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Going back to the roots?

A study of the Nordic forest industry

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Abstract

Title:	Going back to the roots? A study of the Nordic forest industry
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Key Words:	Forest industry, Value Migration, Disruptive Technologies, Industry transformation, Business model reinvention
Purpose:	The purpose of this thesis is to examine the potential business model transformation in the forest industry, and to find out how, and in which areas future profits will be made.
Methodology:	With an abductive approach, the study was conducted by forming a comprehension of the business model transformation in the forest industry, based on the developed theoretical framework. The empirical findings were generated from interviews with three groups of professionals, and then supplemented with a segment analysis and various document studies.
Conclusions:	The study shows that the Nordic forest industry is in a value outflow stage, and that there is a need to rethink the existing strategies and business models. Traditional low-cost strategies based on commodity products and high volumes will not be competitive for actors with Nordic forest holdings. Instead, future profitability will be found in more value added products with a higher level of service, i.e. offering complete solutions to customers. In order to make the transformation possible, and to find new areas of value, companies need to take a broader view on research. An example of this could be to create a spin-off company consisting of professionals in material, marketing, and consumer behaviour that is conducting research independently from the mother company.

Sammanfattning

Titel:	Going back to the roots? A study of the Nordic forest industry
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Författare:	Andreas Deibrant Fredrik Skarp Jan Erik Smith
Handledare:	Allan T. Malm
Fem nyckelord:	Skogsindustrin, Value Migration, Disruptive Technologies, branschförändring, förändring av affärsmodell
Syfte:	Syftet med uppsatsen är att undersöka den eventuella affärsmodellsförändringen i skogsindustrin, samt att ta reda på hur, och inom vilka områden, framtida lönsamhet kan uppnås.
Metod:	Med en abduktiv ansats genomfördes studien genom att utveckla en förståelse kring affärsmodellsförändringen i skogsindustrin, baserat på det framtagna teoretiska ramverket. Resultaten byggdes i första hand på intervjuer av tre grupper av experter, vilka kompletterades med en segmentanalys samt dokumentstudier.
Resultat:	Studien visar att den nordiska skogsindustrin är i ett stadium av ”value outflow” och att det finns ett behov att förändra existerande strategier och affärsmodeller. Traditionella låg-kostnadsstrategier baserade på stora volymer kommer inte att vara konkurrenskraftiga för aktörer med nordiskt skogsinnehav. Istället kommer framtida lönsamhet att finnas i produkter med högre grad av service där mervärde kan skapas, dvs. förmågan att erbjuda kompletta lösningar för kunderna. För att kunna möjliggöra denna förändring, och för att hitta nya värdeskapande områden, måste företagen vidga sin syn på forskning. Ett exempel på detta skulle kunna vara att skapa ett spin-off företag bestående av experter inom material, marknadsföring och konsumentbeteende, vilket arbetar med forskning och utveckling oberoende av moderbolaget.

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1 INTRODUCTION

This chapter introduces the topic to the reader and describes the development in the forest industry. After a brief historic review, we will discuss several forces that are reshaping the competitive landscape and how this may change the way of doing business. Finally, the purpose of the thesis is presented.

For several years now, the forest industry has been facing some difficult times with declining profits despite a growing demand. Factors such as over-establishment and increased competition from emerging markets have put pressure on margins and the return on capital looks far from satisfying. Most of the major companies find themselves struggling to find new, more value creating paths to sustainable profits. Traditional business models where production was dependent on large habitations of natural forests are becoming obsolete as plantations with significantly shorter lead-times are emerging. Other phenomena such as new engineered wood products, competition from substitutes, increasing energy prices, and increasing environmental awareness are also reshaping the industry. This development has not gone unseen by the leading actors and most companies realize that something needs to be done. The question is *what*. There are examples of companies that divest parts of their businesses to become more focused but which business areas will be most profitable in the future? And could there be room for new, uncontested market space with the Nordic forest as a base?

1.1 Background

For thousands of years the forest has been an inseparable part of life in Northern Europe. For long time the forest acted as a surrounding force, tenacious, hard to master and with an almost negligible economic value. However, as new techniques were discovered it eventually became possible to cultivate the poor soil. Mining businesses were developed and the demand for timber and wood increased, mainly driven by the industrial revolution in England. This created a rapid technological

development making it possible for a worker to chop down 15 trees in one day with the help of an axe (Ekman, 2008). 150 years later the forest industry in Sweden contributes to some 20 percent of all investments made within the national industry, and one worker, with the help of his machine, is able to chop down 600 trees in one day (Skogsindustrierna, 2008).

Traditionally, forest production was to a great extent dependent on natural forests for its basic resource: wood. Given that wood is a low-value, high-volume product entailing considerable transportation costs, the initial processing such as the production of pulp and timber was typically carried out close to the forests. Consequently, forest-rich regions enjoyed a comparative advantage in wood production. However, through globalization, the ties between forest processing and natural forests-regions have become dissolved. Due to the availability of low-cost transportation, initial wood-processing could shift to regions with lower labour costs. One example of this is the flow of timber from North America to Japan from the late 1960s to the early 1990s: The raw wood was logged from the forests-rich regions in North America in order to be processed in the final market in Japan where the labour costs were substantially lower (Bael & Sedjo, 2006).

More recent indications that the forest industry map is being redrawn could be seen by looking at the largest supplying countries. Canada seems to be loosing its position as a leading forest nation as a great deal of capacity has been shut down (Skogsland, 2008). Russia, which seems to be determined in better exploiting their own natural assets, is another example that changes are about to evolve globally. The country's heavy raise of wood tariffs and the plans to invest in new production plants is an indication of this (Veckans Affärer, 2008).

On a general level, the profitability in the forest industry is far from satisfying (see Table 1, page 8). For more than a decade the industry has been struggling to make profits even in times of growing demand and a general favourable economic climate. The profitability levels in the emerging economies are slightly higher than the mature markets but even these levels seem rather low. It is clear that something needs to be done.

Region	Average ROCE: 2007	2006	Percentage of total sales in the world 2007
USA	5,5 %	5,2 %	31 %
Canada	-0,1 %	2,0 %	8,3 %
Europe	4,9 %	4,6 %	36,3 %
Japan	2,5 %	3,6 %	12,2 %
Other Asia	7,3 %	7,4 %	3,5 %
Latin America	7,8 %	9,3 %	5 %
Oceania/Africa	5,4 %	4,5 %	3,7 %

(Table 1. Return on capital employed by region. Source: PWC, 2008)

1.2 The Nordic perspective

The forest industry is one of the oldest and most important sectors of the Swedish economy. Not only is it essential for the economy as a whole but with around 70 000 directly employed, it contributes to the survival and development of many sparsely populated areas in the country. Some 60 percent of the 185 billion SEK worth of production is exported which makes Sweden, together with Finland, one of the main actors on the international market (Skogsindustrierna, 2008). This is clearly displayed by looking at the ten largest forest companies in the world (ranked by sales) where four of them are either Finish or Swedish (PWC, 2008).

Forest, a naturally and renewable source of material that uses the sun as its driving force covers about one third of the total land area on earth. Together with Finland, Sweden is one of the countries with the highest proportion forestland to its total area and every year the stock grows with about 100 million cubic metres. Yet, only 80 percent of the increase is cleared by the industry which makes the forest supply continuously grow (Skogsindustrierna, 2008). The fact that the country sits on this "free" supply could be seen as one of the main factors behind Sweden's historical success in the international forest industry. Despite its relatively small size (compared to Russia, Canada and USA), Sweden stands for about 7 percent of the total world production in the forest, paper and packaging industry (Skogsstyrelsen, 2007). This makes the sector an important part of the country's economy; about 11 percent of the total export value is represented by the forest industry (Skogsindustrierna, 2008).

However, the competitive climate is changing rapidly and the Nordic forest industry is today under severe pressure. Apart from tough competition and over-establishment, margins have been hit by staggering prices on energy and fibre, high transportation costs and a weak US dollar. Globalization continues to reshape the business landscape and emerging markets such as China, Russia and Latin America are becoming more important. The intensified debate on climate change has put further pressure on the industry to change. This description of the forest industry could easily sound like a prophecy of doom, as one European executive puts it;

> *"…It has been difficult; it has not been profitable even in a time of growth. How an industry can handle declining demand and still be profitable when margins are going down every year – that is challenge number one."* (PWC CEO Perspectives, 2008:3)

1.3 Problem discussion

Since the 1990s the forest industry has been characterized by a continuing consolidation. The companies have gotten fewer but larger and multinational through several mergers and acquisitions. Today, the top five producers in the North American market account for 70 percent or more of the capacity on most product segments (Roberts, 2006). The development has been similar in the Nordic countries with giants such as SCA and Stora Enso as a result. However, the importance of size in the industry seems to have been overestimated as more focused companies such as Swedish Holmen have had relatively better profitability (Veckans Affärer, 2008). Even some of the major players seem to be aware of this. In 2004, International Paper announced a massive restructuring program aiming to shrink the company by 30 percent. Following this plan, the company has divested most of its forest products, coated papers business and in 2006 they had sold 85 percent of its U.S. forestland holdings. All this have made the company's portfolio narrower and more focused (International Paper, 2008). Jon B. Sande at Norwegian School of Management has also commented on the trend;

> *"What we are seeing in the forest industry seems to be a shift away from diversified, vertically integrated, locally or regionally based enterprises towards companies that are more focused horizontally and vertically, and more diversified geographically."* (Sande, 2002:20)

In year 2006, in a stunningly favourable overall economic situation, the average return on capital employed for the forest industry was only 5, 1 percent (Table 1, page 8 presents an overview of the profitability in different regions). For the Nordic region, the average profit margin amounted to 4, 5 percent. And these figures may be even lower in reality. According to Erik Ottosson, former Strategic Controller at SCA, the cash flow models that are used to calculate ROCE underestimate the value of the capital employed. He argues that most of the production equipment is written off on the balance sheet without taking into consideration the alternative cost of new investments. The result is thus an overestimation of the profitability in the industry (Svensk Papperstidning, 2008).

Since 2002, when the profits were reasonable, the conditions for the forest industry have really just become worse and worse, and the question is if the situation and the profit levels are sufficient for continuous survival. Ingemar Croon, an international renowned forest industry consultant, does not believe that the Nordic industry has a bright future;

> ***"It is only in the packaging segment I can see that the Nordic forest industry can continue to compete in the future. In newsprint and fine paper there is no hope."***
> (Ingemar Croon in Veckans Affärer, 2008:43)

Most scholars seem to agree on that the industry has for a long time been value destroying and that the profitability historically has been low. Andersson *et al* (2002) show for example that the forest companies during a twenty-year period have under-performed in relation to the general market. In the conclusion the authors point out the need to put a tighter focus on profitability and they emphasize operational efficiency, asset productivity and pricing as key issues. However, this is contradictory to the opinion of Kent Torwald, CEO at the Swedish company Setra Groups, who thinks that it is the focus on these issues that have stopped the industry from developing, and that concentration instead need to be on innovation and renewal of processes (Hanaforum, 2008). Another key issue that Andersson *et al* emphasize is the industry's need to escape the commodity trap. This apprehension is shared by John Williams, President of SCA Packaging Europe, who believes that thinking outside the box is not enough as there is also a need to "redefine the box" (PWC CEO Perspectives, 2008:4). The academic works described above, together with for example Yin *et al* (2000) who believe that timberland ownership is an important option of success for forest producers, all add pieces to the overall depiction of what the forest

industry look like and how the future will be. There is however a need to concretize the possible paths and to rethink the future value creation of the industry. This thesis strives to fill that gap.

Based on the above discussion, the following problem formulation could be outlined:

1. What are the present strategies in the forest industry?
2. What resources are needed to create a sustainable competitive strategy?
3. In which areas of the industry value chain will future profits be made?
4. What new, untapped markets connected to the forest could imply future profitability?

1.4 Purpose

The purpose of this thesis is to examine the potential business model transformation in the forest industry, and to find out how, and in which areas future profits will be made.

2 METHODOLOGY

This chapter will provide a description of the method used to fulfil the purpose of the thesis. The methodological approach and procedures of the study will be discussed, as well as the choice of theoretical framework. Finally, an assessment of the research quality is performed.

2.1 Methodological viewpoint and approach

The purpose in this study, which is to examine the potential business model transformation in the forest industry, may seem as a rather broad and difficult task. However, after having sounded the empirical terrain and studied the recent development in the business landscape we are convinced of the relevance of the matter. With certain delimitations described below and a well-reasoned framework based on relevant theory we also believe that the approach will become more focused and manageable.

Since our approach bears the characterization of openness, some reflections regarding more general and comprehensive epistemological considerations are required. The main goal with the study is to collect data which we hope will lead to a conceptual framework that can be utilized as a guide to the changing situation in the forest industry. As in much of the academic business literature, the underlying attitude is of a positivistic nature. The basic assumption is therefore that we through external observations of developments and perceptions are able to depict a plausible picture of the forest industry. Certain epistemological objections could be raised towards this however. Although, to not let this slide into a discussion about science theory we believe that by being observant in our findings and by reflecting on how our reality is obtained, a better result will be generated. As positivism is the basis, hermeneutic features should not be neglected, especially when it comes to interpretation of interviews which includes understanding and awareness of certain behaviours and opinions (Bryman & Bell, 2003).

We will in this study use both a quantitative and a qualitative approach even if the emphasis will be on the latter. As our purpose opens up a broad path where the ultimate outcome is rather undefined we have considered interviews to be the best way to accomplish the research. This will enable us to gather relevant information as well as being flexible regarding the respondents' different backgrounds and knowledge areas. We will however also use a quantitative approach when surveying the past profitability in different parts of the value chain. Furthermore, we consider the study to have an abductive approach as it bears the features of both deduction and induction (Alvesson & Sköldberg, 2008). This means that we through the use of our own empirical findings hope to form a comprehension of the business model transformation in the forest industry, which is in line with induction. As the deductive approach indicates however, this will not be made without an already established base of theory.

2.1.1 Research procedures

To be able to provide predictions a profound understanding of the present and the past is essential. The introductory chapter partially provides this, although it presented a rather general exposition of the forest industry. In order to generate a clearer picture, a more rational and well-reasoned approach is needed.

We will start our study by analyzing the present situation in the industry. This will be done through the employment of questions in the industry analysis framework developed by Thompson & Strickland (2001). The collection of data about the present will partially be generated through a number of interviews with different types of industry experts. The examination will also include a secondary data analysis of different companies as well as the profitability in different parts of the value chain. The objective with the first part of the secondary data analysis is to show the variation width of strategies in the industry, which will be accomplished by presenting mini-cases of actors with different strategic focus. In addition to this, we will also examine the performance pattern in different segments of the industry value chain, derived from annual reports. The intention is to find out whether there have been any differences in profitability in the different segments. By doing so, we hope to attain a better understanding of the present situation.

To introduce the reader to what could be the source of potential new business areas we will construct a compilation of different innovation areas that are connected to the forest industry. The respondents will be asked questions related to these areas in order

to indicate potential importance to future competitive advantage. The interview guide will in relation to this be designed with a focus towards where the value will migrate and how the business model should be aligned.

2.1.2 Theoretical framework

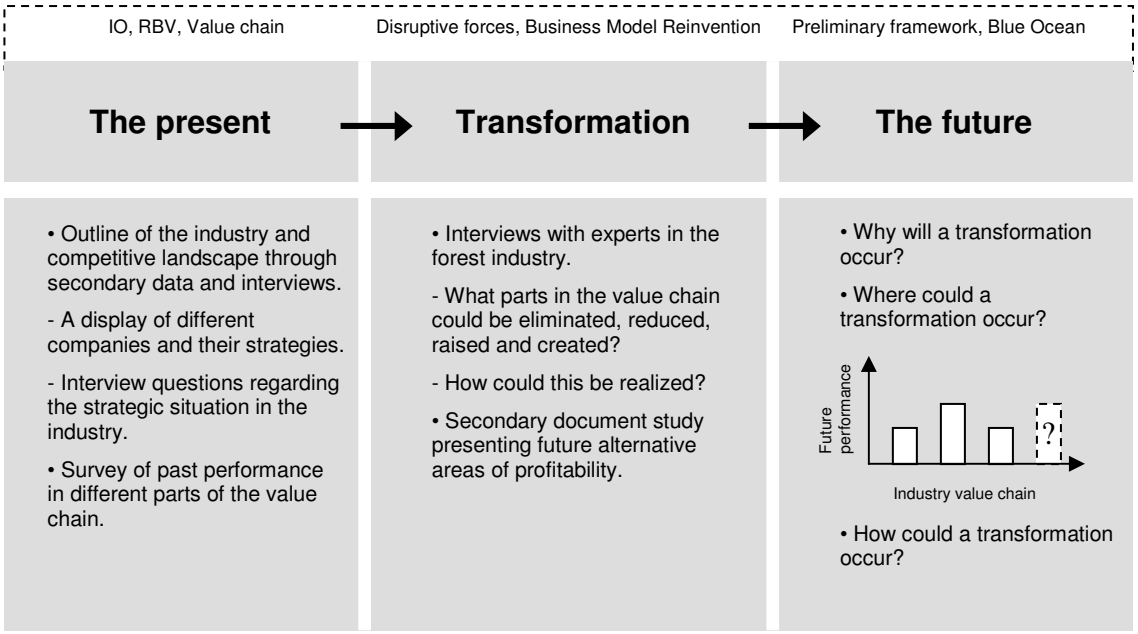
An outline of the theoretical framework is normally executed throughout the chapter dedicated for this purpose. However, in order to make our research approach clear, we will already here provide a brief summary of the theories chosen. Our concrete mode of research procedure will then be intertwined with the theories used, displayed in a simple framework below.

As described in chapter one, a range of external forces such as globalization, cost of raw material and technology have widely influenced the forest industry causing the competitive landscape to reshape. Because our starting point is the external environment, the Industrial Organization perspective (Porter, 1980; Chamberlin, 1933; Bain, 1956, 1968) will therefore serve as a basic tool to understand the situation. We are convinced though that by neglecting the internal characteristics and performance of the firms, a complete comprehension is not possible to obtain. The Resource-Based View (Rumelt, 1984; Wernerfelt, 1984; Barney, 1991) will therefore be added to the framework. Taking an inside-out approach to strategy, RBV states that a firm's competitive advantage is driven by its resources, and particularly the combination of resources that can form organisational capabilities. Finally, the analysis of the present situation will be presented in an industry value chain, based on Porter's (1980) concept.

In the next part, we focus on the supposed shift of paradigm in the forest industry. We will analyze the disruptive process from several theoretical perspectives that contribute to the understanding of business model transformation. Starting from the concepts value migration (Slywotsky, 1996) and disruptive technologies (Christensen *et al,* 2001), we will move into more recent research within the field. Towards the end of the section we discuss different frameworks for business model reinvention with central concepts such as the 'wheel of business model reinvention' (Voelpel *et al*, 2003) and 'blue ocean strategy' (Kim & Mauborgne, 2002). Finally, we summarize our theoretical framework in a conceptual picture.

2.1.3 Research framework and structure

The description of the theoretical basis and research procedures are below jointly presented in a framework. The figure contains three different stages of the predicted industry transformation. Central theoretical concepts are outlined above each stage and below are the research procedure presented.



(Figure 1. Research framework and structure)

2.2 Delimitations

When relating to our research objective we use the term 'forest industry'. It is important to note that our definition of this objective is rather broad and it comprises a wide spectrum of activities. We do not merely include products and services directly related to the forest, such as timber, pulp and building material, but also consumer products such as tissue and hygiene. As the trend has moved towards more and more consumer based products, the name forest industry seems to have become less and less adequate. However, our preliminary studies show that even if the industry has reshaped, a great believe in the forest persists and therefore we have chosen to use the term. Furthermore, as we are looking at future possibilities in a wide spectrum, a broad perspective is only beneficial.

We limit our study by examining the forest industry from a Nordic point of view. The difference in geographical presumptions in the industry means that coverage of all geographical areas would be way beyond the time-frame of this thesis. However, as the industry is global, e.g. Swedish pulp plants being set up in Brazil, we cannot constrain our study to only Nordic factors. In that way we will perform a global analysis, but from a Nordic perspective.

2.3 Collection of data

Our primary data consists of interviews with selected groups of people in the forest industry. The secondary data consists primarily of articles and interviews in the business press, facts obtained through different industry organizations, and various kinds of analyses provided by consultants and scientists. The compilation of past performance in different value chain parts is also regarded as secondary data.

The first phase of the study very much was concentrated on procuring a clear picture of the industry today but focus soon came down to various factors behind the change in recent years. Efforts where also put on gathering information about new fields of research connected to the forest. This was based on several notions in the business press that the industry in its present state is not expected to sustain and new innovation is thought to reshape the competitive landscape in the future. In addition to inputs from our supervisor, Professor Allan T. Malm, some initial insights where also provided by Thomas Kalling, Director of Lund Institute of Economic Research, who connected us with various sources within the university research network.

2.3.1 Quantitative methodology – Profitability in the value chain

The purpose in this thesis is concentrated on future business models and value chains, and a qualitative approach consisting of interviews will be the primary method used. However, as the future development is dependent on the past performance, a deeper knowledge of what has happened in the industry was felt needed. Consequently, a quantitative method was used in addition in which annual reports from a certain number of forest industry companies were analyzed. Various companies were first selected, and then split into different segments according to the arrangement described in the annual reports. In order to compare and measure past profitability in the different areas of the value chain, the operating profit margin was chosen, which is defined as:

Operating profit margin = EBIT / Sales

The use of this key figure allows us to measure how much money a certain part has generated over the years, and the rationale behind the choice is based on two circumstances. First, the availability of information provided by the companies is a factor which implies limitations. The operating profit margin is a measurement widely recognized and the information is almost always placed at the investor's disposal. Second, operating profit margin is considered a reliable measurement since it is regarded as harder to manipulate using accounting "tricks" than for example net earnings (Investopedia, 2008). The time horizon of the segment analysis was set to five years back but deviations exist since not all companies provide information that far back.

2.3.2 Selection of companies

As the Nordic industry is the point of departure the paper and forest companies listed on the Stockholm stock exchange became a natural criterion of selection. Listed companies usually provide more transparency and a higher degree of financial availability, which further improves the reliability of the study. As only five companies were included in the first cluster due to limits in access to information, and the fact that the forest industry is highly international, an expansion of the criterion of selection was chosen. The three largest companies globally (according to PWC, 2008) were therefore added, and the final list of companies in the segment analysis is presented below:

Nordic companies		International companies
Billerud	SCA	International Paper
Rottneros	Södra	Kimberly-Clark
Stora Enso		Weyerhaeuser

(Table 2. Companies included in the segment analysis)

2.3.3 Qualitative methodology - Interviews

When initially overlooking recent research, it became apparent that certain factors had changed the landscape in recent years. It was also clear that a large and new exciting field of innovations connected to the forest were emerging. However, as many

indications pointed towards change in the forest industry, we wanted to better understand this change and with the help of theory map the likely migration into a framework. As the research objective includes a broad range of companies, a large number of segments, and an undefined amount of factors and forces, we decided to use a dynamic approach when collecting the primary data. A semi-structured interview fitted into this description as it gave us the opportunity to gain insight in personal opinions and to experience differences among various groups in the industry. It also gave us the possibility to adapt the questions and to emphasize on certain areas depending on the respondent's background and preferences.

Due to geographical limitations and restrictions regarding time and money, a large majority of the interviews were not conducted face-to-face. This disadvantage restricted us in fully observing certain behaviours and to completely seize the impression of the situation. However, considering the impersonal character of the questions we believe telephone interviews to be sufficient. As a way to start out softly and to calm down the situation, all interviewees were initially asked to describe their title and professional background. Confirmation was also obtained regarding permission to use their names in the thesis.

2.3.4 Selection of respondents

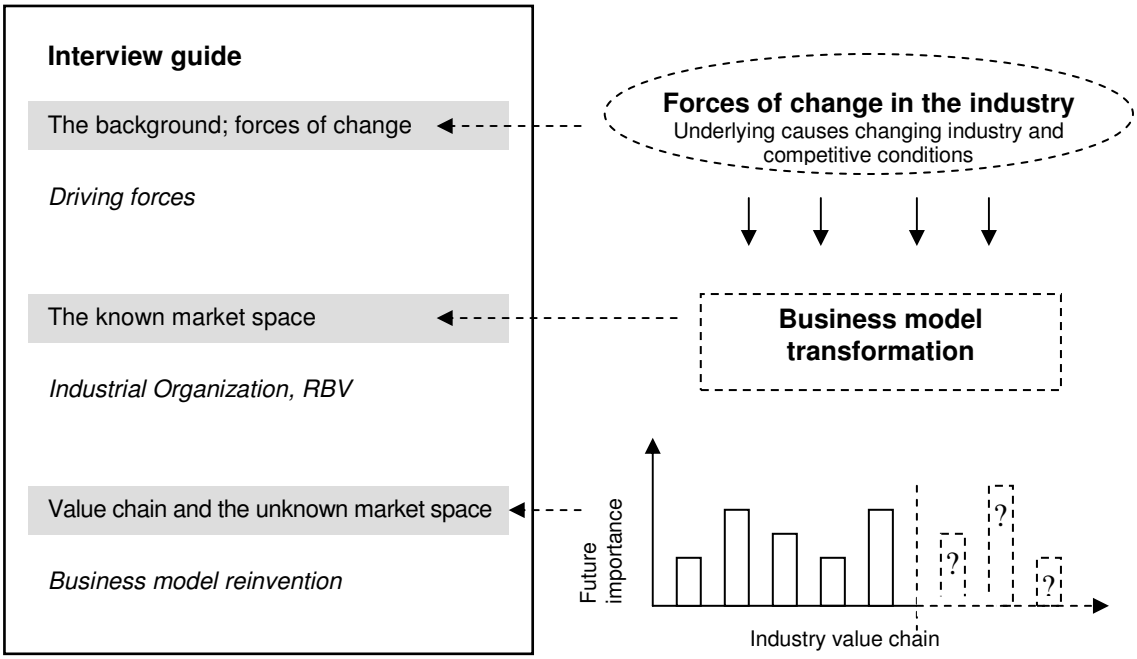
We wanted to gather a group of respondents representing a wide spectrum of knowledge about the forest industry. As Lund Institute of Economic Research has an ongoing collaboration with the Swedish company SCA, using these already established connections was natural. However, using respondents solely from one company may restrict the outcome and therefore three clusters consisting of different types of professionals were constructed. The first group consists of people who are working, or have been working, with research on innovations connected to the forest industry. These people have an outside perspective, with an emphasis on the future. The second group is made up by industry actors, i.e. people with a broad experience from working inside the industry, particularly with innovations of some kind. Finally, in order to gain a more neutral, shareholder value perspective on the industry, the third group is comprised of analysts from two different banks.

Researchers (Professionals researching about innovations in the industry)	**Industry actors** (Professionals working inside the industry)	**Analysts** (Professionals analysing the industry)
Pia Wågberg, *STFI-Packforsk*	Per Arfvidsson, *Senior VP SCA*	Linus Larsson, *Financial Analyst Nordic forest industry SEB*
Matts Björklund, *Doctoral candidate within innovation at Lund University*	Folke Österberg, *R&D Director SCA*	Alexander Vilval, *Financial Analyst forest industry HQ Bank*
Jon Bingen Sande, *Former researcher Agricultural University of Norway*	Dick Sanders, *Former Director of Research SCA*	
	Bengt Järrehult, *Director Innovation & Knowledge management SCA*	

(Table 3. Interview groups)

2.3.5 Interview design

The shape and design of the interviews have been formulated based on the developed theoretical model. In order to fulfil the purpose and to construct a model which is easy to overview and understand, three sections were formed, each handling different parts of the theory. A simplified depiction of the construction is illustrated below. The interview begins with a brief group of questions concerning how the respondent perceives the change in the industry during the last 10-20 years. Although we already have rather comprehensively discussed this subject, we wanted to get insights from an industry perspective. The following section deals with the industry today and the questions treat how the respondent perceives on one hand the strategies from an industrial organization viewpoint, and on the other hand the resources from a RBV-angle. The last group of questions are formed from a model based on the blue ocean strategy perspective and the respondent is asked what parts in the value chain that could be eliminated, reduced, raised or created. Regarding the "what could be created-section", some further questions were asked about how and in what way this could take place.



(Figure 2. Interview design)

2.4 Research evaluation

To improve the quality of the research and the final outcome of the thesis, certain objections need to be raised against the procedures and the empirical generation. Questions like *how* and *what* things are measured, are in this sense important. The concepts of validity and reliability originate from the quantitative branch of research but have more or less become accepted in the qualitative approach when generalizations of the study results are to be supported and confirmed. It should however be added that there is a widespread discussion regarding how these concepts should be converted in a qualitative approach, and we will as far as it is relevant further consider this (Bryman & Bell, 2003).

2.4.1 Validity

Since the main emphasis in this thesis is on qualitative methodology, the authors in a much more profound way become part of the research process. Our own ability to communicate the different procedures therefore becomes particularly important. The more extensive and detailed the description is, the higher the credibility becomes. Since our purpose and approach to the problem is of an open nature with an outcome rather

undefined, we have in an as accessible way as possible tried to explain the processes towards the final results. We are aware that objections could be raised towards this matter and that it sometimes could be hard to fully overview the method. In other words, a somewhat "fuzzy" approach makes it difficult to follow a straight and consistent theoretical line through the thesis. However, the introduction provides a rather profound discussion in which a problem is depicted and where a knowledge gap is identified. More concretized, this implies that we are arguing that certain driving forces are reshaping the forest industry and that this means that companies sooner or later will have to find other business models in order to generate value. Our quest is to map this transformation and to look at future possible outcomes. This is in essence an approach hard to fully encompass and the only thing we could do is to be as open to the problem as possible, and to try to be transparent in our procedures.

A theoretical framework was outlined which including a foundation as well as more recent studies on the matter of strategic change and business innovation. Critique could here be directed towards the lack of particular theories in the theoretical framework. However, the field of strategic management is huge and to include everything that is relevant is somewhat doomed to fail. Instead, certain basic models have been chosen which later have been extended with more recent studies. The choice is therefore based on what we believe best will help us describe the migration of value in the forest industry.

When the problem was identified, the purpose was stated, and the theoretical framework was chosen, we had to decide the best way to collect data. Two approaches were chosen. In the first one we used secondary data in order to describe examples of present strategies in the industry, and to give an account of the past profitability in different parts of the value chain. The second approach used primary data consisting of interviews. These interviews were conducted using normal research procedures including digital recording of the conversation as well as a literally transcription afterwards. The credibility have further been strengthen through that approval have been obtained regarding the use of names in the thesis. In some cases the transcription was also sent out and confirmed by the respondent. The selection of respondents was based on three groups acting in various parts of the forest industry which implies that different viewpoints have been obtained. On this matter we would like to pay attention to our awareness that the group of industry actors very much is dominated by SCA. This could in fact be viewed as a weakness and that a more profound understanding would have been obtained if other companies were included. This distortion should be

taken into account in the analysis. As a defence, we believe that the three groups together contribute sufficiently to the creation of a broad understanding.

It is also important to ask ourselves if the data collection technique used gives us the relevant and sufficient information needed in order to generate a transferable result. In other words, are we measuring or looking at the things we ought to study? The primary data collection is based on an interview guide that in turn is founded through the theoretical framework. It could obviously be discussed if relevant questions have been picked and if we through these are obtaining a correct picture. However, it is our notion that such a discussion should not be included here, instead we are presenting the way and the findings made along the way. It is then up to the reader to determine the transferability.

2.4.2 Reliability

Are the instruments used in the study reliable and do they generate reliable results? The instruments referred to is in this thesis very much constituted of ourselves and we therefore have to question how previous knowledge, background and conceptions are biasing the findings. It is for example rather likely that an already settled thought and picture of something contributes to the outcome of the study, and that the expressed objectivity in the empirical findings therefore is false. These aspects of the methodology are hard to circumvent but we hope that by describing it, the reliability towards the reader will increase.

Regarding the secondary data some issues related to reliability need to be brought up. The compilation of different forest industry companies with varying strategies is made using information directly supplied by the companies. These statements are positive in nature and there is a risk that certain information has been left out. A similar problem arises in the quantitative method where profitability figures have been collected from different annual reports. The risk that the numbers are simulated is however rather small. More likely, there is a risk that accounting principles differ. An investigation of each annual report would however demand too much time and is for this study not relevant. Instead we believe the numbers to be reliable enough and that they could work as a hint on how profitable different parts of the value chain have been.

Regarding the analysis of profitability in the value chain it could be argued that the time perspective and the number of companies could be increased which would

enhance the reliability. However, limitations in access to information make it hard to go back more than five years. We are aware of this problem but believe that the selected time perspective is sufficient in order to draw conclusions on the past profitability. The argument regarding the number of companies examined is also correct but this would at the same time imply a much larger study which we do not intend to execute. Also, critique could be directed towards that there are different definitions among the companies regarding their segments and that it therefore is hard to compare them. We try to minimize this problem by reviewing how the products are categorized by the different companies. Those products in one company's segment that differ too much from the standard portfolio is not included in the analysis.

3 THEORETICAL FRAMEWORK

This chapter will describe the theoretical framework of the thesis. Conventional theoretical foundations as well as more recent approaches will be presented and discussed in relation to the purpose. Finally, the chapter is summarized in a model that will be used as a base for the further analysis.

The theoretical discussion in this chapter has two different intentions. The first one is to present two different strategic approaches to create competitive advantages in an industry. The strategic foundations will be applied in an industry analysis that is not only externally orientated, but also takes into account how strategy can be derived from firm-specific factors such as valuable resources and a firm's strengths and weaknesses. This will help us describe the forest industry value chain as it is today. Secondly, we will move into a more recent field in strategic management when looking at how value flows from obsolete business models into new business designs. This, we will argue, points out the need for business model reinvention in order to stay competitive over time. Finally, we will present a summary of our theoretical framework with the ambition to form a conceptual model that helps us identify what business models and where in the industry value chain future profits will be made.

3.1 Strategic foundations

In the first part that we call strategic foundations, we will discuss the industrial organization perspective and the resource-based view, and how these theories will work as background in the thesis.

3.1.1 Industrial organization

It was Porter (1980) who brought the industrial organization perspective (Chamberlin, 1933; Bain, 1956, 1968) into business strategy, arguing that the actions of managers are affected or driven by an organization's external environment. His widely used 'five

forces' model demonstrates how competition is determined by five composite forces: rivalry among competitors, threat of potential new entrants, threat from substitute products, suppliers' bargaining power, and buyers' bargaining power. The objective is to evaluate the relative power of these different competitive forces, performing a value chain analysis, and then to align the company's competitive strategy accordingly. To address the forces or possible threats, a firm can employ two distinctive strategic actions known as 'generic strategies': (1) differentiation, i.e. producing a quality product that enables a premium price, or (2) low-cost production and thus compete with low price. According to Porter, this is an either or choice, otherwise the firm will end up 'stuck-in-the-middle' with an unclear strategy and no competitive advantage. Another central theme in Porterian theory is the concept of 'driving forces'. Driving forces are referred to as the "major underlying causes of changing industry and competitive conditions" (Thompson & Strickland, 2001:93) and are used by Porter to explain what is shaping the industry landscape. Examples of driving forces are: increasing globalization, technological change, shifts in industry growth rate, changing social concerns, attitudes, and lifestyles (Thompson & Strickland, 2001).

Porterian theory is still today widely used by strategy practitioners. During the years, however, other perspectives on strategic thinking have emerged; perspectives that criticize the industrial organisation for neglecting the importance of intra-organizational matters in strategy formulation. One of the most recognized contrasting perspectives is the Resource-Based View (RBV).

3.1.2 Resource-based view

Whereas the key concern of the industrial organization perspective is the ability to respond to external factors, RBV states that performance is driven by firm-internal matters such as the strengths and weaknesses of the firm. While the industrial organization perspective explains firm performance by relative cost or differentiation of the product, RBV turns to the underlying factors behind low-cost or differentiation, i.e. the *resources* of the company, as the source for success (Kalling, 1999). Thus, RBV reflects a shift of focus in strategic thinking from the external environment and Porter's positioning towards a firm's internal environment. As mentioned, the central idea is that competitive advantage is established from the set of valuable resources at the firm's disposal (Rumelt, 1984; Wernerfelt, 1984; Barney, 1991). According to Barney (1991), a firm's resources and capabilities include all of its assets (financial, physical, human, or organizational) used to develop, manufacture, and deliver products

or services to customers. Grant (2005) divide the resources into three different categories: (1) tangible; i.e. financial and physical assets, (2) intangible; including the firm's technology, reputation and culture, and (3) human resources; such as skills, knowledge and motivation. He further explains, in line with Bratton & Gold (2003), how resources are not very productive on their own, but when bundled together they can form 'organizational capabilities' leading to competitive advantage. Barney (1991) states that for a resource to be the source of competitive advantage it must live up to the criteria of creating value for customers, being rare in relation to competitors, costly to imitate, and well organized. The ability to use the resource is also of importance.

3.1.3 Industry and competitive analysis

Although the industrial organization approach and RBV may be seen as conflicting theories, they are here regarded as complements to each other. With the notion that different resources such as forestland and new technology could de facto be the source of future competitive advantage, there is clearly a motive to include both perspectives in our analysis.

With similar reasoning, Thompson & Strickland (2001) outline the two most crucial situational considerations for a company as (1) the competitive conditions in the industry and (2) the company's own resources and capabilities. This is by no means a unique approach; most textbooks on strategy or strategic management present similar methods and concepts (David, 2006; Grant, 2005; Henry, 2007). However, Thompson & Strickland's method of industry and competitive analysis has the advantage of being rather straightforward and easy to follow.

3.1.4 Developing an industry value chain

With the above discussed approach to industry analysis we hope to get a clear view of how the forest industry has developed over the recent years, and ultimately how the competitive landscape looks today. By comparing the relative profitability of different business areas makes it possible to identify where the source of future profits will arise. A good way to present the result is to draw the forest industry value chain.

The value chain analysis was introduced by Porter (1985) as a way to break down the long-term strategy of a firm into different activities. A value chain is the linked set of value-creating activities that are required to supply a product or service to the

customers. It starts with basic raw materials from suppliers, followed by a series of value-adding activities in the production and marketing. The product is finally distributed to the ultimate customers. Porter views a value chain as a linear process involving discrete organizational entities which are linked to the source of supply. The purpose is to supply the final product or service to the consumer or end-user (Sense & Clements, 2006). However, when trying to outline the forest industry value chain, such a one-dimensional approach is not sufficient. In fact, most forest companies operate on many different value chains and at times these chains go into each other in a complex system. For example, wood fibre is used as the basic resource for packaging products with certain activities involved in the value chain. However, wood fibre is also the basic resource when producing tissue products, but the activities involved in that process is different from those in packaging production. Therefore, it is more favourable to draw a two-dimensional forest industry value chain in order to get an overview. This is close to what Porter terms the 'value system', i.e. an interconnected system of individual value chains. Furthermore, value chain analysis is often used as a tool to analyze cost structure and identify competitive strategies (Hoque, 2003). Here, the focus will be on the latter.

3.1.5 Vertical integration

As discussed in the introduction, the forest industry has undergone some profound changes during recent years. Historically, there has been a general focus on consolidation and the companies have become bigger due to several mergers and acquisitions. However, there are signs of a contemporary development where some players divest parts of their businesses in order to get more focused on some areas. It is therefore favourable, we argue, to further analyze the industry value chain by examining the factors that determines the level of vertical integration.

Vertical integration could be defined as "a firm's ownership of vertically related activities" (Grant, 2005:392). The more successive stages in the value chain a firm controls, the greater its degree of vertical integration. Conventional analysis of vertical integration looks simply at the efficiency of markets vs. the efficiency of firms: if the transaction costs of buying through the market are greater than administrative cost of managing an additional stage in the value chain, then the firm should integrate vertically (see Williamson, 1975, 1985; Shelanski & Klein, 1995). However, transaction cost analysis is not sufficient as determinant of the degree of vertical integration. Grant (2005) argues that vertical strategies are not simply make-or-buy choices; there is a

wide variety of ways in which a company can structure vertical relationships. He also presents a more critical argument regarding the company's development of organizational capabilities, thus linked to RBV. The bottom line in this argument is that there could be cases when it is favourable to integrate vertically — even if the costs of producing in-house is greater than buying from the market — in order to keep product development and be able to attain future competitive advantage. Jacobides & Hitt (2005) share this view stating that a focus in the literature on proving or disproving transaction cost economies has led to a neglect of some key drivers of vertical scope. In their analysis they point out one such factor as differences in productive capabilities. Concerning this thesis, it is sufficient to recognize that there are several factors that determine the vertical scope of a firm, and that the possible gains from lower transaction costs must be weighted against long-term strategic considerations.

3.2 Transforming business models

At best, industry and competitive analysis can present a good footprint of today's competitive landscape and valuable resources. However, it is no dynamic approach to strategic development. In the second part of analysis we will therefore look at the drivers of change in the industry and ultimately the reinvention of business models.

3.2.1 A disruptive world

In today's rapidly changing economical environment there is no way of doing business that will be superior over time. Instead, in a process that Slywotsky (1996) labels value migration, value over time flows from obsolete business models into new business designs that more effectively make utility for the customer and capture higher value for the producer. Slywotsky divides the process of value migration into three different stages: value inflow, value stability, and value outflow. During the first phase companies start to absorb value from other parts of the industry because their business designs prove to be superior in satisfying customers' priorities. This phase is characterized by limited competition, high growth and high profitability. In the second phase company priorities are matched to customer priorities and the overall competitive equilibrium. The value stability phase is characterized by competitive stability, stable market shares and stable margins. In the third phase, value outflow, value starts to pour away from the traditional business activities and move towards new business designs that more effectively meet evolving customer priorities. This

phase is characterized by competitive intensity, declining sales and low profits. According to Slywotsky *et al* (2006), a central part of a company's assessment should be to keep track of these phases and asses its business model in relation to competitors. Having a clear and competitive vision of the field enables managers to know their competitors and to see into the future which phase shift will affect their value creation and value protection (*Ibid*.).

The disruptive process is recognized by several other scholars. Day (1997) describes the phenomenon as an industry shakeout, outlining two major types: boom-and-bust syndrome and seismic shift syndrome. The latter has many similarities with Slywotsky's concept since a seismic shift typically hits stable, mature industries that have enjoyed protected prosperity due to some isolating mechanism. When this isolating mechanism is removed, established players are not prepared for the fierce competition from new business models that will follow. Furthermore, Christensen *et al* (2001) explain how established players in mature markets often neglect companies with new business models until it is too late. By overshooting consumers' needs and focusing on developing premium products for the most-demanding customers, existing companies tend to disregard the threat from firms employing new, more cost-efficient business designs. Their research shows that these 'disruptive technologies', i.e. new firms supplying products and services that the consumers really can absorb at a competitive price, have changed the very nature of doing business in many industries.

3.2.2 Business model reinvention

The need for business model reinvention is recognized in several recent studies. Both Slywotsky and Christensen have further elaborated on how companies need to continually reinvent their business models in order to stay competitive over time (see Slywotsky *et al* 2006; Slywotsky & Hoban 2007; Anthony & Christensen, 2008; Christensen *et al*, 2008). Although these outside-in approaches are interesting in order to understand that the flow of value changes over time, they offer limited help in *predicting* how the industry will change and what type of business model that will be capturing the value in the future. The presented success stories, i.e. companies that have managed to create new and better business designs, are rather *ex-post* analyses explaining the successful business models retrospectively (see Pollard, 2005; Rosenzweig, 2007).

Other studies offer guidance in *categorizing* business model reinvention. Giesen *et al* (2007) found that all new business models can be classified into three basic types: innovations in industry models, in revenue models, and in enterprise models. Innovation in industry models involves innovating in the "industry value chain", which can be done by horizontal moves into new industries, by redefining existing industries, or finally through development of entirely new industries or industry segments. The second type concerns innovation in the way revenue is generated, for examples to introduce a new pricing model. Finally, a company can innovate its enterprise model meaning that the company finds a new and better way to structure its business. Interestingly, they concluded that each of these types can generate success in the right setting, and that best business model innovation strategies offer a strong fir between the industry landscape and the company's characteristics. A similar approach is presented by Bjelland & Wood (2008). However, these approaches fall under the area of change management (for other input on change management see e.g. Burns, 2008; Carter, 2008; Denning, 2008; Hall 2008), focusing on management's role in organizational change rather than a structural change of the business model itself.

The research on conceptual frameworks to reshape business models is however rather scarce. With their 'wheel of business model reinvention', Voelpel *et al* (2003) made an attempt to create an interactive framework for developing a new business model. The "wheel" consists of four dimensions: customers, technology, business infrastructure, and profitability. The model aims to predict the likelihood of business model reinvention;

> ***"Whenever […] new technologies emerge, new businesses are likely to be created, and competitive advantage could accrue to effective first (prime) movers and/or early movers and close followers."*** (Voelpel *et al,* 2003:27)

However, despite being an ambitious model to interpret the probability of business model reinvention, it is of limited help to this thesis' purpose. The focus in the model is on *when* reinvention will occur rather than *how* the business model needs to change. Naturally, it is hard, perhaps impossible to generalize such a matter since business models are very firm-specific and the reinvention will be different for different companies. However, striving to predict the future value creating business models in the forest industry, and ultimately *where* in the industry value chain value will be created, we need a framework that includes the value chain.

3.2.3 A framework for reinvention

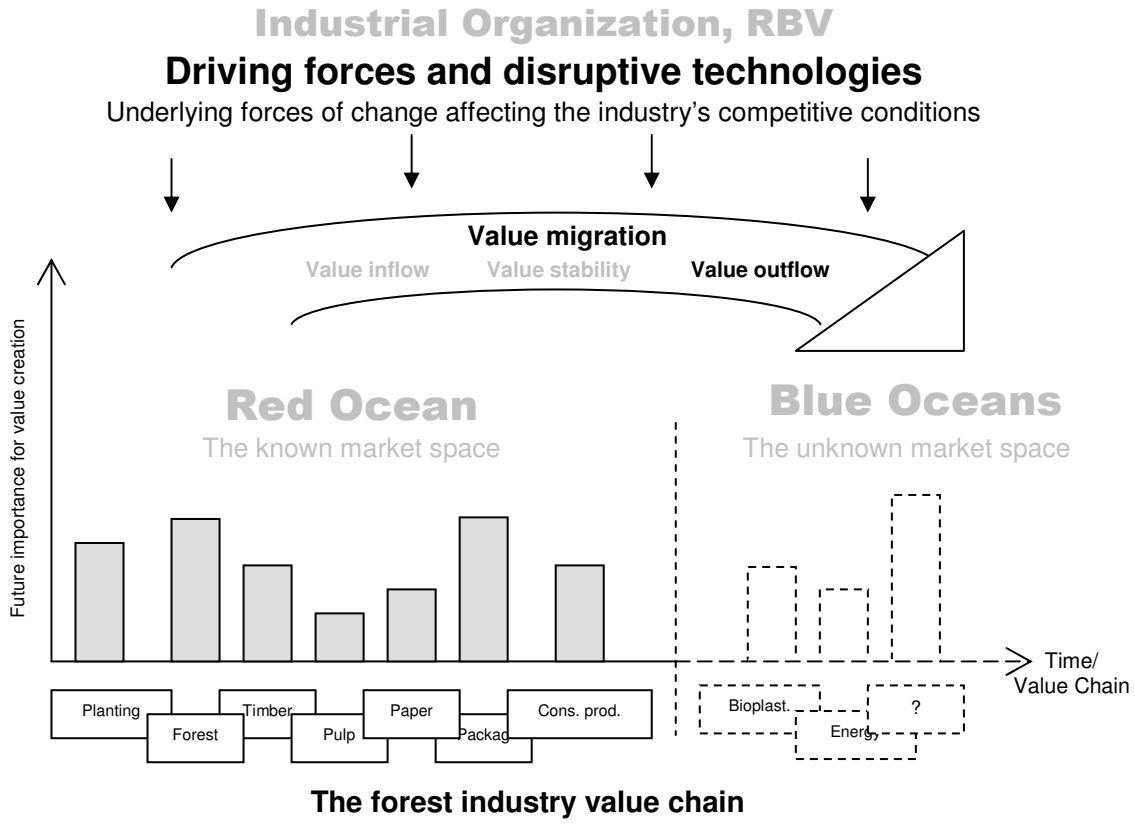
In the quest of finding a framework that includes the value chain we came across some interesting input from blue ocean strategy. This concept was introduced by Kim & Mauborgne (2002) as a way for companies to identify new, uncontested market space. In line with the above discussion, Kim & Mauborgne (2002, 2005) state that competition, where companies trying to outperform their rivals to seize a greater share of existing demand, has been at the heart of strategic thinking for twenty-five years. However, according to the authors, there is a need for reconsideration: "the only way to beat the competition is to stop *trying* to beat the competition" (Kim & Mauborgne, 2005:4). To portrait the difference they use an analogy where red oceans represent the known market space, i.e. all the today existing industries, whereas blue oceans symbolize the unknown market space; the industries not in existence today. The key goal of blue ocean strategy is then to focus on the blue oceans and try to create uncontested market space outside existing industry boundaries.

The blue ocean theory may be criticized for sample bias and potential halo effects, and it is questionable if the described success stories in the book are *descriptive* rather than prescriptive. In line with the previous discussion, it could be argued that Kim & Mauborgne merely present examples of successful business innovations and then explain the success from their blue ocean lenses (see Pollard, 2005; Rosenzweig, 2007). However, here we will build on their framework rather than their study. In forming a model to predict a successful business model for the Nordic forest industry, we will use elements from the 'strategy canvas' presented by Kim & Mauborgne (2005). The strategy canvas is a good way to *picture* a strategy with factors of competence on the horizontal axis and the offerings level on the vertical axis. The factors of competence are here regarded as different activities in the industry value chain, thus incorporating the industry value chain in our model. Then, by using their 'four actions framework' we will not only include factors or activities that are carried out in the industry today, but also new factors that potentially could be the basis for future competitive advantage.

3.3 Summary: A conceptual model

In an attempt to bring clarity and transparency we have in a graphical model below brought together the different theoretical elements of the chapter into a joined framework. What we initially call the strategic foundations will be applied as a

background theory in the model. The industrial organization perspective, with Porter's generic strategies, and RBV with resources as the base for competitive advantage will serve as a ground in analyzing the companies' strategic considerations. However, through the concept of driving forces and disruption we learn that value may flow from one part of the industry into new parts, and even outside the present industry boundaries. This notion will also have strong influence on the choice of business design. Going into the central aspects of the model, we will outline the different activities or parts of the industry value chain on the horizontal axis, including potentially new factors of competence that may show to be valuable. On the vertical axis, we will try to derive the relevance for future competitive advantage of each presented activity. In this way we will picture what different factors or areas that should be eliminated, reduced, raised or created in order to form the reinvented business model. It is important to point out that the blue ocean theory is not followed literally; instead it acts as a starting point and as a way of viewing future possible business models in the forest industry.



(Figure 3. Theoretical framework)

4 EMPIRICAL FINDINGS

This chapter presents the empirical findings. The data is divided into three parts of which the first treats the secondary data collected concerning the value chain. The second part provides a summary of the interviews that was carried out as a central part of the study. In the last part, a document study about future possible value creating areas is provided.

With the previously stated purpose as a guiding light, together with the developed theoretical framework as a toolbox, the generated findings will now be presented. The point of departure will be a description of a number of companies, as well as an analysis regarding past profitability in different parts of the value chain. The chapter continues with a presentation of the interviews that was carried out. The last part consists of a document study concentrated on future possible areas of profitability for the industry. In order to gain insight about this uncontested market space a more technical and detailed approach is used. It could be beneficial to bear the theoretical model from the previous page in mind when reading this chapter. Further reflections and connections to the theoretical framework are left out in this chapter but will be profoundly discussed in the following parts of the thesis.

4.1 The value chain

This section, based on secondary data, contains three parts that we hope will broaden the understanding of the forest industry value chain and the strategies attached to it. First, as a way of depicting the variance width within the value chain, we will describe seven different companies and their operations. Attached to these mini-cases is a graphical model of the value chain illustrating where the companies are operating. The third part will contain a display of the quantitative study of past performance in different parts of the value chain. This, we hope, will give us an indication of which areas that has been more profitable than others.

4.1.1 Description of different strategies

Below, we will briefly present four of the world's largest forest industry companies which together constitute some 15 percent of the total market share (Datamonitor, 2008). They all have somewhat different focus in their strategies, which is why we choose to exhibit them here, i.e. to show the variation width of strategies in the industry. Following these four companies, three more innovative examples will be shown. However, it should be pointed out that in some of these cases we are not looking at the company as a whole, but rather some innovative parts.

International Paper

The American-based International Paper Corp. is the world's largest forest company in terms of revenue. The company has manufacturing operations in North America, Europe, Latin America, Russia, Asia, and North Africa. In this way the company can be perceived to cover the whole range of production opportunities that different countries can offer. Historically, International Paper has been engaged in most of the industry segments, with many similarities to the other big conglomerates. However, in 2004 the company announced restructuring plans aiming to shrink the company by 30 percent. According to International Paper, the goal was to improve returns, strengthen the balance sheet and to return cash to shareowners. In 2006, the restructuring program was undertaked which resulted in a more focused strategy, comprising only a few fields. Wood products was divested and six million acres of forestland was sold. Today, the company's focus areas are in the latter parts of the value chain including the segments: paper, industrial packaging and consumer packaging. Among the fututre key points, apart from a more focused portfolio, are improved earnings and cash flow, low-cost manufacturing assets, and a more global balance (International Paper, 2008).

Weyerhaeuser

Weyerhaeuser, another American company, is the fifth largest actor in the industry ranked by sales. The company has, in contrast to International Paper, more than doubled its size during the last years through several mergers and acquisitions. Today, Weyerhaeuser control more than 100 subsidiaries which also include fields such as construction, real estate, and development. These operations must be seen as ways to diversify the portfolio, however, they amount to a rather small part of the comapny's total revenues. Instead, the main focus is on wood operations from which most of the

revenues and profits are originated. Developing new forestry techniques is an important part of the company's strategy and the innovation program includes implementing a patented 'clonal propagation technology' for more efficient production. In 2008, Weyerhaeuser pointed out a few focus areas including exploration of new markets that could promise large volume and high value. An increased effort will also be made towards advanced materials and chemical feed stock (Weyerhaeuser, 2008).

Stora Enso

Stora Enso is one of the largest actors in the Nordics and also one of the world's largest pulp and paper company in terms of production capacity. The largest part of the company's revenues comes from paper production, and the major fields include news paper, book paper and fine paper. Even though its production today is primarily based in Scandivia, the company has a stated strategy for the coming years to focus on production in growth markets. Stora Enso was an early adopter of production based on rapid-growing eucalyptus trees, and this is where the company seem to see its future. Achieving growth in the emerging markets as well as producing pulp raw material cheaply and close to the customers in the developing economies is the core of the strategic outline. According to Stora Enso, the emphasize on plantations is more beneficial due to the less cyclical characteristics of this segment. The company is today operating in both an early stage of the value chain as well as fields closer to the end consumer such as paper. Based on its stated future strategy ,the sompany will however mainly be focusing on the earlier stages of the value chain (Stora Enso, 2008).

SCA

Swedish SCA is one of the largest forest companies in the world. The company achieves most of it's revenues from the business segments packaging, tissue and personal care. The sales are focused on Europe but the company has an intention to also gain grounds in the emerging markets. Hygiene products has by far been the most profitable business area during the recent years. In the stated strategy, the company is focusing on getting closer to the customer through providing a *solution* rather than just a standardized product. The focus on emerging markets is strong even though the company does not seem to communicate a transferation of the production to emerging economies as strongly as Stora Enso (SCA, 2008).

UPM

UPM is a large Finish forest company and a leading producer of printing paper. The company very much operates in the classical forestry segments but the stated vision, which is to be the front-runner in the new forest industry, tells us that that there is a heavy emphasis on being innovative. In that sense, UPM stands out from the other conglomerates. This is also displayed through some newly developed and emerging business fields. The company has for example been involved in the development of RFID technology, which is an identification system based on wood material. At the moment UPM is the largest producer of these RFID tags, a system that the company believes will be the future standard for product identification in logistics and retail. The company is also operating in the field of wood plastic composite. This material is manufactured mainly from recycled materials and is said to combine the best characteristics of wood and plastics. Wood plastic composite could today be perceived as an expensive technique but the material has the potential of genretaing tremendous growth in the future according to the company (UPM, 2008).

Billerud

Billerud is a relatively small, Swedish-based actor in the packaging segment. As packaging is the company's primary business area, Billerud is much more focused than the giant conglomerate companies described above. According to Billerud, innovation is a central component of its business model and the company seems to be in the frontline within its business area. One example is the concept Billerud Fresh Services, which is a service that diminishes the product losses in delivering friut and vegetables. Billerud Box Lab is another new concept that helps clients to optimize product choise and box construction for sustainable packagings. Billerud has similar concepts in other specific areas, and this clearly shows attempts to tie the customers closer to the company. The strategy can be seen as a way of increasing the service, thus providing a total *solution* rather than just selling a product. This is an interesting way of differentiating the product and the customers seem to be more satisfied than earlier. Therefore, Billerud can charge more for these solutions and the margins are higher than on the standard packaging products (Billerud, 2008).

Iggesund (Holmen)

Iggeund Paperboard is a part of the Swedish Holmen Group. The company is producing paper board and states that they are the leading manufacturer of high quality virgin fiber paper board. The company has been rather successful with relatively high profits the last years. According to marketing communications manager Carlo Einarsson, the key factor behind the good results has been branding. Iggesund has two leading brands in Invercote and Incada that are materials customized for different end-use applications. Invercote is a sort of multilayer board that is used in advertising whereas Incada products are used for book covers, greeting cards, and packaging. The company has found an interesting way to differentiate itself from competitiors and by working with these brands Iggesund is able to charge more for its products (Iggesund, 2008).

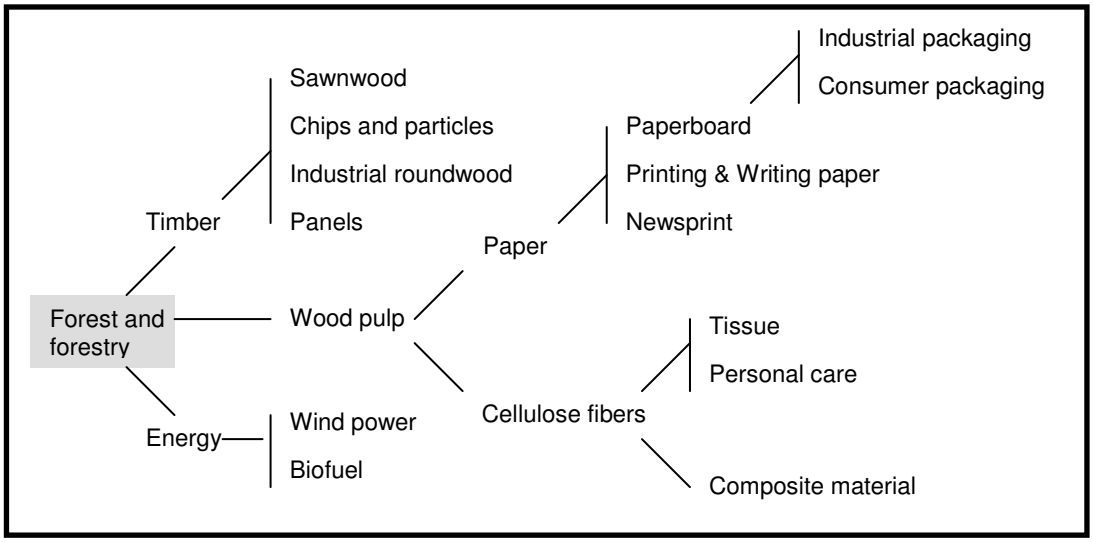
Company	Strategy	ROCE:	2007	2006
International Paper	Focused		5,7 %	5,3 %
Weyerhaeuser	Focusing on wood operations		2,5 %	1,9 %
Stora Enso	Earlier stages in value chain / low-cost		3,5 %	7,0 %
SCA	Later stages / value adding		5,7 %	6,0 %
UPM	Traditional but innovative		3,5 %	3,8 %
Billerud	Value adding in earlier stage of value chain		5,5 %	5,7 %
Iggesund	A unique offering in paper products		9,9 %	6,4 %

(Table 4. Summary of companies. Source: Annual reports 2003-2007)

4.1.2 Displaying the industry value chain

The forest industry comprises of a wide spectrum of segments and products and a clear definition of the industry is sometimes hard to determine. The basis is however wood, which has been mankind's obvious and most natural choice of material for over 400 000 years. Placing the forest in the centre as a starting point, the value chain ranges in the low end from land and planting management to manufacturing of wood based products including timber, building material and wood fuel etc. Going further up in the value chain, activities embrace everything from production of pulp and different pulp-based paper and packages, to manufacturing of more sophisticated consumer products based on a variation of tissues. To the value chain should also be added various kinds

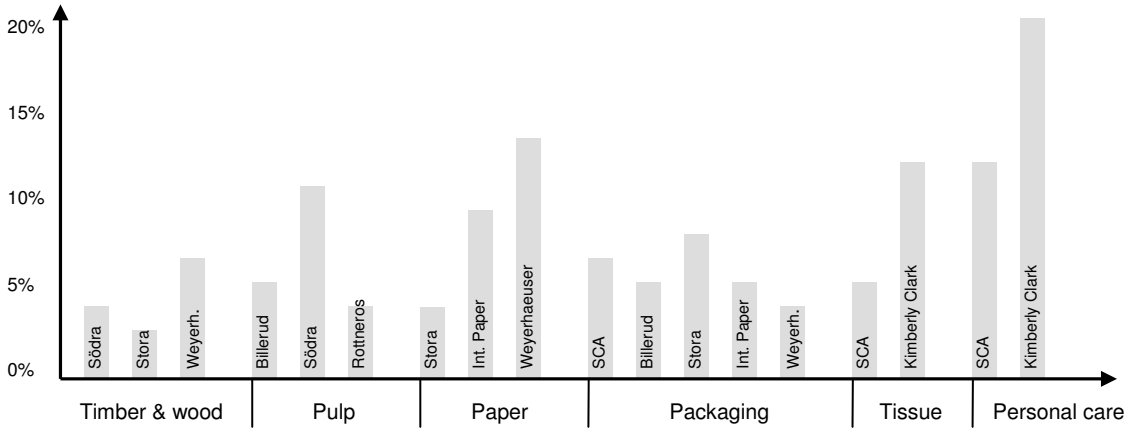
of chemical products and wood based fuel as well more recent innovative products which could be used in a wide field of applications.



(Figure 4. The forest industry value chain. Source: Annual reports)

4.1.3 Profitability in the value chain

To illustrate the differences in profitability within the value chain between different companies, the average profit margins have been calculated and structured in a diagram. These fields where identified as the most common in the annual reports of companies in the industry. We are aware that smaller niche fields might be promising for the future and those are also of importance to us and could have been included. Yet, our purpose here is to outline the current profitability in the most common segments.



(Diagram 1. Profitability in the value chain. Source: Annual reports)

The first segment (timber and wood) include unrefined products in the earliest stage of the value chain. A low degree of value is added to the product. Examples of businesses in this segment are timber production and materials for the furniture and flooring industry. The profits could be seen as moderate in comparison to the other segments. Pulp is a refined product, but is not targeted for the end consumer. Instead it is the component that in the next stage of the value chain becomes paper and tissue. The profits here are slightly higher then in the previous part. In the paper segment we have included news paper, fine paper and magazine paper. These fields are different in terms of profitability but nevertheless can the average profitability be relevant since the degree of value adding activities is not entirely different. In the definition of packaging we have included both industrial and consumer packaging. In most of the companies, this segment includes a solution part where additional value is created including a design process. Tissue includes toilet paper, kitchen rolls and napkins, products that are sold to the end consumer. Personal care includes diapers and sanitary towels etc.

Three of the companies included in the analysis; International Paper, Weyerhaeuser and Kimberly Clark, are mainly operating outside of the Nordic countries. The comparison between these international companies and the Nordic ones can be linked to our purpose and to some extent indicate a in profitability. Due to differences in accounting principles, it was a necessity to group certain fields together. In SCA for example, the segment forest products have been left out because it contains several different products such as pulp, newsprint, wood products and paper. A separate account is not given by the company and therefore it would have been misleading to pack together all the products into one segment when comparing with other segments. Billerud operates within different segments in the packaging industry and are therefore dividing their products into different segments. We have however put together these into one segment in order to make it comparable to other companies.

The conclusions that can be drawn from the statistics are that profitability between the segments is different. This can be explained through that the areas include different levels of value adding activities. The competition also varies between different parts of the value chain. The area with the highest profits is personal care. This segment is aimed at the end consumer and thus enables a higher level of differentiation. As the diagram illustrates, the profitability levels within a particular segment vary between different companies. These variations may emanate from internal factors such as different resources, different levels of value adding and different strategies, and are highlighted in the above mini-cases.

4.2 Interviews

The purpose of the following part is to give an account of the interviews performed. Ten different respondents were asked questions divided into three domains, each handling certain parts of the theoretical framework. The first part treats the drivers of change. The respondents where asked how they have perceived the change in the industry, what factors that are underlying and how this have affected the companies' strategies. The next section deals with the industry today. The questions treat the respondents' perceptions of strategies based on, on one hand a Porterian viewpoint, and on the other a RBV-angle. The last group of questions concerns the future. In this section, the value chain is discussed together with how possible migration into new business models will take place. The idea is that the collected viewpoints together with relevant theory will help us create a framework which could describe the value migration in the forest industry. The three sections will later be jointly analysed, but for now they should be regarded as in a chronological order going from the past, via the present, to the future.

In order to broaden the perspective, three types of respondents have been interviewed; financial analysts, industry actors, and researchers connected to the forest industry. It is important to notice that the purpose was not to identify differences among the groups, but rather to cover different areas of knowledge. The inputs therefore varied where for example the researchers on innovations naturally had more to say about the future whereas the financial analysts knew more about the present state of the industry.

4.2.1 The past – Drivers of change

The following section will describe how the respondents perceive the change in the industry the last ten to fifteen years. In addition to the drivers and the factors behind the change, an account for how the strategies of the companies have transformed will be given.

There seems to be a mutual understanding among the respondents that the profitability in the forest industry has decreased and that the competition has become harder during the past years. Many are also mentioning a general decrease in prices as well as a decrease of sales in Western Europe. Financial analyst Linus Larsson further points out that a structural increase in costs have occurred where everything connected to the oil price such as chemicals and transports have been hit;

> *"There is a significant difference compared to a few years ago; Northern Europe's competitive advantage has always been low costs due to good access to wood and energy through our forests and water power, this has now changed."*
> (Linus Larsson, SEB, 2008-11-27)

The above quotation leads us in to the drivers behind the perceived change, and one factor that almost every respondent mention is globalization. Globalization has affected the competitive landscape heavily and today there are competitors and markets that did not exist before. Ten to twenty years ago, there was for example no producer of low cost pulp in the southern hemisphere. This is no longer the case with several emerging markets that have changed the global cost structure radically with trees growing up to seven times faster than in the North. In addition, the Asian markets have opened up and China has gone from being a net importer to a net exporter of forest products. A second factor that was pointed out is the increasing wave of environmental awareness which, together with a change in consumer behaviour, has caused a switch in demand in certain product segments. Today more people seem to be looking at computer screens instead of journals and newspapers, and trends are pointing towards a larger part of advertising budgets is being spent on digital media. Environmental awareness, changed consumer behaviour, and industry overcapacity through globalization has therefore caused a structural decline in the demand for paper.

How have then the forest industry companies reacted and what is the strategic response to the changes? Linus Larsson means that during the past years rather vigorous efforts have been put on reduction of capacity, and investments have become more directed towards cost-savings. Per Arfvidsson, Senior VP at SCA does not identify any radical changes; however he points out that an overall cost rationalization has occurred. In addition he mentions consolidation as a strategic trend in the past;

> *"A wave of consolidation globally has also taken place, which perhaps not always has been so successful."*
> (Per Arfvidsson, SCA, 2008-11-28)

Pia Wågberg at STFI-Packforsk further adds that during the past twenty years the forest industry companies have to a large extent bought up each other resulting in large "armoured battleships" that are hard to navigate. Wågberg argues that the European

forest industry have for a long time been aware of the effects of globalization, but due to the size of the companies it has been hard to change direction. In addition to being large, the slow pace also seems to steam from the ownership structure and the increased emphasis that has been put on the stock market;

> *"The forest industry has gone from being long-term strategic thinking and responsible to society, to become more concentrated on the market economy and extremely short-sighted. Nowadays, the result statement every third month or the shareholder value is the only thing that counts. This is in my opinion disastrous for the forest industry."* (Pia Wågberg, STFI-Packforsk, 2008-12-03)

However, even if the industry is slow moving, Folke Österberg, Research Programme Director at SCA, argues that all companies are looking at possibilities to transform their businesses and to find alternative products. He explains that everyone is eager to find ways to obtain added value from existing products. A general question for the industry is also, argues Österberg, what the forest as a raw material should be used for in the future.

Summary – The past

Drivers of change and the strategic response

How has the forest industry changed in the past years?

- Decreased profitability
- Increased competition
- Structurally higher costs
- Overall decrease in prices
- Overall decrease of sales in Western Europe

What are the major drivers of change?

- Globalization – New markets and competitors that didn't exist before, low cost pulp in southern hemisphere
- Changed consumer behaviour – Computerization
- Environmental awareness

What are the strategic responses in the industry?

- Reduction in capacity
- Cost rationalization
- Global consolidation
- More emphasis being put on the stock market
- Companies aiming to build in more added value in their products
- Companies are looking for alternative products

(Table 5. Summary of the past. Source: Interviews)

4.2.2 The present – The known market space

This part of the interviews treats the industry and the today known market space. As an opening to the discussion and as a way of observing the perceived state of the market, the respondents were asked how they would describe the industry today. The following questions then treated different strategic themes from an outside-in perspective. More distinctly, this implied where the forest companies should positioning themselves, what type of strategy they should use, and if they should be focused or vertically integrated. The last part of the interviews considered the inside-out perspective where important resources were discussed.

The most common description of the industry today is that it is under heavy stress and pressure. The profitability is perceived as being very cyclical with a tendency to go downward over time. There is also an increasing threat from competitors in the southern hemisphere where the raw material is much more fast-growing. Folke Österberg at SCA further argues that the biggest threat is the traditional nature of the products that are offered, and because they are commodities it is very hard to get the price that the companies want. This could be explained by the overcapacity in most markets. Given that a sense of pressure is predominating, where should then the companies position themselves and what part of the value chain implies the most long-lasting value? Many respondents think that this is a very complicated question and that a straightforward answer is hard to give. Alexander Vilvall, analyst at HQ Bank, for example reflects on whether you want to be in any part at all at the moment.

> ***"There is a will to be as far forward as possible towards the end consumers in the value chain. Large parts of the industry are not there, but rather far back. SCA is in this context an exception with our hygiene segment."*** (Per Arfvidsson, SCA, 2008-11-28)

If it is more favourable to move into segments closer to the end customer, this raises another question. Should those parts that are further back in the value chain be divested or should the companies instead become more vertically integrated? The benefit of integrating vertically seems to be that you become less cyclical. As parts of the value chain are reacting differently to economic fluctuations, the company as a whole becomes less sensitive. Another advantage compared to divestment is that with vertical integration, the company will keep the control over the supply of raw materials. Alexander Vilvall argues that one of the largest mistakes companies have been doing

during the last years is to divest their forest possessions. Many companies are now in the hands of the Russians for raw material shipments, and due to raised export tariffs the prices have increased heavily. Yet, some respondents point out that you have to raise the question about the advantages of being large, and that maybe it is better to try to focus on a smaller number of segments just as International Paper has done;

> *"One tactic within the forest industry has for a long time been to strive towards being big and beautiful. When you become big however you don't become very beautiful."*
> (Folke Österberg, SCA, 2008-12-05)

The discussion above regarding the degree of vertical integration seems not to generate consistency among the respondents. It is however possible to interpret a pattern of opinions that companies should strive forward in the value chain, and that there are clear benefits of being integrated, but that there is a danger in becoming too big. What should then the companies strategically emphasis on; cost leadership or differentiation? On this issue, everybody seems to be on the same track; a strategy based on low cost is for the Nordic industry doomed to fail. Instead of competing on low cost a majority of the respondents argue that an innovation-driven strategy with alternative ways of processing the forest raw material is best for the future. "We will have to figure out", argues Folke Österberg, "how we in the best way could use the raw material in the future, if it is for paper production or something else". Pia Wågberg futher adds that "in order to compete you have to look at every possible way to raise the value added on paper products." However, the interviewed financial analysts raise some objections to this. Alexander Vilvall comments that it could be hard for a small pulp mill company to differentiate itself due to a smaller capital base. Therefore, he argues, being differentiated could be a good position if you are a large company but it could be hard to get there if you are small, then it becomes a question of consolidation instead.

When looking at the forest industry from a resource-based view, many of the interviewed mention concrete issues such as a strong capital base as well as control over energy and raw material as important resources to posses. Strong R&D is another important resource in order to be able to create value in the future. However, as many point out, it is not the amount of money invested that becomes the most important, but rather the capability to understand the customers and create new products and business models thereafter. Matts Björklund mentions the ability to combine materials with knowledge as an important resource, as well as being able to understand what the

customers will find important. It is not best practice, but rather *next* practice the companies need to be able to identify, he argues. Several respondents also talk about the ability to think in entirely new lines as an important resource to hold, and call for an interdisciplinary view on R&D where the focus is not just on technology.

Regarding the forest as a resource there is a consensus that there is a rather large possible value in it. However, what the value will consist of is not quiet clear. Folke Österberg talks about the forest as a giant resource with a tremendous amount of unexploited value. He believes that we have been way to traditional in our thinking and that there is an unidentified value in non-traditional products as well as from an energy viewpoint. Bengt Järrehult, Director Innovation and Knowledge Management at SCA, thinks that it is dangerous to only use the forest for paper and pulp, and he believes that we in the future will se the forest also as a resource for energy and chemicals. Matts Björklund is on the same track and he talks about "path dependency" and that the industry is stuck to its origin. A possible conflict therefore arises between focus on the material and focus on the customer, and this is dangerous he believes. In opposite to this positive view of the forest, some also see it as a threat as the comparative advantage lies in Latin America.

Summary – The present

Strategies from an outside-in perspective

Where in the value chain should you be?

- Emphasis on the back but many wants forward closer to the customers
- Do you want to be anywhere right now?

Vertically integrated or not?

- Advantages: Less cyclical, more control over the raw material.
- Disadvantages: Big and beautiful becomes only big?

Type of generic strategy?

- Low cost is doomed to fail? Could be hard to realize for small companies.
- Differentiation best? More value added, innovation-driven strategy with new possibilities for the forest

(Table 6. Summary of the present. Source: Interviews) *Continuing on next page*

Strategies from an inside-out perspective

Important resources to posses

- Control on raw material and energy
- Strong capital base
- Flexibility: Ability to think in new lines and to change thereafter
- Developed R&D: Ability to understand the customer, cross-fertilization of industry knowledge, collaboration

The forest as a resource

- Opportunities: Large unknown value, possibilities for new areas in energy, chemicals and non-traditional products
- Threats: Patch dependant; focus on forest instead of customers, comparative advantage in Latin America

(Table 6. Summary of the present. Source: Interviews)

4.2.3 The future – The unknown market space

We will in this section discuss the future value chain from a Nordic perspective. What parts could be decreased in scope, what parts should be raised, and what could be created? These types of questions were the respondents asked to reflect upon. Also, an emphasis was put on the path towards future possible success and questions like how the industry needs to act and what needs to be improved were discussed.

From a Nordic perspective, what parts of the value chain will in the long term not create value, and where does the industry therefore need to reduce its presence? Many of the interviewed think that traditional bulk goods such as newsprint will have a hard time to survive. Because of a structural decline in growth and because of its low cost profile, many believe that various paper products will be decimated considerably and therefore only constitute a niche area for the Nordic region in the future;

> *"I think it is hard to see a future for relatively simple products which are produced in capital intensive processes, as for example newsprint. Other places on earth where they have access to cheaper raw material and labour will beat the competition in the Nordic countries. I believe we should abandon low processed product segment totally in the long run."*
> (Per Arfvidsson, SCA, 2008-11-28)

Both the financial analysts further comment that there is no future for mechanical pulp production in Sweden. The reason is that it is too energy demanding. The prospects for pulp made out of birch are also though to be negative since this directly competes with pulp from eucalyptus. However, pulp made of long fibre should not be abandoned according to Linus Larsson, as it is not produced in the southern hemisphere to any great extent.

On the question of where the companies should direct their efforts, a rather general understanding among the respondents is that the best position is further up the value chain. The more refined and processed the product becomes, the easier it gets to work with differentiation and branding. Many talk about the importance to get away from the "commodity trap" and to be able to offer a unique service or product. In this context, the packaging segment is often mentioned as an area with great possibilities. Matts Björklund for example argues that the companies are not going to produce packages in the future but rather packaging *solutions*;

> ***"Historically the customers have just asked about the price and this has been it. The industry needs to get away from this and instead think about what the customer could earn further on in their value chain, and then capture a part of this. Service becomes more and more important."***
> (Matts Björklund, Lund University, 2008-11-27)

It could easily sound from above quotation that in order to add value and increase the margin, the product needs to be quite sophisticated. However, many of the mentioned examples of an enhanced degree of service refer to rather basic products. Billerud is for instance developing and manufacturing package solutions which enhances the durability of fruit and vegetables when freighted. This shows that profit margins could be raised when service is included, even if the product is standardized. Another example of uniqueness in an otherwise commoditized segment, which Linus Larsson mentions, is Holmen and their Iggesund Paperboard. They have chosen to manufacture a product with a higher standard and quality than their competitors and strive to be in the frontline regarding production facilities and competence.

Regarding possible new business fields, we got the impression from the interviews that the industry is far from a revolution. However, many believe that the industry is in a turning point and that we are going to see interesting developments within the

established businesses. Folke Österberg believes in more specialized, high quality paper with for example electronic functions built-in. Bengt Järrehult thinks that chemicals and medical raw material extracted from the forest could be the big thing in the future. More tangible proposals are different kinds of composite materials where for example plastic is mixed with wood. Products like this have partially already been introduced to the market; Finnish company UPM is one example. Furthermore, the energy sector is an area that many talks about. Examples mentioned are different kinds of chemicals for energy purposes, as well as wind turbines placed in the forest;

> ***"The land area with forest will become very important for the wind turbines."*** (Bengt Järrehult, SCA, 2008-11-28)

The road towards new inventions and business models is however not straight. Bengt Järrehult believes it is hard for the industry to accept new innovations as it only thinks "volume" and not "value". Pia Wågberg adds that if a new product even should be presented at a board meeting, it needs to be able to sell in hundreds of thousands of tons, otherwise it is not interesting. She continues to argue that it will be very hard to create new business models because the quantity is initially going to be small and this will not be accepted. Another issue that many believe works as a restricting force is the stock market and the short-termism this brings. Matts Björklunds says that all the larger forest companies are today listed and this makes it hard to act with a long-term focus. In many cases the stock market views forest companies as low risk placements and this makes the CEO:s act in a risk-averse way.

> ***"The forest industry is conservative and it needs to dare to open up for new thinking. Perhaps it should be picking up skills from other industries that are further forward in their way of thinking. We have to reconsider business models and other deep-lying structures."*** (Per Arfvidsson, SCA, 2008-11-28)

It is clear that the forest industry needs to change its dominant logic and allow risk and small quantities, says Matts Björklund. He adds though that changing the culture is doomed to fail; instead independent spin-offs need to be created which could live their life outside the quarterly profit and loss accounts. Folke Österberg comments that such spin-offs will not generate much volume but the mother company needs to allow them to be slowly-growing and mistakes have to be permitted. Bengt Järrehult also adds that separate funds need to be allocated for such projects. Regarding the matter of change,

the role of R&D was also discussed. New field does not only need additional investments but the whole concept needs to be developed, says Per Arfvidsson. Today, R&D is too centred on technology; marketing, business models and the customers need to be included at a higher level, he argues. Also, more collaboration around innovations is perceived to be needed in the industry.

Summary – The future

The value chain

What parts will not create value in the future?

- Traditional bulk goods – For example mechanical pulp production and pulp made of birch-tree
- Newsprint – No structural growth, hard to compete against Latin America

What parts will create value in the future?

- In the end of the value chain – Where it is easier to differentiate and be unique
- Away from the commodity trap – Selling solutions and services instead of just a product

What new parts could create value in the future?

- Specialized, high quality paper – With features from for example nano- and electro technology
- Chemicals and medical raw material
- Bio plastics
- Energy – For example wind turbines

The path towards change

Restricting forces

- Dominant logic: Volume thinking, risk minimizing, bound to the past
- Short-termism / Quarterly capitalism – Influenced by the stock market

What is needed to change?

- New thinking: Dare to take risk, challenge existing business models, borrow knowledge from other industries
- Develop the R&D concept: Mix in other sciences, use the customer perspective, collaboration and open innovation

(Table 7. Summary of the future. Source: Interviews)

4.3 Future opportunities for the forest

The profits and return on investments in the Nordic forests industry have declined during the past years and many companies have as a response invested in other geographic regions. Today, for example, around 60 percent of the total Finish forest industry production is located outside the country (Forest Industries, 2008). Should the companies continue to invest abroad or is there a future for investing in the Nordic forest? Bjarne Holmbom, Professor of Åbo Academy in Finland claims that the Nordic forest industry needs to put an increased effort on research if the industry should be able to survive in the future (YLE, 2008). Holmbom believes that the Nordic companies need to develop new methods and new ways of thinking in order to survive. Based on their annual reports, all of the examined companies also stress the importance of innovation. In this section we will therefore from various documents, seminars and reports investigate a few areas that potentially could make the Nordic forest more attractive. This will be followed by a section where the Nordic forest is compared to foreign forests, with an emphasis on the eucalyptus production in South America.

4.3.1 Wind power

One field that is widely discussed as a prospective way to make additional use of the Nordic forests is wind power. The main idea is that as it lately has become more difficult to build wind turbines along the coastal lines, the forests could be exploited for this purpose. Several of the Swedish companies such as SCA, Holmen and Sveskog are either leasing their land to energy companies or investing in their own wind turbines. If it actually makes economic sense to make such investments in the forests is widely discussed. One opponent to these investments is Tore Wizelius, subject teacher in wind power at the University of Gotland. He argues that the costs are too high to make it profitable. Another forest expert, Andrew Tindal at the consulting firm Garrad Hassan, states that the companies should only build in the forest if that is the only available alternative (ATL, 2008).

To create successful wind power in the forest, the turbines need to be built tall in order to gain high efficency. In cooperation with the Norwegian energy company Statkraft, SCA is currently building 500 wind turbines with towers at a height of 100 meters and with rotors at 100 meters in diameter. This can be compared to the facilities located at sea which have a height of 60 metres (Ny Teknik, 2008). Åke Westerberg, project

leader at SCA, says that despite the increased costs, the advantages for the company are greater (ATL, 2008). Neither SCA nor Statkraft wishes to provide the public with any information regarding the calculated profitability of the project, but the constructions are not expected to affect the company's balance sheet or result during the construction period. The information provided is that the investment is expected to produce 2,7 TwH of electricity annually. This can be seen in relation to the complete demand of electricity at SCA which covers 3 TwH annually. Bengt Simmingsköld, President of the wind power company Elous Wind, believes that the profit plans made by the companies are exaggerated and that there will be much disappointment in the industry the coming years (Ny Teknik, 2008). In 2008, the Swedish Energy Agency conducted a report to discover if wind power could have a future in the forests. In the report, the energy outcome of wind turbines located in the proximity of forests, and wind turbines located in foreign countries were analyzed. The conclusion was that in general wind turbines in the forests do not fulfill the minimum requirements set up by the IEC-standards regarding wind gradient and turbulence (Swedish Energy Agency, 2008).

Little research has been conducted in the field and the uncertainty is still high if the projects actually could be profitable. Yet, if the forest companies lease their available land, they will not be exposed to any risks but could still receive additional value from their land possessions. The costs of building a wind power facility in the forest are estimated to 30 million SEK, and to build one turbine, energy companies usually lease 0.3 hectare from land owners. Furthermore, a land owner can receive up to 100,000 SEK annually in tenancy from the energy company (Skoglig Samverkan i Norrbotten, 2008). This can be seen in relation to an annual production of 4 cubic meter of wood per hectare (Svenska Dagbladet, 2005). In 2007, the average wood price in Sweden was 423 SEK per cubic meter (Västerviks-Tidningen, 2009). This makes the annual outcome about 1,700 SEK per hectare. Accordingly, the revenues earned from leasing the land must be perceived as high in relation to the small amount of land that the energy companies demand.

4.3.2 New wood-based materials

Wood is a material used in many fields including paper, packaging, tissue, and furniture. Today, it is frequently discussed if wood can be refined and thus turned into completely new materials. Creating a completely new market for the resource would be very attractive for the forest industry. One such material could be wood-based

bioplastics. With a global market value of plastics at $300 billion per year, there is much potential for an actor who manages to develop a competitive and cost efficient material (MarketWatch, 2007). Today, plastics are mainly oil-based and 4 percent of the annual global oil production is spent on producing plastics. The development of the oil price is uncertain and with declining reserves, new materials will eventually become more attractive. Also environmental aspects speak in favor of bioplastics. The conclusion is therefore that this could be an important area for the future.

The beneficial aspect is that there is much research being conducted in the field by universities and private research companies. Many forest companies are not directly engaged in the development of these materials even if UPM Kymmene is making an effort in the field with limited funds. The fact that the companies are not investing heavily in bioplastics does not mean that research is not being made however. In 2008, the European Union decided to invest 6.5 million euros on wood based bioplastics where various R&D companies were involved (Pulp and Paper News, 2008). Although the press is commenting on it a lot, the term bioplastics must today be seen as hype as less than 1 percent of the annual plastic production represents it. Wood is neither the main source of material as the most common bioplastic today is based on starch from maize. Additional materials used are fermented corn, sugar cane and feed stock (European Patent Office, 2007).

One new type of wood based bioplastics was discovered in 2008 by a research team at the Royal Institute of Technology in Sweden. The material is produced through nano-technology and is extremely strong as it has the strength of Kevlar and the double strength of cast iron. Another invention that has been developed during 2008 is a bioplastic based on lignin. In paper mills, wood is separated in to three main components: lignin, cellulose and hemi cellulose (MSNBC, 2008). The cellulose is the central component for a majority of the production while lignin today can be used for producing low quality newsprint. An article by the Brussels based organization Bio pact states that "lignin is considered to be, worldwide, the largest but most under-utilized biomass feedstock available for bioenergy and bioproducts" (European Patent Office, 2008). Bioplastic based on lignin could, based on this, prove to be beneficial for the Nordic industry since the Scandinavian spruce and pine contains high amounts of lignin. The Norwegian Spruce, which is the most common forest species in the North, contains a lignin degree of 27 percent. This can in turn be compared to the eucalyptus tree that only contains a degree of 20 percent (Mendonca, 2007).

Why should the forest companies invest in advanced technology?

Research within bioplastics are being made by the major plastics companies such as Du Pont, BASF and General Electric and the largest buyer of plastics today in the world is the packaging industry (26 percent). Since several of the forest companies already are operating in the packaging industry, synergy effects could possibly be achieved by new discoveries in bioplastic technologies (Seeking Alpha, 2008).

What is the price needed to compete with oil-based plastics?

The average cost of commodity plastics was in 2007 approximately 1 USD per pound. This can be seen in relation to for example bioplastics based on polyester which is sold at $ 2.50 per pound by American firm Metabolix (Seeking Alpha, 2008). The estimated costs of producing these new wood-based materials is however hard to estimate. The wood price of 423 SEK per square meter in Sweden 2007 indicates that in the current situation it could be hard for wood to compete. Even if the manufacturing price at the moment is higher on these materials than on conventional ones the expected practical advantages should not be neglected. The new material developed through nano-technology is for instance a material that offers capabilities superior to plastics and the same argument could be applied regarding composite materials.

4.3.3 The eucalyptus expansion

The Forests in the Nordic countries

The Swedish forest fauna consists of 42 percent spruce, 38 percent pine, and 11 percent birch-tree (Skogsstyrelsen, 2009). The primary advantages of spruce and pine is the long fibers which are formed throughout the 70 years it takes to reach full length. Long fibers implies certain advantages to short fiber and UPM Kymmene for example claims that the Nordic needle trees contain fibers which is the strongest available in the world. This is due to the long amount of time it takes for the trees to grow (UPM, 2008).

There are different views regarding the future of the Scandinavian forest. While most companies state that there is little future value in it, Mats Sandgren, president of Södra Skogsägarna, is one proponent of Swedish industry. Sandgren believes that the situation looks rather good for the future as he thinks that the increasing demand for

products from both South America and the home markets will increase the coming years. The total demand will be so high that the Nordic companies also will be able to produce despite South American advantages, he argues. Sandgren further sees the long fiber as a competitive advantage that will benefit the Nordic countries with products of higher quality. He finally outlines the proximity to its main markets as another important competitive advantage, as he perceives the future development of transportation costs as uncertain (KSLA-nytt, 2005).

On the other side is Björn Hägglund, former Vice President at Stora Enso. Hägglund believes that the Nordic industry have seen its glory days. Historically, energy prices in the north were the lowest in the world and the companies could provide a growing demand in the Western Europe with wood after the World War II. This is however no longer the case and Hägglund believes we will see a gradual decline of production in the Nordic countries the coming years. One of his main arguments is the gradually rising land prices in Europe. Further, he argues, that during the past five years the quality of the eucalyptus-based products has increased. The advantage of making quality products based on long fiber tree is losing ground as the industry and the market is adapting to the new materials (*Ibid.*).

The forest in Brazil

The largest producer of wood products today is Brazil. It is also the single largest threat towards the Swedish forest industry and a comparison is therefore relevant. In the Brazilian productions the most common tree is the eucalyptus which becomes mature in about seven years. 35-55 cubic meters of wood can be harvested from one hectare of land and this can be compared to the Swedish four square meter of wood per hectare. There is a general trend in the global forest industry towards an increased eucalyptus production as every tenth year since 1960 the production has doubled. The advantage of the tree is the rapid growth which reduces the lead times considerably. The country which is receiving the most attention today is Brazil, which is perceived to be for the forest industry what China is in the manufacturing industry. The production costs of pulp at Brazilian Veracel are for example expected at 120 USD per ton compared to 350 USD per ton in the Nordic countries. If the transportation costs to Scandinavia are included the costs are still lower (Svenska Dagbladet, 2005).

The Brazilian pulp production is rapidly expanding, but the pulp is being exported and not refined in Brazil. Nils Grafström, director of Latin America at Stora Enso, does

not see that Brazil will make any attempts on their own to refine the wood and pulp to produce paper in a near future. Consequently, the possibilities for the Nordic companies to invest are good. For many years though there have been discussions regarding the forest extinction in Brazil. Could this possibly be a disadvantage for the production? Ottavio Pontes, Vice President at Stora Enso Brazil, recently commented that the company is only planting eucalyptus-trees at previous pasture land and that the rainforests or land where rain forest recently existed always is avoided (KSLA, 2008).

The depending factor that could make the Nordic forests more attractive is if the oil price rises. Stephen Jen, currency strategist at Morgan Stanley in London believe that if the long term oil prices rise to above 200 USD this will have a clear effect on the trade patterns that in the end will lead to commodities being produced more closely to the end consumer (USA Today, 2008). This must in turn be seen as a large threat for the global eucalyptus expansion.

Summary – The eucalyptus expansion, SWOT-analysis

The Nordic forest	The Brasilian forest
Strengths	**Strengths**
• Long fibres (high quality)	• Plants rapid growth • Cost efficient
Weaknesses	**Weaknesses**
• Production costs • Slow growth	• Short fibres
Opportunities	**Opportunities**
• Increasing global demand	• Increasing global demand
Threats	**Threats**
• Increasing land prices	• Rising oil prices / expensive transportation

(Table 8. Summary of the eucalyptus expansion)

5 ANALYSIS

This chapter is dedicated to a discussion of the elements presented earlier in the thesis. The empirical findings will here be analyzed through the developed theoretical framework. The chapter is divided into three sections, treating different aspects of the business model transformation.

The purpose of this thesis is to examine the potential business model transformation in the forest industry, and to find out how, and in which areas future profits will be made. This quest includes an analysis of the changing competitive environment and the strategic response to these challenges. However, the main focus of the study is to examine how future business models should be designed in order to create a competitive advantage.

The analysis is divided into three sections, each handling certain theoretical areas and concepts. The first section covers the changing competitive environment in the industry, with a discussion of the major forces that are driving the change. The next section examines the sustainability of present strategies. The final section explores different areas of the industry value chain in a future perspective. This includes a discussion on the requirements needed for a transformation of the business models.

5.1 The transformation process

Despite attempts of restructuring, the forest industry is still faced with several challenges. The period of consolidation during the 1990s proved not to be the solution as profitability is still low. More recent trends of portfolio focus and divestments in some companies have yet showed no or moderate signs of a turnaround. Among the worrying trends are an overall decrease in prices and a decrease of sales in Western Europe. For the Nordic actors, the previous regional advantage seems to be disappearing as there has been a structural increase of cost compared to emerging markets;

"There is a significant difference compared to a few years ago; Northern Europe's competitive advantage has always been low costs due to good access to wood and energy through our forests and water power, this has now changed."
(Linus Larsson, SEB, 2008-11-27)

5.1.1 Driving forces

There is a consensus among the respondents that the Nordic companies need to change their way of doing business to be competitive in the future. Before discussing how this change may occur, it is important to understand the factors that are driving the change.

Globalization

Like many other industries, the structural change in the forest industry is driven by globalization. Globalization allows investments, capital, and technologies to move easily into regions where they can be utilized most efficiently. In this way, the traditional ties between forest production and natural forest habitations become dissolved. The effects of globalization are recognized by most respondents in our study, as well as in several other studies (see Sande, 2002; Bael & Sejdo, 2006; Roberts, 2006). For the Nordic actors, globalization means intensified competition but it also opens up new export markets. Emerging markets are becoming more and more important for these companies, and most of the investments today are made in areas such as Asia and Latin America.

In the light of globalization, competition is getting more and more intensified. The forest industry has for several years been characterized by overcapacity making the prices fall. The increase of wood supply is an effect of the capital-intensive and long-term investments associated with forest production. This makes the exit barriers very high. The consolidation period was a natural response to the over-establishment of firms, yet the overcapacity in the industry persists.

Changing consumer behavior

Another important factor behind the industry development is the change in consumer behavior. The increasing level of digitalization in the society has caused a shift of demand in certain product segments in the forest industry. Today, computers are frequently being used as an information source making the demand for traditional, printed materials decrease. Paper-based segments such as fine paper, magazines and newsprint are therefore thought to create little value in the future. The drop of demand for these products is also fuelled by increasing environmental awareness among consumers. The latter could however have positive effects on the packaging business, given that paper board has significantly lower impact on the environment than substitute products such as plastic, glass or metals.

New technologies

Our study shows that there is a lot of forest-based research going on. Fields such as bioplastics and nanotechnology have great potential for the forest industry, according to the scientists. Yet, the industry actors seem to be little engaged in such activities. Instead of playing an active role in the research, the larger Nordic companies seem to wait for the scientists to reach a breakthrough.

One of the most important challenges for the Nordic actors is the eucalyptus expansion, which could be seen as a new production technique. With its superior rate of growth compared to traditional spruce, the planted habitations have a clear cost advantage. For this reason, for example Stora Enso has transferred its production to emerging economies where these planted forest can grow.

Energy

Given that pulp production is very energy-consuming, the industry has been struggling with high energy prices for several years now. The high oil price and increasing energy prices in general are putting pressure on the forest industry. Another significant factor in this context is the increasing transportation costs which are an effect of the high oil price. The high energy costs have made forest producers look at alternative sources of energy. Some of the Nordic companies are investing heavily in wind power in order to become less dependent on external energy. SCA is for example engaged in a project aiming to build 500 wind turbines in the company's forestland. However, the

economics of wind power in the forest could be questioned. To make the turbines effective they need to be very tall compared to turbines in other areas and critics argue that the cost are too high to make such investments profitable.

5.1.2 The disruptive process

The discussed driving forces have various impacts on the development in the industry. Yet, they all contribute to the changing environment for the Nordic players. Using Slywotsky's (1996) value migration terminology, the industry seems to be moving into a value outflow phase after a long period of stable market shares and margins. The empirical findings indicate that value is moving away from areas such as paper and printing, and that the Nordic companies will not be able to compete on low-cost strategies in the future. The planted forest with significantly shorter production cycles is a disruptive technology that is changing the prerequisites for companies with habitations of natural forest. Thus, we argue, that the value of the business model in the Nordic forest industry is slowly dissolving. Therefore, companies must seek to adapt their strategies to the existing competitive environment in order to catch a new value inflow stage. This process will be further elaborated on below, using strategic considerations from both the inside and outside perspective.

5.2 Strategic considerations

The changing competitive environment outlined above affects the companies' strategies. To be able to explore future strategic possibilities, an understanding of the present business models is needed. This section will therefore cover an industry analysis, as well as a review of the present strategies and resources.

5.2.1 Industry analysis

The industry analysis will be based on Porter's (1980) 'five forces' model, which was explained in the theory chapter. The purpose here is to get a broad picture of the industry structure, and to evaluate the relative power of the different forces. The starting-point of the analysis is to examine the situation for big vertically integrated companies, i.e. companies that control the value chain from the forest to pulp production and packaging.

Starting with the buyers, their bargaining power is regarded as fairly high. As most products are rather undifferentiated, which also was pointed out by Folke Österberg at SCA, customers become indifferent from whom to buy. The buyers' bargaining power is further strengthen by the low switching costs. However, the fact that there is a large number of customers, and that many of them are relatively small offsets the customers' power to some extent.

The bargaining power of suppliers is high. The supply of energy is critical for the forest industry because of the energy-demanding production. The high market-prices on energy, together with the lack of substitute energy sources, make the forest companies very dependence on energy providers. Some of the forest companies are trying to reduce this dependence by investing in their own energy plants utilizing waste bioenergy from the production. Alternative sources such as wind power are other examples although such plans are still in an early stage.

The threat from new entrants is rather low. As discussed earlier, the forest industry has been characterized by overcapacity and low profitability for several years. Furthermore, the investments needed to setup a new business are enormous. This makes the industry rather unattractive to potential new entrants. However, despite the declining profitability as well as poor return on capital, the global market for paper, packaging and pulp is expected to grow in the coming years (Datamonitor, 2008). A qualified guess is that a considerable part of the expansion will occur in the emerging markets in Asia and Latin America. Figures in chapter one showing a high average ROCE in these regions is an indication of this (PWC CEO Perspectives, 2008). Therefore, there might be a threat, although moderate, from new entrants into these regions.

When it comes to substitutes the threat seems to be low. Compared to substitute products such as metal, plastics, and glass, the packaging segment for example have clear advantages in terms of weight, environmental friendliness and cost. The same arguments could be made when comparing wood to oil-based products, especially as the price of oil has been very high.

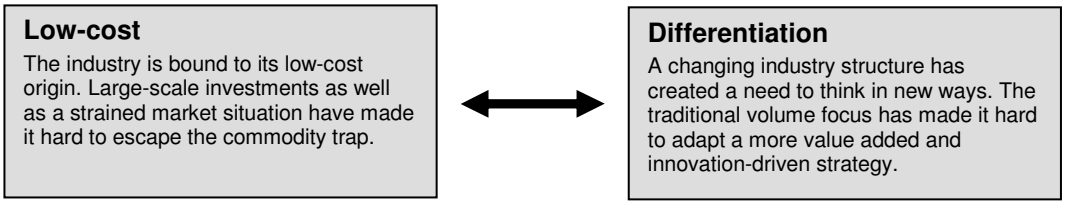
The last of the five forces, rivalry among competitors, is arguably the strongest force affecting the forest industry. This is due to the increased competition and overcapacity in the industry, which also was pointed out by the respondents. High fixed costs making it hard to exit, undifferentiated products, and the large size of the competitors are other factors that increase the rivalry.

5.2.2 Generic strategies

Following Porterian theory, a firm can employ two distinctive strategic actions in order to address the forces or possible threats; differentiation or low-cost. It could be stated that most companies in the forest industry have been focusing on the latter. This view is shared by all the respondents and confirmed by the study of annual reports from some of the major companies. The low-cost focus is by no means surprising as forest products such as pulp and paper are hard to differentiate, and most suppliers offer the same features. This means that price is the only factor to compete on. To be able to offer lower prices than competitors, companies therefore try to reduce costs by producing high volumes to enjoy economies of scale. The problem is that same actions are taken by competitors, making the low-cost strategy doomed to fail on a long-term basis.

With the expansion of rapid-growing eucalyptus plantations, companies using the Nordic forests in their production will have an even harder time to compete on low cost. This view is shared by the respondents; the only way towards a successful future for the Nordic industry is through differentiation strategy, the say. How then can companies become more differentiated? The offered products are hard to make unique as pulp and packaging materials are regarded commodities. However, superior product features is not the only route to differentiation. Billerud, which is a company that has been relatively successful the last years, focus on the solution for customers, rather than the product itself. In that way the company has been able to differentiate itself, to some extent, in the packaging industry. Another way for companies to make differentiation possible is to move forward in the value chain, where products are less commoditized. SCA is one example of this operating closer to the customer in areas such as tissue and hygiene products. These business areas have also been the most profitable for the company. There could however be downsides to vertical integration, which will be discussed further on.

At the same, there is an option for the Nordic actors to divest their Nordic forest and instead use eucalyptus as the base for production. Stora Enso is a company pursuing this strategy. However, this would mean a continued low-cost focus, which could be dangerous if competitors manage to reduce costs even more.



(Figure 5. Generic strategies)

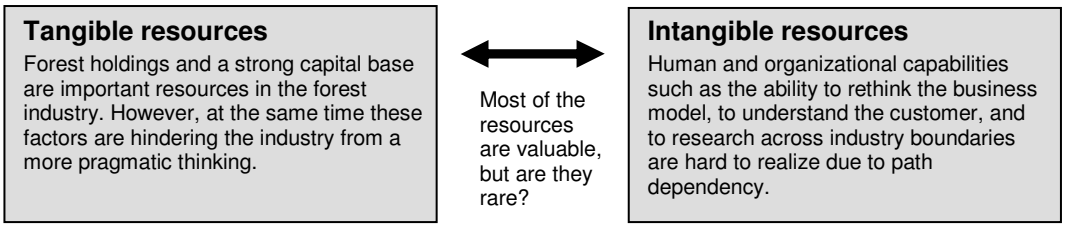
5.2.3 Resource-based view

Analysis of the potential business model transformation in the forest industry requires more than a broad analysis of the environmental setting and industry structure. To be able to predict future profitable areas, a deeper understanding of the resources that are important in different areas is needed. Barney (1991) states that for a resource to be the source of competitive advantage it must live up to the criteria of creating value for customers, being rare in relation to competitors, costly to imitate, and well organized.

As discussed earlier, forest production is associated with large, long-term investments. This is driven not only by the long production cycles but also by the strategic focus on low costs, which demands high volumes. To compete under such conditions, it is necessary for companies to have a strong capital base. This was confirmed by the respondents. Control over energy and raw materials were also considered to be valuable resources. However, the rareness of the mentioned resources could be questioned. All the major players have a strong capital base as well as at least partially control over raw materials through forest holdings. While this is the case on a general global level, there are important differences between the Nordic forest and the eucalyptus-based habitations. The long fibre of the Nordic trees makes the wood stronger, which could be a way to differentiate the products from eucalyptus-based alternatives. Most of the respondents agreed that there is a high potential value in the Nordic forest, except for a few business areas.

Despite this difference in tangible resources, we argue that, to be able to become differentiated, development of more intangible resources is needed. In the interviews, factors such as strategic flexibility, improved R&D, and the ability to understand customers were outlined as potential sources for future competitive advantage. Such intangible resources are costly to imitate, and if well organized they will live up to all of

Barney's (1991) criteria. Based on our analysis of the industry from a resource-based view, it is clear that that there has been a focus on the tangible resources. This focus makes it hard to incorporate new ways of thinking. To find new competitive advantages through differentiation, companies need to develop their intangible resources.



(Figure 6. Resource-based view)

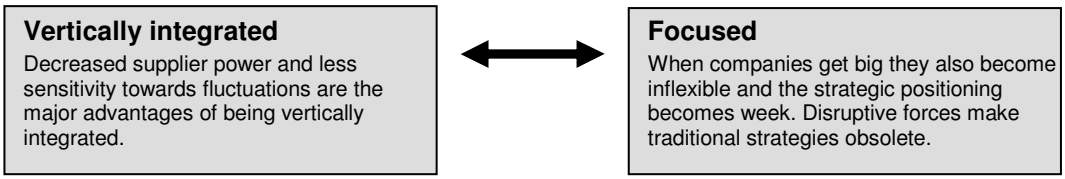
5.2.4 Vertical integration

Following the discussion on which resources are the most important, the next question is how these are best organized. Traditionally, the forest industry has been characterized by a general consolidation and during the 1990s companies became larger through several mergers and acquisitions. However, the contemporary trend is that companies want to become more focused. The development is driven by the North American industry, which has undergone a structural change during the last years. The leading American firms have transformed their business model from large conglomerates into more focused players. The most prominent example is International Paper which has reduced the scope of its business significantly to become a product specialist in the packaging and fine paper businesses. Our study shows that there is a desire in the Nordic industry to follow this strategic development. However, so far this seems to be just plans.

The competitive situation in the forest industry has resulted in large companies that are vertically integrated. The main advantage of being vertically integrated is that the company gets control over inputs such as raw materials. Own forest holdings means less sensitivity towards fluctuations in the price of pulp, as well as towards political and economic fluctuations in general. As pointed out by Alexander Vilvall, many of the companies that have divested their forest possessions are now in the hands of the Russians for raw material, and due to raised export tariffs the prices have increased significantly. Control over energy is also important as the bargaining power of energy

supplier is high. Many of the large forest companies are therefore supplying parts of their energy through utilization of its by-products and waste materials. However, there are also strong arguments against vertical integration. By controlling all stages of the supply chain, companies tend to be very large and inflexible, and the strategic positioning may become unclear. Given that intangible resources, e.g. research across boundaries and the ability to think in new ways, are vital for future competitive advantage, vertical integration may be a disadvantage;

> *"One tactic within the forest industry has for a long time been to strive towards being big and beautiful. When you become big however you don't become very beautiful."*
> (Folke Österberg, SCA, 2008-12-05)



(Figure 7. Vertical integration)

5.3 Where a transformation could occur

It could be concluded by previous discussions that the forest industry has faced harsh times and that a value outflow phase is approaching. It is thus reasonable to believe, in line with Slywotsky (2006) and Christensen *et al* (2008), that some kind of change is needed. The question is how and where this transformation will take place. Path dependency theory suggests that future strategic outcomes have a tendency to be affected by past decisions (Arthur, 1994). With this reasoning, it could be rather difficult to achieve future breakthroughs for the forest industry. Planned strategies may also quickly change as strategies often emerge over time (Mintzberg & Capon, 1996). In other words, the intention with the following discussion of the potential in different areas is not to *predict* the future but rather to argue for *possible* value creating strategies.

As discussed in the theory chapter, this analysis will draw upon the concepts 'strategy canvas' and 'four actions framework', developed by Kim & Mauborgne (2002). In its original form, the strategy canvas displays the factors of competence in the industry on

the horizontal axis, and the offerings level for each factor on the vertical axis. Here, the factors of competence are replaced by different activities in the industry value chain, whereas the vertical axis shows the future importance for value creation for each area. Further, the analysis will try to answer four questions based on the four actions framework; what parts of the value chain could be eliminated, reduced, raised, and created? The result of the analysis will be graphically displayed in a strategy canvas of the Nordic forest industry, as perceived by us.

5.3.1 Areas that could be eliminated

The financial analysts that were interviewed indicated that mechanical pulp production (in contrast to chemical pulp production) does not have a bright future for the Nordic forest industry. The reason for this is the energy-demanding nature of the production processes. Nor are the prospects good regarding pulp made of birch-trees as this directly competes with the South American pulp made of eucalyptus. Disruptive forces have in these cases made the processes and raw materials obsolete which calls for an elimination of these business areas.

Based on the above discussion it could be argued that it would make sense to invest in South American eucalyptus plantations as they are both more efficient regarding cost and lead-times. However, as discussed earlier, this will result in a low-cost focus. The crucial question is whether companies wish to aim for differentiated products with a higher quality or stick to a low-cost strategy based on eucalyptus forest.

5.3.2 Areas that could be reduced

In the interviews, several respondents indicated negative prospects for traditional bulk goods such as newsprint and fine paper. The supposed decreasing demand in these segments is an effect of a more digitalized society which is changing consumer patterns. Another factor is the expanding eucalyptus production; the short-fiber type of pulp well-fitted for newsprint products, thus out-competing the Nordic industry. In addition to abandoning fine paper and newsprint in the long run, some of the respondents believe that the Nordic industry needs to completely give up low-processed product segments manufactured in capital-intensive processes. The background to this view is the globalizing forces giving other parts of the world a comparative advantage in cheap labor and material.

5.3.3 Areas that could be raised

The interviews as well as the segment analysis indicate that the highest profitability levels during the recent years have been experienced in the later parts of the value chain. Products closer to the end consumers are though to generate a higher profit margin also in the future. As such an example, the packaging industry is outlined in both the secondary data and the interviews. Packaging products are product types that fit well with the Nordic long-fiber raw material. Being close to end consumers also allows for closer collaboration in developing design as well as additional, customized services. Furthermore, Mats Björklund talked about packaging as not just a product but rather a complete solution for customers (it can help to cut costs and/or increase incomes for customers in the next stage of their value chain), thus enabling added value. John Williams, President of SCA Packaging Europe also expressed these thoughts at the 20th Annual Global Forest & Paper Conference in May 2007;

> *"Companies need not only to think outside the box but to redefine the box — as the interface between the consumer and product rather than a mere commodity."*
> (PWC CEO Perspectives, 2008:4)

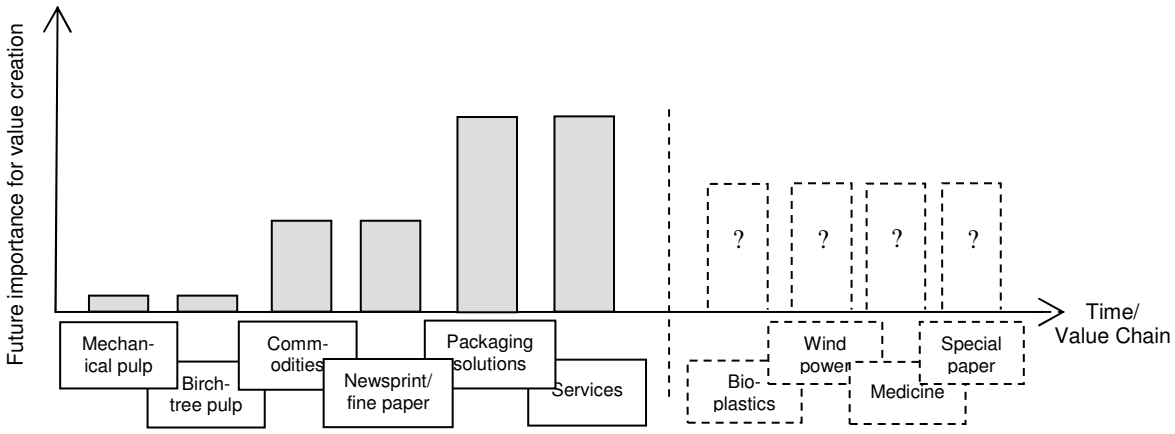
However, the product does not necessarily have to be sophisticated to add more value, which is showed by Billerud's packaging solutions (see the section about Billerud in the mini-cases in chapter 4). Iggesund is another example of value adding in an otherwise commoditized segment. In this context, parallels could be drawn to the steel industry which traditionally has been perceived as highly commoditized, but through a structural transformation in the past years the focus on adding value has increased. One interesting example of this is the Swedish company BE Group. Traditionally, BE acted as an intermediary in the steel industry but by introducing customized solutions that added a higher level of service, the company got closer to customers and profits increased substantially (BE Group, 2009).

5.3.4 Areas that could be created

None of the respondents believed that we will see any major breakthroughs in a completely new segment in the near future. At the same time, some of them outlined partly new areas that could be of interest such as high quality paper with different built-in functions, various kinds of chemicals, as well as raw material for medical

purposes. New composite materials based on wood, e.g. bioplastics, were also discussed as a potential field for the future. However, with oil prices at the current level, it would be hard for bioplastic products to compete with oil-based plastics based on price. Instead, wood-based plastics could rather compete on differentiation through advanced capabilities such as durability, strength, and not least environmental friendliness. Taking the total market value for plastics into consideration, the forest companies have the opportunity to enter this lucrative industry if research and investments are expanded. Furthermore, as the packaging industry is the single largest buyer of plastics today, and since several of the forest companies already are involved in the packaging industry, entering the market for plastics could mean substantial synergy effects.

Wind power is another field that was identified in the empirical analysis as a segment with potential growth. Forest companies can get benefits by building their own wind turbines, thus decreasing their energy-dependence, but also through cooperation with energy companies. However, as the Swedish Energy Agency, academics, as well as experts are critical regarding the profitability of wind turbines in the forest, the alternative to lease the land to energy companies is more certain.



(Figure 8. Predicted value creation in different areas of the value chain)

5.4 How a transformation could occur

There seems to be a general understanding that the Nordic forest industry is facing a structural change. Despite attempts of restructuring, disruptive forces driven by globalization continue to reshape the competitive climate. Many signs indicate that the traditional focus on large volumes and low costs ought to be abandoned for more differentiated strategies. Most of the major actors recognize a need to change their business model. Why then is this not happening?

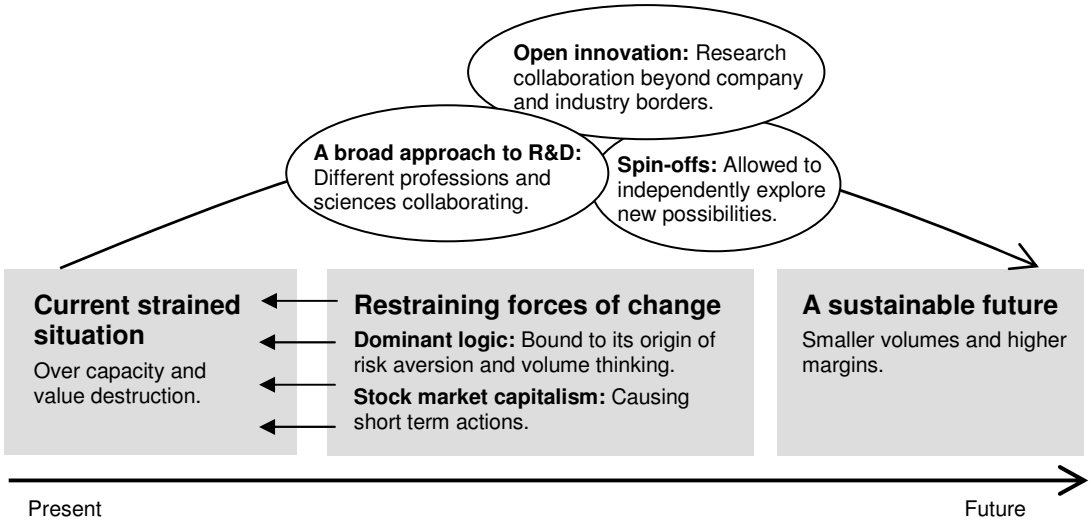
Using a metaphor from the medical world, we argue that the industry is "contaminated" by a serious "disease". By this we refer to the traditional thinking in the industry, characterized by volume focus, risk aversion, and the large-scale nature of the major actors. As disruptive forces now are reshaping the landscape, this thinking restrains the Nordic actors from developing. In business terms, this could be expressed as the dominant logic[1] needs to change.

Another factor that is preventing management from thinking in new ways is the stock market. This type of quarterly capitalism is disastrous for the capital-intensive and slow-moving forest industry, which was argued by Pia Wågberg in one of the interviews. The stock market views the forest industry as a low-risk alternative, making it hard to introduce new, innovative projects with higher risk. Changing the shareholder structure, which could be a solution to the problem, is however not an easy task. Even though SCA might have been a fast mover if the owner was a dedicated and emotionally engaged individual, like in the case of IKEA, this is not a realistic alternative. Apart from the short-termism in the capital markets, an even more restraining force to change the way of thinking is the company culture. However, a change of the firm's culture and values may be hard to implement, at least in a short-term perspective. Instead, smaller spin-offs that are isolated from the company's regular reporting obligations could be created. In such spin-offs, risk would be a natural part of the atmosphere and mistakes would be allowed to a greater extent. Such potentially dynamic and slowly growing spin-offs could at the same time collaborate with other companies as well as universities. Concepts like open innovation (Chesbrough, 2003), knowledge webs (Eneroth & Malm, 2001) and incubator hotels, i.e. shared research facilities, could then support the industry in the quest for a sustainable research.

[1]Dominant logic relates to the cultural norms and beliefs that a company espouses, i.e. a company's common way of thinking about strategy. For further discussion on how the dominant logic may restrain a company from new ways of making money, see Prahalad & Bettis (1986).

At the same time, the R&D function needs to be developed in the Nordic companies. Not only should more money be put into R&D but more importantly dominant methods and models need to be challenged. An example of this, mentioned in the interviews, is that the R&D today is too technically concentrated. Other sciences, perspectives, and industry practices should therefore also be included and considered in degree.

As traditional patterns are deeply rooted in the industry culture, it is not likely for a structural change to occur in the nearest future. However, phenomenon like spin-off companies, collaboration beyond industry borders, and open innovation might be part of the solution. If the Nordic actors continue to be traditional in their way of thinking, the industry will have difficulties competing in the future.



(Figure 9. Forces restraining the forest industry from developing and possible solutions)

6 CONCLUSIONS

This chapter presents the conclusions generated from the empirical findings and the subsequent analysis. The brief chapter ends with a model summarizing the outcomes.

The purpose of this thesis has been to examine the potential business model transformation in the forest industry, and to find out how, and in which areas future profits will be made. This approach made us collect information about the forest industry in perspectives stretching from the outer competitive environment into the very core activities of the companies. The theoretical framework made the material possible to analyze and the interpreted results are presented in brief below.

We argue that the Nordic forest industry finds itself in a value outflow stage, and that the business models must be adapted to the existing conditions in order to be competitive in the future. The changing industry climate is driven by factors such as globalization, changing consumer behaviour, and increasing energy prices. Disruptive forces including the eucalyptus expansion have in addition transformed the competitive landscape causing value to move away from areas such as paper and newsprint. The result is a rivalry among the existing competitors which has caused the industry to slide into rationalisations and low-cost thinking. Further, the threat of supplier power regarding energy has resulted in vertically integrated and large, capital-intensive forest companies. Our study shows that there is a will to become more strategically differentiated and to make the products more unique. Yet, the large-scale nature of most companies and the focus on tangible resources has made this aim hard to realize in the currently strained competitive situation. We therefore argue that the industry is stuck to its origin of low-cost production and volume thinking, and that a more focused and differentiated strategy is a necessity in order to escape this "trap".

New, untapped markets that could imply future prosperity includes bioplastics, wind power, and more specialized paper with various built-in qualities. None of these areas are however perceived to be breakthroughs in the nearest future as the development still seems to be in the earlier stages. Instead, as our research indicates, future

profitability will rather be found in the end of the existing value chain, closer to the customer. This is based on the fact that it is hard to demonstrate uniqueness in commoditized parts such as newsprint. A strategy built on value adding activities is therefore advocated. Packaging is an area that has been mentioned a lot because it fits well with the long-fibre pulp of the Nordic forest. This business area has great potential for differentiation based on built-in services.

Despite the severe challenges for the Nordic industry, there are still few indications of a structural change in the near future. The major restraining forces are the dominant logic, i.e. the industry is bound to its past, and the stock market capitalism which causes short-term strategic actions. In order to transform the business model and to realize new profitable areas, a broader approach towards R&D is needed. This includes different professions and sciences, as well as collaboration beyond company and industry borders. Independent spin-offs, that are allowed to grow slowly without interference from the mother company, could be one solution.

The conclusions are summarized below in a figure, answering three questions; why did the transformation occur, towards where will the value flow, and how will this be realized?

Why:	**Value migration.** Driving forces such as globalization, changing consumer behaviour, and new disruptive technologies have changed the prerequisites for the Nordic forest industry. The value outflow stage is therefore a reality and a need to rethink the basic strategies has emerged. **Example**: Brazil has in 30 years become the largest supplier of pulp in the world. The country's raw material grows about seven times faster than trees in the Nordics.
Where:	**More value added closer to the customer.** The traditional low-cost strategy based on commodity products and high volumes will not be competitive for Nordic companies. The business model must therefore be reconsidered. More value added products with a higher level of service, i.e. offering complete solutions for the customers, is where the future profitability will be. **Example:** A packaging that extends the lifetime of a food product for up to three months saves the customer a lot of money. A packaging with superior attractiveness on the store shelves implies higher sales for the customer.
How:	**Flexibility through new thinking.** The industry finds itself "trapped" between the old and the new. An aim towards differentiation and focus exists, but the heavy tangible resources and the large-scale nature of the companies make the goal hard to realize. Dominant logic and an emphasis on the stock market also work as restraining forces. A broader view on research must be utilized in order to find new areas of value. **Example:** A spin-off company consisting of professionals in material, marketing, and consumer behaviour is independently conducting research. The setup is at an 'incubator hotel' which entails collaboration across company and industry borders.

(Figure 10. Summary of conclusions)

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Interviews

Per Arfvidsson, *Senior VP SCA 2008-11-28*

Jon Bingen Sande, *Former researcher Agricultural University of Norway 2008-12-03*

Matts Björklund, *Doctoral candidate within innovation at Lund University 2008-11-27*

Bengt Järrehult, *Director Innovation & Knowledge management SCA 2008-11-28*

Linus Larsson*, Financial Analyst Nordic forest industry SEB 2008-11-27*

Dick Sanders, *Former Director of Research SCA 2008-11-19*

Alexander Vilval, *Financial Analyst forest industry HQ Bank 2008-12-04*

Pia Wågberg, *STFI-Packforsk 2008-12-03*

Folke Österberg, *R&D Director SCA 2008-12-05*

Appendix 1
Interview guide

The background; forces of change

- Describe how the forest industry has changed the past years.
- Which are the primary factors behind the change?
- How has this affected the companies' strategies?

The known market space

- How would you describe the forest industry today (in terms of profitability, differentiation, threats and opportunities etc.?)

- Where in the present value chain should the companies be in order to create long term value, why?
- What speaks in favour of a focused strategy, i.e. focusing on certain parts of the value chain? Which are the advantages and disadvantages with integrating vertically?
- What type of strategy would you advocate for the future, why? (E.g. focused, differentiated or low cost).

- Which resources would you point out as the most important to possess in order to create value in the long term?
- What is your opinion about the forest as a resource? What are the opportunities and threats?

Value chain and the unknown market space

- Seen from a Swedish perspective, which parts of the value chain do you believe will not be able to create value in the long term, why?
- Which parts of the value chain do you think should be decreased or abandoned? Why?

- Seen from a Swedish perspective, which parts of the value chain do you believe will be able to create more value? Why?
- Which parts of the value chain do you believe that the companies should invest more in?

- Could you point out any completely new business areas where value is going to be created in the future?
- Describe how this could be realized and how you think the industry should act. Do you believe it is possible to implement new technologies in reality?
- What does it take from the industry and what can be improved in order for new innovations to be used.

- Finally, which type of business model do you believe best creates long lasting value for the Swedish forest companies? In other words, how do you best satisfy the customers in the long term?

Thank you for your participation!

Appendix 2
Profitability in the value chain

Year	2007	2006	2005	2004	2003	2002
SCA						
Personal care						
Sales (SEK)	22101	21272	19361	17763	16776	17723
EBIT	2960	2799	2474	2429	2403	2588
EBIT margin	13,4%	13,2%	12,8%	13,7%	14,3%	14,6%
Average margin	**13,7%**					
Tissue						
Sales	33332	31336	30701	27596	26213	27474
EBIT	1724	1490	1577	2026	2417	2899
EBIT margin	5,2%	4,8%	5,1%	7,3%	9,2%	10,6%
Average margin	**7,0%**					
Packaging						
Sales	33728	33353	32359	31501	30029	30549
EBIT	2651	2072	1775	2604	2482	3065
EBIT margin	7,9%	6,2%	5,5%	8,3%	8,3%	10,0%
Average margin	**7,7%**					
Billerud						
Packaging						
Sales (SEK)	6160	5938	5695	5744		
EBIT	534	525	372	656		
EBIT margin	8,7%	8,8%	6,5%	11,4%		
Average margin	**5,9%**					
Pulp						
Sales	1556	1382	1128	1415	1454	1400
EBIT	81	46	-75	192	175	158
EBIT margin	5,2%	3,3%	-6,6%	13,6%	12,0%	11,3%
Average margin	**6,5%**					

Year	2007	2006	2005	2004	2003	2002
Södra						
Pulp						
Sales (SEK)	9398	9028	8125	8290		
EBIT	1027	1331	708	1241		
EBIT margin	10,9%	14,7%	8,7%	15,0%		
Average margin	**12,3%**					
Timber						
Sales (SEK)	3696	3074	2781	2705		
EBIT	586	270	156	-322		
EBIT margin	15,9%	8,8%	5,6%	-11,9%		
Average margin	**4,6%**					
Rottneros						
Pulp						
Sales (SEK)	2927	2690	2429	2356	2380	
EBIT	75	148	48	109	239	
EBIT margin	2,6%	5,5%	2,0%	4,6%	10,0%	
Average margin	**4,9%**					
Stora Enso						
Paper						
Sales (EUR)	6187	6186	5653	7516	7494	
EBIT	473	456	225	155	130	
EBIT margin	7,6%	7,4%	4,0%	2,1%	1,7%	
Average margin	**4,6%**					
Packaging						
Sales	3385	3303	2944	2772	2762	
EBIT	270	326	233	278	292	
EBIT margin	8,0%	9,9%	7,9%	10,0%	10,6%	
Average margin	**8,6%**					
Wood Products						
Sales	1853	1673	1623	1567	1400	
EBIT	151	63	-6,4	35	27	
EBIT margin	8,1%	3,8%	-0,4%	2,2%	1,9%	
Average margin	**3,1%**					

Year	2007	2006	2005	2004	2003	2002
International Paper						
Printing papers						
Sales (USD)	6530	6700	6980	7670	7280	
EBITDA	1101	636	434	581	464	
EBITDA margin	16,9%	9,5%	6,2%	7,6%	6,4%	
Average margin	**9,3%**					
Packaging						
Sales	8260	7610	7060	7435	6635	
EBITDA	699	571	379	541	447	
EBITDA margin	8,5%	7,5%	5,4%	7,3%	6,7%	
Average margin	**7,1%**					
Weyerhaeuser						
Wood Products						
Sales (USD)	5699	7902	9278	9843	8185	
EBITDA	734	464	485	1055	59	
EBITDA margin	12,9%	5,9%	5,2%	10,7%	0,7%	
Average margin	**7,1%**					
Fine Paper						
Sales	459	2645	2600			
EBITDA	20	647	446			
EBITDA margin	4,4%	24,5%	17,2%			
Average margin	**15,3%**					
Containerboard & packaging						
Sales	5168	4912	4707	4535	4322	
EBITDA	382	263	5	249	262	
EBITDA margin	7,4%	5,4%	0,1%	5,5%	6,1%	
Average margin	**4,9%**					
Kimberly Clark						
Personal care						
Sales (USD)	7563	6741	6287	5975	5653	
EBIT	1562	1303	1242	1253	1221	
EBIT margin	20,7%	19,3%	19,8%	21,0%	21,6%	
Average margin	**20,5%**					
Consumer tissue						
Sales	6475	5982	5781	5343	5047	
EBIT	702	773	806	803	728	
EBIT margin	10,8%	12,9%	13,9%	15,0%	14,4%	
Average margin	**13,4%**					