GEA is projected to have lower depreciation and amortization numbers than the peer group, at a level in line with the report's findings of GEA's historical posts[32]. It is also evident that the opposite is the case for Sandvik.

The report's EBIT margins are projected to be in line with those of Bloomberg. As with the EBITDA margins the peer group's EBIT margins differs significantly, especially for Atlas Copco and GEA.

8.5.4. P/E

The P/E-ratio is one of the most utilized multiples – it describes the relationship between a company's stock price and its earnings per share (EPS), indicating how much the market is willing to pay for the company's earnings. Naturally, a high P/E-ratio implies high expectations for the future, or that the stock is overvalued. Important to note is that the ratio is highly influenced by capital structure and non-operating gains or losses. (Penman, 2010) The projected P/E ratios and the estimated net income margins are illustrated in the table below.

Table 8.16. P/E Multiple Estimations and Net Income Margin Estimations

	P/E			Net Income Margin		
	2012E	*2013E*	*2014E*	*2012E*	*2013E*	*2014E*
Atlas Copco (Bloomberg)	14,77	13,71	12,99	0,16	0,16	0,16
GEA (Bloomberg	12,71	11,51	10,89	0,07	0,07	0,07
Sandvik (Bloomberg)	12,68	11,00	9,80	0,09	0,10	0,11
SKF (Bloomberg)	12,59	11,07	10,07	0,09	0,09	0,10
Peer Group Average	13,19	11,82	10,94	0,10	0,11	0,11
Alfa Laval (Bloomberg)	16,52	15,05	14,04	0,12	0,12	0,13
Alfa Laval (Report's Estimations)	***16,78***	***15,70***	***14,59***	***0,12***	***0,12***	***0,12***

Source: Own illustration based on data from Bloomberg (2012) and the report's estimations.

As can be seen, the report's estimations of Alfa Laval's P/E ratios are slightly exceeding Bloomberg's, which in turn are higher than the peer group. Naturally, this implies an optimistic view of the company's future ability to generate earnings. Furthermore, it is evident that the report's projections of Alfa Laval's net income margins are in line with those of Bloomberg's, which are higher than all peers excluding Atlas Copco.

[32] See Appendix 6.12 for GEA's reformulated income statement.

8.5.5. Summary of Multiples Comparison

From the multiples comparison it became evident that the report's estimations are slightly exceeding, but in line with, Bloomberg's. Naturally, the correlation with these estimations strengthens the report's credibility since Bloomberg are well renowned for their accurate companies analysis. According to theory, the higher multiples level implies that the report values Alfa Laval somewhat higher than Bloomberg. Consequently, this is in accordance with the valuation calculations from the DCF and EVA models optimistic view of Alfa Laval's future ability to generate earnings.

Generally, it can be concluded that Alfa Laval's multiples are in line with those of Atlas Copco. However, these two companies' multiples projections are above those of the peers. It was also evident that Alfa Laval constantly had higher multiple values and margins than its main competitor GEA.

8.6. Chapter Conclusion

The basis for the valuation was the findings in Chapter VII, which in turn were based on the findings in Chapter V and VI.

Firstly the WACC was calculated, for later use in the valuation process. After estimating the cost of equity (8.12%), cost of debt after tax (3.36%), cost of operating leases (3.33%) and the capital structure, the WACC was determined to 7.63%. Subsequently, the chapter's two valuation models, DCF and EVA, reached the same value per share, *SEK 140.38*.

Subsequently, the values from the DCF and EVA were re-analysed and stressed in a sensitivity analysis. The sensitivity analysis concluded that the valuation is more sensitive to changes in inversed ATO and PM than to changes in sales growth. It was furthermore assessed that MRP, beta and terminal growth have substantial impact on the WACC, which in turn has a substantial impact on the values from the DCF and EVA models. On the other hand, cost of debt and cost of operating leases have only minor impact on the WACC.

Finally, a multiple comparison was undertaken of Alfa Laval and its peer group, based on the report's estimations in combination with figures from Bloomberg. It was evident that the report's projections were slightly exceeding, but in line with, Bloomberg's. As with the DCF and EVA models, the report's multiples

valued the company higher than its current level. Consequently, the estimated multiples reflect, and support, the report's optimistic view of Alfa Laval's future ability to generate earnings.

Based on the findings above, the report estimates Alfa Laval's fair value per share to SEK 140.38, comparable to the 31st of March's market price per share of SEK 136.10. Consequently, the stock is currently undervalued.

The conclusions that can be drawn from this is that it becomes apparent that that the market does not seem to recognize the future profitability potential of Alfa Laval and the sound financial development that is estimated to continue. However, the assessed value does not differ significantly from the market price and the final recommendation has therefore been set to "hold". This recommendation is further strengthen by the fact that the model is sensitive to its underlying drivers.

9. Conclusion

The aim of the report has been to investigate Alfa Laval's fair value per share as of 31st of March 2012. The current turmoil characterizing the world economy, Alfa Laval's complex business exposure, in combination with the company's own optimistic outlook, made it a highly interesting and important valuation to undertake.

To obtain a comprehensive understanding of the historical and future development of the company, a strategic and financial analysis was undertaken. The results from the strategic analysis showed that Alfa Laval currently posses a strong market position driven by innovation, has significant experience and know-how, strong networks and a worldwide presence. Conversely, the company is largely dependent of raw materials, has weak bargaining power to certain important suppliers and are exposed to many cyclical-sensitive industries. For the future, there are several important opportunities and threats to consider. Among the opportunities the following can e.g. be mentioned: positive economic outlook, expected favourable legislations, strong forecasts for several market segments and favourable demographic changes in important regions. The risks contain elements such as continuous economic turmoil, raw material fluctuations and political instability.

The results from the financial analysis showed that Alfa Laval's profitability has fallen from a remarkably high level in 2007 to a more moderate level in 2011. The decrease has mainly been driven by a lower ATO, in turn being a consequence of substantial investments. Conversely, the company's net sales have almost doubled since 2002; resulting from a combination of organic growth and an extensive number of acquisitions. The growth could also be seen in the segment breakdown of order intake, which visualized that all segments, except for OEM, have grown since 2006. Finally, Alfa Laval's risk profile was analysed. The results showed that the company's operating risk mainly consist of ATO-risk, which historically has been partly driven by an increasing goodwill post.

Subsequently, the combination of the strategic and financial analysis enabled a well-grounded forecast of the next ten years. The forecasting was split into two five-year periods: Detailed Forecast and Simplified Forecast. The income statement projections were mainly driven by a positive net sales growth and a rather stable cost development, resulting in a growing NOPAT over time and a Profit Margin of 11-12%.

The balance sheet was projected to grow in pace of net sales growth, except for a slightly higher investment level in year 2017 and onwards, as well as a constant absolute amount of goodwill. Hence, NWC was projected to remain at a stable level of 12% of net sales, whilst NNCOA and IC gradually fall (except for an upturn in 2017) as a consequence of the goodwill item. The estimations resulted in a ROIC projection of about 17 % for the whole period and a gradually increasing FCFF, except for a dip in 2017.

Subsequently, the report's two valuation models, DCF and EVA, estimated the value per share to *SEK 140.18*. The discount factor used an estimated WACC of 7.63%. The following sensitivity analysis concluded that the valuation was more sensitive to inversed ATO and PM than to sales growth changes. Simultaneously, it was concluded that the WACC, which in turn substantially influences the DCF and EVA estimations, was highly affected by the assessed MRP, beta and terminal growth figures, while cost of debt and cost of operating leases had a minor impact. The valuation process ended with a multiple comparison, based on the report's own estimations and data acquired from Bloomberg. It was concluded that the report's estimations were slightly exceeding, but in line, with Bloomberg's. These figures were in turn higher than the peer group, except for Atlas Copco. Consequently, the report's multiples valued the company higher than its current level, hereby supporting and reflecting the report's optimistic view of Alfa Laval's future profitability level.

When comparing the report's estimations of *Alfa Laval's fair value per share, SEK 140.18*, to the market price, SEK 136, it can be concluded that the stock is slightly undervalued.

It is evident that the market does not seem to fully acknowledge the future profitability potential of Alfa Laval and the sound financial development that is estimated to continue. However, since the assessed value does not differ significantly from the market price, in combination with that the model is sensitive to its underlying drivers, *the final recommendation is set to "hold"*.

10. Reflections

The aim of this chapter is to critically reflect over the chosen methodology, as well as to discuss perspectives excluded in this report. Finally, the accuracy of the report's results is discussed.

In regards to the methodological choices, it can be argued that an inductive approach could have been used. It would have given a different perspective to the problem formulation. Namely, in line with inductive approach is qualitative research. This type of research would have enabled a report partly based on qualitative interviews, e.g. with industry experts and insiders, giving an additional dimension to the findings. However, it would simultaneously had implied generalization implications due to its interpretative epistemology, as well as it would have implied a movement away from the very foundation of the report: to do a valuation exclusively based on market information. According to the chosen scientific view, humans possess preconceptions about phenomena in the world based on previous experience. Naturally, this is also the case in valuations reports, e.g. due to individual perceptions of reality. Hence, an entirely deductive approach was neither applicable.

Relating to the methodological choices was the selection of applied models and theories. It is acknowledged that usage of other models and theories could have provided the report with additional insights and perspectives. However, the risk of using additional models would have been that the depth of each subpart would have suffered. Furthermore, it is believed that the chosen models were most optimal in terms of the company and the report's purpose.

It can be argued that if the report had been based on other assumptions, the outcome would have differed. One of the major assumptions in the report was to exclude future M&A activities in the forecasting. Including such activities would probably have resulted in a different budgeting process. Namely, indications are given that Alfa Laval will continue to undertake acquisitions in the future. However, as argued in the report, the value would probably have been in line with the current estimations since theory and empirical evidence show that the NPV from such activities often is zero. Simultaneously, including M&A activities would have implied several additional uncertainty factors. First of all, it is impossible to estimate the size of future acquisitions, if there even are potential companies to acquire. Secondly, arriving at an adequate goodwill value of such activities is even more difficult, due to their varying nature. Basing the size on potential acquisitions and

goodwill values on historical numbers would neither be accurate. Consequently, the drawbacks of including future M&A activities are regarded to outweigh the potential gains.
Another major assumptions in the report was that it aimed at finding the fair value per share as of the 31st of March 2012, excluding information after this date. However, many interesting developments have occurred between this date and the report's finalization, the 6th of June 2012. It can e.g. be seen that the market share price is SEK 115.7, a reduction of 15% compared to the 31st of March 2012 and 17% lower than the report's estimation of SEK 140.18. Consequently, the report's derived value and the recommendation strategy to hold the stock can appear to be incorrect. However, the significant discrepancy between the estimated value and today's share price is a result of several interconnected factors.

Primarily, the global financial market has experienced a worsened economic turmoil, greater than most expectations. This has mainly been driven by the financial problems characterizing the European financial market, hereunder especially the consequences that might result from a potential *"Grexit"*[33]. The uncertainty has largely affected the world economy and has resulted in falling stock markets, reflecting the investors' scepticism. Naturally, this has had a major influence on export-dependent Alfa Laval, resulting in the decreased market share price. Sweden in general has also been affected; e.g. the OMXS30 index has fallen with 11.4% in the same period. The larger decrease of the company's share price, compared to OMXS30, could be explained by the company's systematic risk sensitivity, as suggested with the beta estimations of 1.04. Another explaining factor for the lower market share price could be that investors require higher rates of returns, hereunder higher market premiums, to compensate the higher imposed risk. As can be recalled from the sensitivity analysis, a higher market premium would significantly affect the value per share negatively due to its influence on WACC.

To conclude, substantial global developments have taken place in the last two months, which have had a significant impact on Alfa Laval's market share price. Therefore, adding updated information to the report could probably have provided additional insights since these changes were impossible to foresee. However, if the global financial markets would have been more stable, the resulting hypothetical market share price would probably had been more in line with the report's estimated value per share.

[33] Popularly used acronym for a potential Greek exit, due to the country's budget deficits, from the EMU.

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List of Abbreviations

σ^2 = Variance

β = Beta

Δ = Delta/Change

AEV = Adjusted Enterprise Value

AGM = Annual General Meeting

ATO = Asset Turnover

CCS = Carbon Capture and Storage

CAGR = Compound Annual Growth Rate

CAPM = Capital Asset Pricing Model

CEO = Chief Executive Officer

COGS = Cost of Goods Sold

COL = Capitalized Operating Leases

$Cov(R_i,R_M)$ = Covariance Between the Stock and the Market

D = Debt

DCF = Discounted Cash Flow

E = Equity

EBIT = Earnings Before Interest and Taxes

EBITDA = Earnings Before Interest, Taxes, Depreciation and Amortization

EMU = European Monetary Union

EU = European Union

EUR = Euro

EV = Enterprise Value

EVA = Economic Value Added

FCFF = Free Cash Flow to Firm

FLEV = Financial Leverage

g = Growth

GDP = Gross Domestic Product

IBOR = InterBank Offering Rate

IC = Invested Capital

IFRS = International Financial Reporting Standards

IGCC = Integrated Gasification Combined Cycle

IMF = International Monetary Fund

IMO = International Maritime Organization

MNC = Multinational Corporation

MRP = Market Risk Premium

NOA = Net Operating Assets

NBC = Net Borrowing Cost

NFO = Net Financial Obligations

NNCOA = Net Non-Current Operating Assets

NOPAT = Net Operating Profit After Tax

NPV = Net Present Value

NYSE = New York Stock Exchange

OEM = Original Equipment Manufacturer

OLLEV = Operating Liability Leverage

OLSPREAD = Operating Liability Leverage Spread

P&S = Parts & Service

P/E = Price/Earnings

PEST = Political Economical Social Technological

PM = Profit Margin

PMI = Purchase Manager Index

R&D = Research & Development

RFR1 = Swedish Financial Reporting Board Recommendation

r_{COL} = Cost of Capitalized Operating Leases

$r_{COL} \times (1-t)$ = After Tax Cost of Operating Leases

r_d = Cost of Debt

$r_d \times (1-t)$ = After Tax Cost of Debt

r_e = Required Rate of Return on Equity

r_f = Risk-free Interest Rate

r_m = Return on Market Portfolio

r_m-r_f = Market Risk Premium

ROE = Return On Equity

ROIC = Return On Invested Capital

ROOA = Return On Operating Assets

SEK = Swedish Krona

SSE = Shanghai Stock Exchange

SWOT = Strengths Weaknesses Opportunities Threats

t = Taxes

WACC = Weighted Average Cost of Capital

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Appendix 5.1. GDP-Growth Rates, 2002-E2015

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	E2012	E2013	E2014	E2015
Europe														
Germany	0,0%	-0,4%	1,2%	0,7%	3,7%	3,3%	1,1%	-5,1%	3,7%	2,7%	1,3%	1,9%	1,9%	1,8%
Sweden	2,5%	2,3%	4,2%	3,2%	4,3%	3,3%	-0,6%	-5,3%	5,5%	4,4%	3,5%	2,4%	2,6%	2,3%
Denmark	0,5%	0,4%	2,3%	2,5%	3,4%	1,6%	-1,1%	-5,2%	1,8%	1,3%	1,7%	1,8%	2,0%	2,0%
France	0,9%	0,9%	2,5%	1,8%	2,5%	2,3%	-0,1%	-2,7%	1,5%	1,6%	1,2%	1,8%	1,9%	2,0%
Greece	3,4%	5,9%	4,4%	2,3%	5,2%	4,3%	1,0%	-2,0%	-4,5%	-5,0%	-2,0%	0,5%	1,6%	3,0%
Italy	0,5%	0,0%	1,5%	0,7%	2,0%	1,5%	-1,3%	-5,2%	1,3%	0,7%	0,4%	0,8%	1,0%	1,4%
Spain	2,7%	3,1%	3,3%	3,6%	4,0%	3,6%	0,9%	-3,7%	-0,1%	0,7%	0,4%	0,8%	1,5%	2,1%
UK	2,1%	2,8%	3,0%	2,2%	2,8%	2,7%	-0,1%	-4,9%	1,3%	1,0%	1,7%	2,4%	2,6%	2,8%
Ireland	6,6%	4,4%	4,6%	6,0%	5,3%	5,6%	-3,6%	-7,6%	-1,0%	-1,0%	1,7%	2,2%	2,6%	3,2%
Europe Index	1,3%	1,3%	2,6%	2,0%	3,3%	3,1%	0,6%	-4,3%	1,8%	1,7%	1,4%	1,9%	2,1%	2,2%
Asia														
China	9,1%	10,0%	10,1%	11,3%	12,7%	14,2%	9,6%	9,2%	10,3%	9,1%	8,5%	8,9%	8,8%	8,5%
Japan	0,3%	1,4%	2,7%	1,9%	2,0%	2,4%	-1,2%	-6,3%	5,1%	-0,6%	1,7%	2,6%	1,5%	1,5%
South Korea	7,2%	2,8%	4,6%	4,0%	5,2%	5,1%	2,3%	0,3%	6,2%	3,7%	3,9%	4,2%	3,6%	4,2%
Indonesia	4,5%	4,8%	5,0%	5,7%	5,5%	6,3%	6,0%	4,6%	6,1%	6,3%	6,4%	6,7%	5,9%	5,7%
India	3,8%	8,4%	8,3%	9,3%	9,3%	9,8%	4,9%	9,1%	9,7%	7,5%	8,1%	8,6%	8,4%	8,2%
Middle East	2,6%	4,4%	7,9%	6,8%	7,0%	4,4%	3,7%	-1,0%	5,5%	5,7%	4,1%	4,8%	4,8%	4,6%
Asia Index	3,4%	4,2%	5,5%	5,3%	5,9%	6,7%	3,1%	0,9%	7,7%	4,4%	5,3%	5,9%	5,4%	5,4%
North America														
USA	1,8%	2,5%	3,5%	3,1%	2,7%	1,9%	-0,3%	-3,5%	3,0%	1,5%	1,8%	2,7%	2,9%	2,7%
Canada	2,9%	1,9%	3,1%	3,0%	2,8%	2,2%	0,5%	-2,5%	3,1%	2,1%	1,9%	2,7%	2,6%	2,5%
Mexico	0,8%	1,4%	4,1%	3,2%	5,2%	3,3%	1,5%	-6,1%	5,5%	4,0%	3,9%	3,8%	3,7%	3,6%
North America Index	1,9%	2,5%	3,4%	3,1%	2,7%	1,9%	-0,3%	-3,4%	3,0%	1,6%	1,8%	2,7%	2,9%	2,7%
South America														
Brazil	2,7%	1,1%	5,7%	3,2%	4,0%	6,1%	5,2%	-0,6%	7,5%	3,8%	4,4%	5,0%	4,9%	4,6%
Argentina	-10,9%	8,8%	9,0%	9,2%	8,5%	8,7%	6,8%	0,9%	9,2%	7,0%	4,7%	4,5%	4,4%	4,3%
South America Index	0,0%	1,8%	7,0%	5,0%	5,5%	6,6%	5,4%	-0,4%	6,4%	4,6%	4,4%	4,7%	4,6%	4,4%
World Index	2,1%	2,6%	4,0%	3,5%	4,1%	4,0%	1,5%	-2,3%	4,1%	2,7%	3,0%	3,6%	3,6%	3,6%

Source: World Bank (2012b)

Appendix 6.1. Shareholders' Equity: Alfa Laval

(SEK Millions)	2006	2007	2008	2009	2010	2011
Beginning Book Value of Common Equity	5811	6831	7937	10493	12229	13582
Transactions with Common Shareholders						
Dividends to common shareholders	-570	-698	-963	-949	-1055	-1258
Stock Issue	0	0	0	0	0	7
Repurchase of Shares	0	-1497	-766	0	-253	0
Other Transactions with Shareholders	0	0	0	-30	22	-7
Net Cash Contribution	***-570***	***-2195***	***-1729***	***-979***	***-1286***	***-1258***
Net Profit of the Year	1725	3180	3807	2737	3116	3251
Cash Flow Hedges	228	-26	-515	551	122	-335
Translation Differences	-247	155	839	-402	-549	-196
Deferred Tax	-65	6	163	-175	-36	120
Non-Controlling Interests	-23	13	11	10	-5	-10
Comprehensive Income to Common	1618	3328	4305	2721	2648	2830
Common Shareholders' Equity	***6860***	***7964***	***10513***	***12235***	***13591***	***15154***
Non-Controlling Interest	-29	-27	-20	-6	-9	-10
Total Equity	***6831***	***7937***	***10493***	***12229***	***13582***	***15144***

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

Appendix 6.2. Shareholders' Equity: GEA

(EUR Thousands)	2006	2007	2008	2009	2010	2011
Beginning Book Value of Common Equity	1584	1262	1414	1456	1735	1868
Transactions with Common Shareholders						
Adjustment and Corrections	0	0	0	0	-5	0
Dividends to Common Shareholders	-19	0	-37	-74	-55	-74
Sale of Treasury Shares	0	4	0	0	0	0
Withdrawal of Treasury Shares	0	-100	-2	0	0	0
Other Transactions with Shareholders	0	0	0	188	0	64
Net Cash Contribution	***-19***	***-96***	***-39***	***115***	***-60***	***-9***
Net Profit of the Year	-288	284	101	161	109	296
Cash Flow Hedges	14	0	-18	6	5	-5
Translation Differences	-29	-36	-1	1	77	14
Available-for-Sale	0	0	0	0	0	1
Non-Controlling Interests	0	0	0	1	2	1
Comprehensive Income to Common	-304	247	82	168	193	306
Common Shareholders' Equity	***1262***	***1413***	***1458***	***1739***	***1868***	***2165***
Non-Controlling Interest	0	1	-2	-3	0	-2
Total Equity	***1262***	***1414***	***1456***	***1735***	***1868***	***2163***

Source: Own illustration based on data from GEA (2012a; 2010 & 2009).

Appendix 6.3. Reformulated Balance Sheet: Alfa Laval

(SEK Millions)	2006	2007	2008	2009	2010	2011
Uses of funds:						
Inventories	3792	5086	5972	4485	4769	6148
Accounts Receivables	3973	5049	5706	4123	4181	5080
Other Recievables	1661	1973	2777	1982	1878	2106
Operating Cash Asset	396	497	557	521	494	573
Prepaid Costs and Accrued Income	74	101	164	148	181	174
Other Long-Term Securities	5	10	18	39	32	25
Capitalized Financing Costs	8	8	0	0	0	0
Operating Current Assets	***9909***	***12724***	***15194***	***11298***	***11535***	***14106***
Advances from Customers	1751	1895	2444	2019	1357	2020
Accounts Payable	1968	2283	2449	1630	2120	2529
Current Tax Liabilities	951	1412	1692	929	1035	1050
Other Liabilities	668	982	1087	1140	1476	1356
Other Provisions	963	1401	1849	1926	1496	1612
Accrued Costs and Prepaid Income	730	943	1205	1125	1373	1552
Operating Current Liabilities	***7031***	***8916***	***10726***	***8769***	***8857***	***10119***
Net Working Capital	***2878***	***3808***	***4468***	***2529***	***2678***	***3987***
Tangible Assets	2515	2824	3546	3548	3512	3936
Add: Capitalized Operating Leases	1561	1961	1710	1647	1814	2025
Goodwill	3706	4459	5383	6143	5952	9543
Other Intangible Assets	1191	1275	1890	2490	2581	3502
Deferred Tax Assets	711	1012	1218	1367	1301	1293
Capitalized Financing Costs	14	5	0	0	0	0
Operating Non-Current Assets	***9698***	***11536***	***13747***	***15195***	***15160***	***20299***
Provisions for Deferred Tax	949	1090	1161	1390	1617	1930
Other Provisions	318	409	403	439	632	520
Accrued Costs and Prepaid Income	121	122	139	169	142	160
Operating Non-Current Liabilities	***1388***	***1621***	***1703***	***1998***	***2391***	***2610***
Net Non-Current Operating Assets	***8310***	***9915***	***12044***	***13197***	***12769***	***17689***
Invested Captial	***11188***	***13723***	***16512***	***15726***	***15448***	***21676***
Excess Cash	379	549	1070	893	1409	1474
Pension Assets	55	106	140	136	235	346
Derivative Assets	270	297	591	331	644	303
Financial assets	***704***	***952***	***1801***	***1360***	***2288***	***2123***
Total Funds Invested	**11892**	**14675**	**18313**	**17086**	**17735**	**23799**

Reformulated Balance Sheet: Alfa Laval Continued

Total Funds Invested						
Notes Payable	176	239	251	203	119	139
Provisions for Pensions	941	877	990	920	847	852
Add: Capitalized Financial Leases	1561	1961	1710	1647	1814	2025
Liabilities to Credit Institutions	1251	2378	2538	832	292	4302
Private Placements	755	703	856	794	749	758
Liabilites to Credit Institutions	220	339	247	165	173	132
Derivatives Liabilities	139	222	1209	287	150	428
Non-Current Accrued Interest Expenses	18	19	19	9	9	19
Debt and Debt Equivalents	***5061***	***6738***	***7820***	***4857***	***4153***	***8655***
Share Capital	1117	1117	1117	1117	1117	1117
Other Contributed Capital	2770	2770	2770	2770	2770	2770
Other Reserves	-229	-94	393	423	-40	-448
Retained Earnings	3055	4053	6098	7803	9580	11543
Attributable to Non-Controlling Interests	118	91	115	116	155	162
Total Equity	***6831***	***7937***	***10493***	***12229***	***13582***	***15144***
Total Funds Invested	**11892**	**14675**	**18313**	**17086**	**17735**	**23799**

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

Appendix 6.4. Reformulated Balance Sheet: GEA

(EUR Thousands)	2006	2007	2008	2009	2010	2011
Uses of funds:						
Inventories	532	675	718	566	590	743
Accounts Receivables	1164	1242	1350	1064	1034	1358
Income Tax Asset	17	11	11	21	20	16
Operating Cash Asset	87	97	104	88	88	108
Operating Current Assets	***1799***	***2025***	***2182***	***1739***	***1733***	***2225***
Current Provisions	321	607	646	514	392	353
Accounts Payable	707	768	724	625	672	903
Income Tax Liabilites	29	661	701	45	42	52
Other Liabilities	558	55	56	666	647	787
Liabilites to Employees	166	168	199	171	204	204
Operating Current Liabilities	***1781***	***2258***	***2325***	***2021***	***1957***	***2298***
Operating Working Capital	***18***	***-234***	***-143***	***-281***	***-225***	***-74***
Tangible Assets	462	531	562	631	620	739
Intangible Assets	1292	1396	1476	1690	1712	2260
Deferred Tax Assets	432	365	314	322	349	399
Investments in Enterprises	11	15	12	11	13	13
Add: Operating Leases	586	605	558	584	571	544
Operating Non-Current Assets	***2783***	***2911***	***2922***	***3237***	***3266***	***3955***
Other Provisions	288	232	181	176	170	132
Provisions for Deferred Tax	48	87	88	74	81	146
Other Non-Current Liabilities	14	4	7	11	8	17
Operating Non-Current Liabilities	***349***	***323***	***276***	***261***	***259***	***295***
Net Non-Current Operating Assets	***2434***	***2588***	***2646***	***2976***	***3007***	***3660***
Invested Captial	***2452***	***2354***	***2503***	***2695***	***2782***	***3586***
Other Current Financial Asset	147	176	166	145	147	204
Excess Cash	173	182	336	404	475	324
Assets Held for Sale	583	17	19	3	3	5
Other Non-Current Financial Assets	52	43	60	50	53	56
Financial Assets	***955***	***418***	***581***	***602***	***678***	***589***
Total Funds Invested	**3407**	**2772**	**3085**	**3296**	**3460**	**4176**

Reformulated Balance Sheet: GEA Continued

Total Funds Invested:						
Current Financial Liabilities	90	219	305	239	344	94
Provisions for Pensions	510	513	506	492	485	560
Non-Current Financial Liabilities	18	21	255	247	165	814
Liabilites Held for Sale	943	0	5	0	0	0
Add: Operating Leases	586	605	558	584	571	544
Debt and Debt Equivalents	***2146***	***1358***	***1629***	***1561***	***1564***	***2012***
Share Capital	497	497	497	497	497	497
Capital Reserve	1077	1080	1080	1269	1269	1333
Treasury Shares	-65	0	0	0	0	0
Retained Earnings	-249	-130	-70	17	94	289
Accumulated other Comprehensive Income	0	-36	-55	-48	34	44
Attributable to Non-Controlling Interests	2	4	3	1	2	1
Total Equity	***1261***	***1414***	***1455***	***1735***	***1895***	***2164***
Total Funds Invested	***3407***	***2772***	***3085***	***3296***	***3460***	***4176***

Source: Own illustration based on data from GEA (2012a; 2010 & 2009).

Appendix 6.5. Capitalization of Operating Leases: Alfa Laval

(SEK Millions)	2006	2007	2008	2009	2010	2011
Operating Lease Expense	297	317	352	287	284	304
Cost of Operating Leases	5,76%	5,99%	6,74%	6,12%	5,52%	5,01%
Applying Koller et al (2010)						
Asset Life	10,9	10,9	10,9	10,9	10,9	10,9
Asset Value	2123	2322	1803	1856	2068	2144
Imputed Interest Expense	-	127	156	110	103	104
Depreciation	-	190	196	177	181	200
Applying Damadoran (1999)						
Asset Life	10,9	10,9	10,9	10,9	10,9	10,9
Asset Value	998	1600	1616	1438	1560	1906
Imputed Interest Expense	-	60	108	99	79	78
Depreciation	-	257	244	188	205	226
Arithmetic Average						
Av. Asset Value	1561	1961	1710	1647	1814	2025
Av. Imputed Interest Expense	-	93	132	105	91	91
Av. Depreciation	-	224	220	182	193	213

Source: Damadoran (1999), Koller et al (2010), and data from Alfa Laval (2012a; 2011a & 2010b).

Appendix 6.6. Capitalization of Operating Leases: GEA

(EUR Thousands)	2006	2007	2008	2009	2010	2011
Operating Lease Expense	66	74	104	104	104	98
Cost of Operating Leases	5,76%	5,99%	6,74%	6,12%	5,52%	5,01%
Applying Koller et al (2010)						
Asset Life	10,9	10,9	10,9	10,9	10,9	10,9
Asset Value	496	687	654	677	666	690
Imputed Interest Expense	-	30	46	40	37	33
Depreciation	-	44	58	64	66	65
Applying Damadoran (1999)						
Asset Life	10,9	10,9	10,9	10,9	10,9	10,9
Asset Value	676	523	462	490	476	398
Imputed Interest Expense	-	40	35	28	27	24
Depreciation	-	34	69	76	77	74
Arithmetic Average						
Av. Asset Value	586	605	558	584	571	544
Av. Imputed Interest Expense	-	31	39	35	32	27
Av. Depreciation	-	44	65	69	72	71

Source: Damadoran (1999), Koller et al (2010), and data from GEA (2012a; 2010 & 2009).

Appendix 6.7. Calculation of Operating Lease Interest

	UK Corporate AA	US Aaa Corporate Bond, All Industries	US Baa Corporate Bond, All Industries	Average
2011	4,72%	4,64%	5,66%	5,01%
2010	5,59%	4,94%	6,04%	5,52%
2009	5,77%	5,31%	7,29%	6,12%
2008	7,15%	5,63%	7,44%	6,74%
2007	5,92%	5,56%	6,48%	5,99%
2006	5,20%	5,59%	6,48%	5,76%

Source: Calculations based on data from Tower Watson (2012), and Federal Reserve (2012)

Appendix 6.8. Corporate Credit Ratings

Moody's Long-Term	S&P Long-Term	Investment Comment
Aaa	AAA	Prime
Aa1	AA+	
Aa2	AA	High Grade
Aa3	AA-	
A1	A+	Upper
A2	A	Medium
A3	A-	Grade
Baa1	BBB+	Lower
Baa2	BBB	Medium
Baa3	BBB-	Grade
Ba1	BB+	Non-
Ba2	BB	Investment
Ba3	BB-	Grade

Source: Moody's (2012) and S&P (2012)

Appendix 6.9. Operating Cash: Alfa Laval

(SEK Millions)	2006	2007	2008	2009	2010	2011
Operating Cash (2%)	396	497	557	521	494	573
Excess Cash	379	549	1070	893	1409	1474
Liquid Funds	775	1046	1627	1414	1903	2047

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

Appendix 6.10. Operating Cash: GEA

(EUR Thousands)	2006	2007	2008	2009	2010	2011
Operating Cash (2%)	87	97	104	88	88	108
Excess Cash	320	358	502	549	622	528
Liquid Funds	407	455	606	637	710	636

Source: Own illustration based on data from GEA (2012a; 2010 & 2009).

Appendix 6.11. Reformulated Income Statement: Alfa Laval

(SEK Millions)	2006	2007	2008	2009	2010	2011
Net Sales	19802	24849	27850	26039	24720	28652
Cost of Goods Sold	-12134	-14861	-16058	-15850	-14406	-17120
Gross Profit	***7668***	***9988***	***11792***	***10189***	***10314***	***11532***
Sales Costs	-2545	-2740	-3147	-3131	-3110	-3372
Administration Costs	-887	-1114	-1175	-1055	-1152	-1529
R&D Costs	-520	-590	-713	-648	-615	-641
Add: Operating Interest Expenses	0	93	132	105	91	91
Add: Net Periodic Pension Costs	277	68	75	126	147	130
Less: Service Cost & Amort. for Pension	-215	-57	-64	-78	-100	-100
Other Income and Costs	-563	-245	-461	-604	-240	-424
EBITDA	***3215***	***5403***	***6439***	***4904***	***5335***	***5687***
Depreciation and Amortization	-601	-608	-560	-721	-796	-875
EBIT	***2614***	***4795***	***5879***	***4183***	***4539***	***4812***
Taxes	-613	-1350	-1528	-1017	-1240	-1403
Other Taxes	-37	-27	-6	-6	-8	-22
Tax Shield	-65	-72	-155	-115	-50	-41
Deferred Tax	-65	6	163	-175	-36	120
Cash Flow Hedges	228	-26	-515	551	122	-335
Translation Differences	-269	168	850	-392	-554	-206
NOPAT	***1793***	***3494***	***4689***	***3029***	***2773***	***2924***
Dividends and Changes in Fair Value	2	2	2	-1	2	0
Financial Income	174	271	397	404	327	436
Financial Expenses	-353	-407	-794	-673	-366	-451
Remove: Operating Interest Expenses	0	-93	-132	-105	-91	-91
Remove: Pension Items	-62	-11	-11	-48	-47	-30
Tax Shield	65	72	155	115	50	41
Net Financial Items After Tax	-174	-166	-384	-308	-125	-94
Comprehensive Income	***1619***	***3328***	***4305***	***2721***	***2648***	***2830***
Non-controlling Interests	-33	-43	-33	-27	-28	-28
Comprehensive Income to Equity	***1586***	***3285***	***4272***	***2694***	***2620***	***2802***

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

Appendix 6.12. Reformulated Income Statement: GEA

(EUR Thousands)	2006	2007	2008	2009	2010	2011
Net Sales	4346	4856	5179	4411	4418	5417
Cost of Goods Sold	-3232	-3557	-3722	-3144	-3126	-3840
Gross profit	***1114***	***1299***	***1457***	***1267***	***1292***	***1576***
Sales Costs	-396	-440	-481	-475	-470	-567
Administration Costs	-391	-444	-479	-466	-465	-505
R&D Costs	0	0	0	-55	-60	-71
Add: Operating Interest Expenses	0	31	39	35	32	27
Add: Net Periodic Pension Costs	24	29	24	25	30	34
Less: Service Cost & Amort. for Pension	-16	-8	-3	-3	-7	-11
Other Income and Costs	-29	-16	3	-9	-70	21
Depreciation & Amortization	74	80	82	100	129	136
EBITDA	***380***	***530***	***641***	***420***	***411***	***640***
Depreciation & Amortization	-74	-80	-82	-100	-129	-136
EBIT	***306***	***451***	***560***	***320***	***282***	***504***
Taxes	-66	-114	-110	-48	-40	-86
Tax Shield	-14	-32	-24	-25	-24	-23
Available for Sale Financial Assets	-1	0	0	0	0	1
Profit(loss) After Tax Discont. Operations	-476	46	-248	0	0	0
Cash Flow Hedges	14	0	-18	6	5	-5
Translation Differences	-29	-1	-1	0	77	14
NOPAT	***-266***	***349***	***159***	***253***	***299***	***405***
Dividends and Changes in Fair Value	0	1	2	2	4	3
Financial Income	23	24	38	21	25	31
Financial Expenses	-67	-73	-80	-76	-81	-90
Remove: Operating Interest Expenses	0	-31	-39	-35	-32	-27
Remove: Pension Items	-9	-21	-22	-23	-23	-23
Tax Shield	14	32	24	25	24	23
Net Financial Items After Tax	-39	-67	-77	-85	-83	-83
Comprehensive Income	***-304***	***282***	***82***	***168***	***217***	***322***
Non-controlling Interests	0	-1	-1	-1	-2	-1
Comprehensive Income to Equity	***-304***	***281***	***81***	***167***	***215***	***321***

Source: Own illustration based on data from GEA (2012a; 2010 & 2009).

Appendix 6.13. Pension: Alfa Laval

(Million SEK)	2006	2007	2008	2009	2010	2011
Current Service Costs	-92	-45	-40	-37	-33	-43
Amortization of Prior Service Costs	-123	-12	-24	-41	-67	-57
Interest Costs	-241	-178	-196	-193	-176	-170
Expected Return on Plan Assets	170	141	162	124	126	129
Past Service Costs	1	0	0	0	0	0
Effect of any Curtailments of Settlements	8	26	23	21	3	11
Net Periodic Costs	***-277***	***-68***	***-75***	***-126***	***-147***	***-130***

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

Appendix 6.14. Pension: GEA

(EUR Thousands)	2006	2007	2008	2009	2010	2011
Service Cost	-9	-8	-6	-5	-7	-9
Amortization of Past Service Cost	0	0	0	0	0	-2
Amortization of Actuarial Gains	-7	1	3	3	0	0
Less Service Cost Included from Disc. Op.	1	0	0	0	0	0
Interst Cost	-26	-27	-28	-28	-28	-29
Less Intr. Cost Rep. in Profit from Disc. Op.	6	0	0	0	0	0
Expected Return on Plan Assets	6	6	6	4	5	6
Less Return on Plan Assets	0	0	0	0	0	0
Effects of Plan Settlement	0	0	1	1	0	0
Less Amort. Exp. Rep. in Profit fr. Disc. Op.	4	0	0	0	0	0
Net Periodic Cost	***-24***	***-29***	***-24***	***-25***	***-30***	***-34***

Source: Own illustration based on data from GEA (2012a; 2010 & 2009).

Appendix 6.15. Tax Calculations: Alfa Laval

(SEK Millions)	2006	2007	2008	2009	2010	2011
Tax Rate	27,37%	30,22%	28,72%	27,21%	28,60%	30,47%
Taxes Actual Paid	-613	-1350	-1528	-1017	-1240	-1403
Net Financial Expenses	-239	-238	-538	-423	-175	-136
Tax Shield	-65	-72	-155	-115	-50	-41

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

Appendix 6.16. Tax Calculations: GEA

(EUR Thousands)	2006	2007	2008	2009	2010	2011
Tax Rate	26,13%	32,54%	23,94%	22,86%	22,82%	21,57%
Taxes Actual Paid	-66	-114	-110	-48	-40	-86
Net Financial Expenses	-53	-99	-101	-111	-107	-106
Tax Shield	14	32	24	25	24	23

Source: Own illustration based on data from GEA (2012a; 2010 & 2009).

Appendix 6.17 Return On Equity: Alfa Laval

	2007	2008	2009	2010	2011
NBC After Tax	3,3%	6,5%	6,5%	4,7%	2,2%
ROIC	28,1%	31,0%	18,8%	17,8%	15,8%
Spread (ROIC - NBC)	24,8%	24,5%	12,3%	13,1%	13,5%
ROE Before Minority Interest	45,1%	46,7%	24,0%	20,5%	19,7%
Minority Interest Ratio					
Compr. Income/Comp. Income Before Min.	0,98	0,99	0,99	0,99	0,99
CSE / CSE + Minority Interests	1,00	1,00	1,00	1,00	1,00
Minority Interest Sharing Ratio	0,98	0,99	0,99	0,99	0,99
ROE with Minority Interest	44,0%	46,2%	23,7%	20,3%	19,5%

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

Appendix 6.18. Return On Equity: GEA

	2007	2008	2009	2010	2011
NBC After Tax	6,3%	7,7%	8,5%	8,9%	7,2%
ROIC	14,5%	6,5%	9,7%	10,9%	12,7%
Spread (ROIC - NBC)	8,2%	-1,2%	1,2%	2,0%	5,5%
ROE Before Minority Interest	21,1%	5,7%	10,5%	12,0%	15,9%
Minority Interest Ratio					
Compr. Income/Comp. Income Before Min.	1,00	0,98	1,00	0,99	1,00
CSE / CSE + Minority Interests	1,00	1,00	1,00	1,00	1,00
Minority Interest Sharing Ratio	1,00	0,98	1,00	0,99	1,00
ROE with Minority Interest	21,0%	5,6%	10,5%	11,9%	15,9%

Source: Own illustration based on data from GEA (2012a; 2010 & 2009).

Appendix 6.19. Operating Liability Leverage: Alfa Laval

	2007	2008	2009	2010	2011
Stibor Fixing 3 Month Average	3,88%	4,77%	0,91%	0,93%	2,46%
Stibor Fixing 3 Month Average After Tax	2,71%	3,40%	0,67%	0,67%	1,71%
Average Invested Capital	12455	15117,23	16118,84	15586,77	18561,79
Average Operating Liabilities	9478	11483	11598	11008	11989
Average Operating Assets	21933	26600	27717	26594	30550
Implicit Interest on Operating Liabilities	257	390	77	73	205
Return on Operating Liabilites (ROOA)	17,1%	19,1%	11,2%	10,7%	10,2%
Operating Liability Leverage (OLLEV)	0,76	0,76	0,72	0,71	0,65
Operating Liability Spread (OLSPREAD)	14,4%	15,7%	10,5%	10,0%	8,5%
ROIC	28,1%	31,0%	18,8%	17,8%	15,8%
Leverage Premium	11,0%	11,9%	7,6%	7,1%	5,5%

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b and Riksbank (2012b).

Appendix 6.20. Operating Liability Leverage: GEA

	2007	2008	2009	2010	2011
Euribor 3 month average	4,28%	4,63%	1,23%	0,81%	1,39%
Euribor Fixing 3 Month Average After Tax	2,89%	3,52%	0,95%	0,63%	1,09%
Average Invested Capital	2403	2428,804	2598,936	2738,276	3184,2
Average Operating Liabilities	2356	2591	2442	2249	2405
Average Operating Assets	4759	5020	5040	4987	5589
Implicit Interest on Operating Liabilities	68	91	23	14	26
Return on Operating Liabilites (ROOA)	8,8%	5,0%	5,5%	6,3%	7,7%
Operating Liability Leverage (OLLEV)	0,98	1,07	0,94	0,82	0,76
Operating Liability Spread (OLSPREAD)	5,9%	1,5%	4,5%	5,7%	6,6%
ROIC	14,5%	6,5%	9,7%	10,9%	12,7%
Leverage Premium	5,8%	1,6%	4,3%	4,6%	5,0%

Source: Own illustration based on data from GEA (2012a; 2010 & 2009) and ECB (2012)

Appendix 6.21 Geographic Breakdown

	2006	2007	2008	2009	2010	2011	Average
Split by geographic region							
Nordic	9%	10%	10%	10%	9%	9%	
Order intake	2162	2755	2746	2154	2148	2580	4%
Growth		19%	-2%	-23%	9%	24%	5%
Western Europe	29%	26%	25%	27%	24%	22%	
Order intake	6965	7164	6866	5816	5729	6308	-2%
Growth		10%	-6%	-23%	7%	18%	1%
Central & Eastern Europe	10%	9%	8%	8%	8%	8%	
Order intake	2402	2480	2197	1723	1910	2294	-1%
Growth		8%	-16%	-18%	14%	36%	5%
Asia	29%	31%	34%	31%	32%	35%	
Order intake	6965	8541	9338	6677	7638	10035	8%
Growth		28%	11%	-37%	18%	39%	12%
North America	17%	16%	15%	16%	19%	17%	
Order intake	4083	4408	4120	3446	4535	4874	4%
Growth		14%	-6%	-26%	36%	19%	7%
Latin America	4%	6%	6%	6%	6%	7%	
Order intake	961	1653	1648	1292	1432	2007	16%
Growth		51%	7%	-27%	14%	39%	17%
Other	2%	2%	2%	2%	2%	2%	
Order intake	480	551	549	431	477	573	4%

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

Appendix 6.22. Common-Size Analysis: Alfa Laval

(SEK Millions)	2006	2007	2008	2009	2010	2011
Net Sales	100%	100%	100%	100%	100%	100%
Cost of Goods Sold	-61%	-60%	-58%	-61%	-58%	-60%
Gross Profit	***39%***	***40%***	***42%***	***39%***	***42%***	***40%***
Sales Costs	-13%	-11%	-11%	-12%	-13%	-12%
Administration Costs	-4%	-4%	-4%	-4%	-5%	-5%
R&D Costs	-3%	-2%	-3%	-2%	-2%	-2%
Add: Operating Interest Expenses	0%	0%	0%	0%	0%	0%
Add: Net Periodic Pension Costs	1%	0%	0%	0%	1%	0%
Less: Service Cost & Amort. for Pensior	-1%	0%	0%	0%	0%	0%
Other Income and Costs	-3%	-1%	-2%	-2%	-1%	-1%
EBITDA	***16%***	***22%***	***23%***	***19%***	***22%***	***20%***
Depreciation and Amortization	-3%	-2%	-2%	-3%	-3%	-3%
EBIT	***13%***	***19%***	***21%***	***16%***	***18%***	***17%***
Taxes	-3%	-5%	-5%	-4%	-5%	-5%
Other Taxes	0%	0%	0%	0%	0%	0%
Tax Shield	0%	0%	-1%	0%	0%	0%
Deferred Tax	0%	0%	1%	-1%	0%	0%
Cash Flow Hedges	1%	0%	-2%	2%	0%	-1%
Translation Differences	-1%	1%	3%	-2%	-2%	-1%
NOPAT	***9%***	***14%***	***17%***	***12%***	***11%***	***10%***
Dividends and Changes in Fair Value	0%	0%	0%	0%	0%	0%
Financial Income	1%	1%	1%	2%	1%	2%
Financial Expenses	-2%	-2%	-3%	-3%	-1%	-2%
Remove: Operating Interest Expenses	0%	0%	0%	0%	0%	0%
Remove: Pension Items	0%	0%	0%	0%	0%	0%
Tax Shield	0%	0%	1%	0%	0%	0%
Net Financial Items After Tax	-1%	-1%	-1%	-1%	-1%	0%
Comprehensive Income	***8%***	***13%***	***15%***	***10%***	***11%***	***10%***
Non-controlling Interests	0%	0%	0%	0%	0%	0%
Comprehensive Income to Equity	***8%***	***13%***	***15%***	***10%***	***11%***	***10%***

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

Appendix 6.23. Asset Turnover Analysis

(SEK Millions)	2007	2008	2009	2010	2011
Inventories	0,18	0,20	0,20	0,19	0,19
Accounts Receivables	0,18	0,19	0,19	0,17	0,16
Other Recievables	0,07	0,09	0,09	0,08	0,07
Operating Cash Asset	0,02	0,02	0,02	0,02	0,02
Prepaid Costs and Accrued Income	0,00	0,00	0,01	0,01	0,01
Other Long-Term Securities	0,00	0,00	0,00	0,00	0,00
Capitalized Financing Costs	0,00	0,00	0,00	0,00	0,00
Operating Current Assets	***0,46***	***0,50***	***0,51***	***0,46***	***0,45***
Advances from Customers	0,07	0,08	0,09	0,07	0,06
Accounts Payable	0,09	0,08	0,08	0,08	0,08
Current Tax Liabilities	0,05	0,06	0,05	0,04	0,04
Other Liabilities	0,03	0,04	0,04	0,05	0,05
Other Provisions	0,05	0,06	0,07	0,07	0,05
Accrued Costs and Prepaid Income	0,03	0,04	0,04	0,05	0,05
Operating Current Liabilities	***0,32***	***0,35***	***0,37***	***0,36***	***0,33***
Net Working Capital	***0,13***	***0,15***	***0,13***	***0,11***	***0,12***
Tangible Assets	0,11	0,11	0,14	0,14	0,13
Add: Capitalized Operating Leases	0,07	0,07	0,06	0,07	0,07
Goodwill	0,16	0,18	0,22	0,24	0,27
Other Intangible Assets	0,05	0,06	0,08	0,10	0,11
Deferred Tax Assets	0,03	0,04	0,05	0,05	0,05
Capitalized Financing Costs	0,00	0,00	0,00	0,00	0,00
Operating Non-Current Assets	***0,43***	***0,45***	***0,56***	***0,61***	***0,62***
Provisions for Deferred Tax	0,04	0,04	0,05	0,06	0,06
Other Provisions	0,01	0,01	0,02	0,02	0,02
Accrued Costs and Prepaid Income	0,00	0,00	0,01	0,01	0,01
Operating Non-Current Liabilities	***0,06***	***0,06***	***0,07***	***0,09***	***0,09***
Net Non-Current Operating Assets	***0,37***	***0,39***	***0,48***	***0,53***	***0,53***
Invested Captial	***0,50***	***0,54***	***0,62***	***0,63***	***0,65***

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

Appendix 7.1. Forecasted Income Statement

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

(SEK Millions)	Historical Development						Detailed Forecast					Simplified Forecast					∞
	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	Terminal Period
Equipment	10934	13586	15657	14665	14065	16490	17315	18527	20009	21409	22480	23154	23849	24326	24812	25308	25815
Process	8829	11242	12143	11350	10632	12160	12768	13534	14481	15350	16118	16601	17099	17441	17790	18146	18509
Other	39	21	50	24	23	2	0	0	0	0	0	0	0	0	0	0	0
Net Sales	***19802***	***24849***	***27850***	***26039***	***24720***	***28652***	***30083***	***32061***	***34490***	***36760***	***38598***	***39756***	***40948***	***41767***	***42602***	***43455***	***44324***
Cost of Goods Sold	-12134	-14861	-16058	-15850	-14406	-17120	-17749	-18916	-20349	-22056	-23159	-24251	-24978	-25478	-25988	-26507	-27037
Gross Profit	***7668***	***9988***	***11792***	***10189***	***10314***	***11532***	***12334***	***13145***	***14141***	***14704***	***15439***	***15505***	***15970***	***16289***	***16615***	***16947***	***17286***
Sales Costs	-2545	-2740	-3147	-3131	-3110	-3372	-3610	-3847	-4139	-4411	-4632	-4771	-4914	-5012	-5112	-5215	-5319
Administration Costs	-887	-1114	-1175	-1055	-1152	-1529	-1504	-1603	-1725	-1838	-1930	-1988	-2047	-2088	-2130	-2173	-2216
R&D Costs	-520	-590	-713	-648	-615	-641	-752	-802	-862	-919	-965	-994	-1024	-1044	-1065	-1086	-1108
Add: Operating Interest Expenses	0	93	132	105	91	91	67	71	77	82	86	106	109	111	113	116	118
Add: Net Periodic Pension Costs	277	68	75	126	147	130	120	128	138	147	154	159	164	167	170	174	177
Less: Service Cost & Amort. for Pension	-215	-57	-64	-78	-100	-100	-90	-96	-103	-110	-116	-119	-123	-125	-128	-130	-133
Other Income and Costs	-563	-245	-461	-604	-240	-424	-451	-481	-517	-551	-579	-596	-614	-627	-639	-652	-665
EBITDA	***3215***	***5403***	***6439***	***4904***	***5335***	***5687***	***6114***	***6516***	***7009***	***7103***	***7458***	***7302***	***7521***	***7671***	***7824***	***7981***	***8140***
Depreciation and Amortization	-601	-608	-560	-721	-796	-875	-902	-962	-1035	-1103	-1158	-1193	-1228	-1253	-1278	-1304	-1330
EBIT	***2614***	***4795***	***5879***	***4183***	***4539***	***4812***	***5211***	***5554***	***5975***	***6000***	***6300***	***6109***	***6292***	***6418***	***6546***	***6677***	***6811***
Effective Tax	-715	-1449	-1689	-1138	-1298	-1466	-1514	-1613	-1735	-1743	-1830	-1774	-1827	-1864	-1901	-1939	-1978
Deferred Tax	-65	6	163	-175	-36	120	0	0	0	0	0	0	0	0	0	0	0
Cash Flow Hedges	228	-26	-515	551	122	-335	0	0	0	0	0	0	0	0	0	0	0
Translation Differences	-269	168	850	-392	-554	-206	0	0	0	0	0	0	0	0	0	0	0
NOPAT	***1793***	***3494***	***4689***	***3029***	***2773***	***2924***	***3698***	***3941***	***4239***	***4258***	***4470***	***4335***	***4465***	***4554***	***4645***	***4738***	***4833***
Net Financial Expenses After Tax	-174	-166	-384	-308	-125	-94	-159	-157	-169	-180	-189	-195	-200	-205	-209	-213	-217
Comprehensive Income	***1619***	***3328***	***4305***	***2721***	***2648***	***2830***	***3539***	***3784***	***4070***	***4077***	***4281***	***4140***	***4264***	***4349***	***4436***	***4525***	***4616***
Non-controlling Interests	-33	-43	-33	-27	-28	-28	-35	-38	-41	-41	-43	-41	-43	-43	-44	-45	-46
Comprehensive Income to Equity	***1586***	***3285***	***4272***	***2694***	***2620***	***2802***	***3503***	***3746***	***4030***	***4037***	***4238***	***4099***	***4222***	***4306***	***4392***	***4480***	***4570***

Appendix 7.2. Forecasted Growth and Ratios for Income Statement

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

	Historical Development					Detailed Forecast					Simplified Forecast					∞
	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	Terminal Period
Equipment	24,3%	15,2%	-6,3%	-4,1%	17,2%	5,0%	7,0%	8,0%	7,0%	5,0%	3,0%	3,0%	2,0%	2,0%	2,0%	2,0%
Process	27,3%	8,0%	-6,5%	-6,3%	14,4%	5,0%	6,0%	7,0%	6,0%	5,0%	3,0%	3,0%	2,0%	2,0%	2,0%	2,0%
Other	-46,2%	138,1%	-52,0%	-4,2%	-91,3%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Net Sales	***25,5%***	***12,1%***	***-6,5%***	***-5,1%***	***15,9%***	***5,0%***	***6,6%***	***7,6%***	***6,6%***	***5,0%***	***3,0%***	***3,0%***	***2,0%***	***2,0%***	***2,0%***	***2,0%***
Cost of Goods Sold	-59,8%	-57,7%	-60,9%	-58,3%	-59,8%	-59,0%	-59,0%	-59,0%	-60,0%	-60,0%	-61,0%	-61,0%	-61,0%	-61,0%	-61,0%	-61,0%
Gross Profit	***40,2%***	***42,3%***	***39,1%***	***41,7%***	***40,2%***	***41,0%***	***41,0%***	***41,0%***	***40,0%***	***40,0%***	***39,0%***	***39,0%***	***39,0%***	***39,0%***	***39,0%***	***39,0%***
Sales Costs	-11,0%	-11,3%	-12,0%	-12,6%	-11,8%	-12,0%	-12,0%	-12,0%	-12,0%	-12,0%	-12,0%	-12,0%	-12,0%	-12,0%	-12,0%	-12,0%
Administration Costs	-4,5%	-4,2%	-4,1%	-4,7%	-5,3%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%	-5,0%
R&D Costs	-2,4%	-2,6%	-2,5%	-2,5%	-2,2%	-2,5%	-2,5%	-2,5%	-2,5%	-2,5%	-2,5%	-2,5%	-2,5%	-2,5%	-2,5%	-2,5%
Add: Operating Interest Expenses	0,4%	0,5%	0,4%	0,4%	0,3%	0,2%	0,2%	0,2%	0,2%	0,2%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%
Add: Net Periodic Pension Costs	0,3%	0,3%	0,5%	0,6%	0,5%	0,4%	0,4%	0,4%	0,4%	0,4%	0,4%	0,4%	0,4%	0,4%	0,4%	0,4%
Less: Service Cost & Amort. for Pension	-0,2%	-0,2%	-0,3%	-0,4%	-0,3%	-0,3%	-0,3%	-0,3%	-0,3%	-0,3%	-0,3%	-0,3%	-0,3%	-0,3%	-0,3%	-0,3%
Other Income and Costs	-1,0%	-1,7%	-2,3%	-1,0%	-1,5%	-1,5%	-1,5%	-1,5%	-1,5%	-1,5%	-1,5%	-1,5%	-1,5%	-1,5%	-1,5%	-1,5%
EBITDA	***21,7%***	***23,1%***	***18,8%***	***21,6%***	***19,8%***	***20,3%***	***20,3%***	***20,3%***	***19,3%***	***19,3%***	***18,4%***	***18,4%***	***18,4%***	***18,4%***	***18,4%***	***18,4%***
Depreciation and Amortization	-3,0%	-2,4%	-2,0%	-2,8%	-3,2%	-3,0%	-3,0%	-3,0%	-3,0%	-3,0%	-3,0%	-3,0%	-3,0%	-3,0%	-3,0%	-3,0%
EBIT	***19,3%***	***21,1%***	***16,1%***	***18,4%***	***16,8%***	***17,3%***	***17,3%***	***17,3%***	***16,3%***	***16,3%***	***15,4%***	***15,4%***	***15,4%***	***15,4%***	***15,4%***	***15,4%***
Effective Tax Tate	-30,2%	-28,7%	-27,2%	-28,6%	-30,5%	-29,0%	-29,0%	-29,0%	-29,0%	-29,0%	-29,0%	-29,0%	-29,0%	-29,0%	-29,0%	-29,0%
Deferred Tax	0,0%	0,6%	-0,7%	-0,1%	0,4%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Cash Flow Hedges	-0,1%	-1,8%	2,1%	0,5%	-1,2%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Translation Differences	0,7%	3,1%	-1,5%	-2,2%	-0,7%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
NOPAT	***14,1%***	***16,8%***	***11,6%***	***11,2%***	***10,2%***	***12,3%***	***12,3%***	***12,3%***	***11,6%***	***11,6%***	***10,9%***	***10,9%***	***10,9%***	***10,9%***	***10,9%***	***10,9%***
Net Financial Expenses After Tax	-0,7%	-1,4%	-1,2%	-0,5%	-0,3%	-0,5%	-0,5%	-0,5%	-0,5%	-0,5%	-0,5%	-0,5%	-0,5%	-0,5%	-0,5%	-0,5%
Comprehensive Income	***13,4%***	***15,5%***	***10,4%***	***10,7%***	***9,9%***	***11,8%***	***11,8%***	***11,8%***	***11,1%***	***11,1%***	***10,4%***	***10,4%***	***10,4%***	***10,4%***	***10,4%***	***10,4%***
Non-controlling Interests	-0,2%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%
Comprehensive Income to Equity	***13,2%***	***15,3%***	***10,3%***	***10,6%***	***9,8%***	***11,6%***	***11,7%***	***11,7%***	***11,0%***	***11,0%***	***10,3%***	***10,3%***	***10,3%***	***10,3%***	***10,3%***	***10,3%***

Appendix 7.3. Forecasted Balance Sheet

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

(SEK Millions)	Historical Development						Detailed Forecast					Simplified Forecast					∞
	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	Terminal Period
Inventories	3792	5086	5972	4485	4769	6148	5731	6108	6571	7003	7353	7574	7801	7957	8116	8279	8444
Accounts Receivables	3973	5049	5706	4123	4181	5080	4862	5181	5574	5941	6238	6425	6618	6750	6885	7023	7163
Other Recievables	1661	1973	2777	1982	1878	2106	2091	2229	2398	2556	2683	2764	2847	2904	2962	3021	3082
Operating Cash Asset	396	497	557	521	494	573	560	597	642	685	719	741	763	778	794	809	826
Prepaid Costs and Accrued Income	74	101	164	148	181	174	186	199	214	228	239	246	254	259	264	269	275
Other Long-Term Securities	5	10	18	39	32	25	30	32	34	37	38	40	41	42	42	43	44
Capitalized Financing Costs	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operating Current Assets	***9909***	***12724***	***15194***	***11298***	***11535***	***14106***	***13461***	***14346***	***15433***	***16449***	***17271***	***17789***	***18323***	***18689***	***19063***	***19444***	***19833***
Advances from Customers	1751	1895	2444	2019	1357	2020	1773	1889	2033	2166	2275	2343	2413	2461	2511	2561	2612
Accounts Payable	1968	2283	2449	1630	2120	2529	2441	2601	2798	2982	3131	3225	3322	3389	3456	3525	3596
Current Tax Liabilities	951	1412	1692	929	1035	1050	1095	1167	1255	1337	1404	1446	1490	1520	1550	1581	1613
Other Liabilities	668	982	1087	1140	1476	1356	1487	1584	1705	1817	1908	1965	2024	2064	2105	2148	2191
Other Provisions	963	1401	1849	1926	1496	1612	1632	1739	1871	1994	2093	2156	2221	2265	2311	2357	2404
Accrued Costs and Prepaid Income	730	943	1205	1125	1373	1552	1536	1636	1760	1876	1970	2029	2090	2132	2175	2218	2262
Operating Current Liabilities	***7031***	***8916***	***10726***	***8769***	***8857***	***10119***	***9962***	***10617***	***11421***	***12173***	***12781***	***13165***	***13560***	***13831***	***14108***	***14390***	***14678***
Net Working Capital	***2878***	***3808***	***4468***	***2529***	***2678***	***3987***	***3499***	***3729***	***4012***	***4276***	***4490***	***4624***	***4763***	***4858***	***4955***	***5055***	***5156***
Tangible Assets	2515	2824	3546	3548	3512	3936	3911	4168	4484	4779	5018	5566	5733	5847	5964	6084	6205
Add: Capitalized Operating Leases	1561	1961	1710	1647	1814	2025	2015	2148	2311	2463	2586	3180	3276	3341	3408	3476	3546
Goodwill	3706	4459	5383	6143	5952	9543	9543	9543	9543	9543	9543	9543	9543	9543	9543	9543	9734
Other Intangible Assets	1191	1275	1890	2490	2581	3502	3309	3527	3794	4044	4246	4771	4914	5012	5112	5215	5319
Deferred Tax Assets	711	1012	1218	1367	1301	1293	1362	1451	1561	1664	1747	1800	1854	1891	1929	1967	2006
Capitalized Financing Costs	14	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operating Non-Current Assets	***9698***	***11536***	***13747***	***15195***	***15160***	***20299***	***20140***	***20837***	***21693***	***22492***	***23140***	***24859***	***25319***	***25635***	***25956***	***26285***	***26810***
Provisions for Deferred Tax	949	1090	1161	1390	1617	1930	1862	1984	2135	2275	2389	2461	2535	2585	2637	2690	2744
Other Provisions	318	409	403	439	632	520	605	645	693	739	776	799	823	840	856	874	891
Accrued Costs and Prepaid Income	121	122	139	169	142	160	159	169	182	194	203	210	216	220	225	229	234
Operating Non-Current Liabilities	***1388***	***1621***	***1703***	***1998***	***2391***	***2610***	***2625***	***2798***	***3010***	***3208***	***3368***	***3470***	***3574***	***3645***	***3718***	***3792***	***3868***
Net Non-Current Operating Assets	***8310***	***9915***	***12044***	***13197***	***12769***	***17689***	***17515***	***18039***	***18683***	***19284***	***19771***	***21390***	***21745***	***21989***	***22238***	***22492***	***22942***
Invested Captial	***11188***	***13723***	***16512***	***15726***	***15448***	***21676***	***21014***	***21768***	***22694***	***23560***	***24261***	***26014***	***26508***	***26848***	***27194***	***27547***	***28098***

Appendix 7.4. Forecasted Balance Sheet Ratios

Source: Own illustration based on data from Alfa Laval (2012a; 2011a &

	Historical Development					Detailed Forecast					Simplified Forecast					∞
	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	Terminal Period
Inventories	0,18	0,20	0,20	0,19	0,19	0,19	0,19	0,19	0,19	0,19	0,19	0,19	0,19	0,19	0,19	0,19
Accounts Receivables	0,18	0,19	0,19	0,17	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16
Other Recievables	0,07	0,09	0,09	0,08	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07
Operating Cash Asset	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02
Prepaid Costs and Accrued Income	0,00	0,00	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
Other Long-Term Securities	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Capitalized Financing Costs	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Operating Current Assets	***0,46***	***0,50***	***0,51***	***0,46***	***0,45***	***0,45***	***0,45***	***0,45***	***0,45***	***0,45***	***0,45***	***0,45***	***0,45***	***0,45***	***0,45***	***0,45***
Advances from Customers	0,07	0,08	0,09	0,07	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
Accounts Payable	0,09	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08
Current Tax Liabilities	0,05	0,06	0,05	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
Other Liabilities	0,03	0,04	0,04	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
Other Provisions	0,05	0,06	0,07	0,07	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
Accrued Costs and Prepaid Income	0,03	0,04	0,04	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
Operating Current Liabilities	***0,32***	***0,35***	***0,37***	***0,36***	***0,33***	***0,33***	***0,33***	***0,33***	***0,33***	***0,33***	***0,33***	***0,33***	***0,33***	***0,33***	***0,33***	***0,33***
Net Working Capital	***0,13***	***0,15***	***0,13***	***0,11***	***0,12***	***0,12***	***0,12***	***0,12***	***0,12***	***0,12***	***0,12***	***0,12***	***0,12***	***0,12***	***0,12***	***0,12***
Tangible Assets	0,11	0,11	0,14	0,14	0,13	0,13	0,13	0,13	0,13	0,13	0,14	0,14	0,14	0,14	0,14	0,14
Add: Capitalized Operating Leases	0,07	0,07	0,06	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,08	0,08	0,08	0,08	0,08	0,08
Goodwill	0,16	0,18	0,22	0,24	0,27	0,32	0,30	0,28	0,26	0,25	0,24	0,23	0,23	0,22	0,22	0,22
Other Intangible Assets	0,05	0,06	0,08	0,10	0,11	0,11	0,11	0,11	0,11	0,11	0,12	0,12	0,12	0,12	0,12	0,12
Deferred Tax Assets	0,03	0,04	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
Capitalized Financing Costs	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Operating Non-Current Assets	***0,43***	***0,45***	***0,56***	***0,61***	***0,62***	***0,67***	***0,65***	***0,63***	***0,61***	***0,60***	***0,63***	***0,62***	***0,61***	***0,61***	***0,60***	***0,60***
Provisions for Deferred Tax	0,04	0,04	0,05	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
Other Provisions	0,01	0,01	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02
Accrued Costs and Prepaid Income	0,00	0,00	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
Operating Non-Current Liabilities	***0,06***	***0,06***	***0,07***	***0,09***	***0,09***	***0,09***	***0,09***	***0,09***	***0,09***	***0,09***	***0,09***	***0,09***	***0,09***	***0,09***	***0,09***	***0,09***
Net Non-Current Operating Assets	***0,37***	***0,39***	***0,48***	***0,53***	***0,53***	***0,58***	***0,56***	***0,54***	***0,52***	***0,51***	***0,54***	***0,53***	***0,53***	***0,52***	***0,52***	***0,52***
Invested Captial	***0,50***	***0,54***	***0,62***	***0,63***	***0,65***	***0,70***	***0,68***	***0,66***	***0,64***	***0,63***	***0,65***	***0,65***	***0,64***	***0,64***	***0,63***	***0,63***

Appendix 7.5. Forecasted FCFF

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

	Historical Development					Detailed Forecast					Simplified Forecast					∞
	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	Terminal Value
NOPAT	3494	4689	3029	2773	2924	3698	3941	4239	4258	4470	4335	4465	4554	4645	4738	4833
Depreciation & Amortization	608	560	721	796	875	902	962	1035	1103	1158	1193	1228	1253	1278	1304	1330
Gross Cash flow	4102	5249	3750	3569	3799	4600	4903	5274	5360	5628	5527	5693	5807	5923	6042	6162
Change in Net Working Capital	-930	-660	1939	-150	-1309	487,9	-230	-283	-264	-214	-135	-139	-95,3	-97,2	-99,1	-101
Net Investments	-2213	-2689	-1875	-368	-5795	-728	-1486	-1679	-1704	-1645	-2812	-1584	-1497	-1527	-1558	-1780
Gross Investment	-3143	-3349	65	-517	-7104	-240	-1716	-1961	-1968	-1859	-2946	-1723	-1592	-1624	-1657	-1881
FCFF	***959***	***1900***	***3814***	***3051***	***-3304***	***4360***	***3187***	***3313***	***3392***	***3770***	***2581***	***3971***	***4215***	***4299***	***4385***	***4282***

Appendix 7.6. Forecasted Key Ratios

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).

	Historical					Detailed Forecast					Simplified Forecast					∞
	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	Terminal Value
PM	14%	17%	12%	11%	10%	12%	12%	12%	12%	12%	11%	11%	11%	11%	11%	11%
ATO	2,0	1,8	1,6	1,6	1,5	1,4	1,5	1,6	1,6	1,6	1,6	1,6	1,6	1,6	1,6	1,6
ROIC	28%	31%	19%	18%	16%	17%	18%	19%	18%	19%	17%	17%	17%	17%	17%	17%
EBiTDA margin	22%	23%	19%	22%	20%	20%	20%	20%	19%	19%	18%	18%	18%	18%	18%	18%
EBIT margin	19%	21%	16%	18%	17%	17%	17%	17%	16%	16%	15%	15%	15%	15%	15%	15%

Appendix 8.1. Capital Structure

(SEK Millions)	2006	2007	2008	2009	2010	2011	2012
Number of Outstanding Shares (million)	112	112	429	422	422	419	419
Closing Price (SEK)	309	364	68	99	142	130	136
Equity Value (E)	34507	40649	28984	41782	59803	54697	57088
Net Financial Obligations (NFO)	2796	3825	4309	1850	51	4507	4507
Capitalization of Operating Leases (COL)	1561	1961	1710	1647	1814	2025	2025
Adjusted Enterprise Value (AEV)	38863	46434	35003	45279	61668	61229	63620
E/AEV	88,79%	87,54%	82,81%	92,28%	96,97%	89,33%	89,73%
NFO/AEV	7,19%	8,24%	12,31%	4,09%	0,08%	7,36%	7,08%
COL/AEV	4,02%	4,22%	4,88%	3,64%	2,94%	3,31%	3,18%

Source: Own illustration based on data from Alfa Laval (2012a; 2011a & 2010b).