Managing Currency Risk Exposure
A case study of Svenska Cellulosa AB

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Summary

Introduction: Recent years’ globalization and expanding currency markets have increased the importance of financial managers. A multinational company handles different currencies through export and imports, and is thus exposed to currency fluctuations. Awareness and assessment of risk management are issues more important not to ignore.

Research question: How does the multinational company SCA identify currency risk exposure, and how does the financial management relate to it?

Purpose: The aim of this study is to get a deeper understanding of the currency risk management at a Swedish multinational company and how the individual manager identifies exposure. Furthermore, what means that exist for assessing the exposure and how the management choose to reduce the risk will be investigated.

Method: This case study has a qualitative approach, and is mainly based on two unstructured interviews that have been conducted with the financial managers of SCA.

Findings: The authors found that SCA identifies different kinds of exposures related to currency risk. SCA is equipped with organizational strategies as well as practical methods for reducing the risk exposure and positioning themselves in line with company framework and policies.

Conclusion: Currency risk management is a subject of great complexity since exposures interrelate and alternates with time and as global economy changes. A company could hold a framework of policies, strategies and instruments that will provide their financial managers with means for risk assessment and management. Ultimately the responsibility is still in the hand of the managers.
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1. Introduction

This chapter provides the reader with the researchers’ reasoning on the importance and relevance of the topic. It will include a problem discussion which then leads to the actual purpose and the main research question this study addresses. To further help the reader understand what the study focuses on, a section of delimitations will clarify concepts and intentions of the authors.

1.1 Background to the problem

Ever since the fall of the Bretton-Woods system in 1971, fluctuations in floating exchange rates have been a recurrent issue for multinational company management. Increased globalization of world markets leads to increased imports and exports and that will require foreign currencies for trade. Since the exchange rate for major currencies used for trading, nowadays are floating, the risk that currency fluctuations could affect the result of exporting and importing goods is unquestionable. (Grath 2004)

To protect oneself from such fluctuations is in financial terms called hedging. The idea of hedging the risk of price movements is not a new invention. The history goes back to the mid 1800’s when farmers wanted to fix their grain prices which at that time were very volatile. In order to do so, the Chicago Board of Trade was founded to establish a way to predetermine price of their goods by making financial contracts (www.fundinguniverse.com).

In recent years, there have been major fluctuations in the Swedish currency, Krona. From April 2008, when the US Dollar posted a year lowest of 5.8 SEK/USD, to the peak in March 2009, an approximate 58% appreciation had caused the exchange rate to increase to 9.2 SEK/USD. Figuratively speaking, a Big Mac would cost 20 SEK in April 2008 and one year later 30 SEK.

The globalization and technology progress involves in currency markets being open 24 hours a day, which increases demand on currency managers, who operate in a fast growing market. The foreign exchange market had a daily turnover of 3.2 trillion USD in 2007 and is constantly increasing (www.bis.org).

An article from Dagens Industri, a Swedish newspaper, illustrates the issue of currency impacts on multinational companies, with the telecommunications company Ericsson as an example. In that case the company’s result from its currency hedges was negatively affected by 4.4 billion SEK (www.di.se).

So, the great turnover of the currency market and the financial impact it has on companies is shown to be of significance to the currency managers. But does the importance of the subject reflect the complexity of the working tasks? The researchers are certain that there is more to currency risk management than what the, perhaps ironic, statement of Kawaller implies:

“Conceptually, hedging is easy. Identify an exposure, find a derivative that generates a compensating gain or loss relative to the identified risk, size the derivative position to assure the proper offset, and voila!” (Kawaller, 2008)
This interesting opinion leads the researcher to investigate how a firm in its home country is exposed to currency related risk and how the financial management handles issues concerning currency fluctuations.

Joachim Alpén, global head of currency at Skandinaviska Enskilda Banken (SEB), has argued that recent currency fluctuations have made people more aware, and that it is hard to resist not to hedge or just ignore the issue (Alpén (2009), cited in Carter er al., 2009).

The Swedish forestry company Svenska Cellulosa AB (SCA) is operating in countries all over the world and is thus exposed to currency risk. Most multinational companies construct guidelines and frameworks for assessing and handling risk, but currency risk is a broad concept that could occur in many different aspects. A belief that every individual has his or her own perception of risk leads to the question of how the involved managers at SCA perceive the currency risk. Is then the company solely in the hands of the currency managers or are there ways to reduce currency risk exposure both in an organizational and in a practical way? From this problem definition, the main question of the study arises.

1.2 Research question
How does the multinational company SCA indentify currency risk exposure, and how does the financial management relate to it?

1.3 Purpose
The aim of this study is to get a deeper understanding of the currency risk management at a Swedish multinational company and how the individual manager identifies exposure. Furthermore, what means that exist for assessing the exposure and how the management choose to reduce the risk will be investigated.

1.4 Delimitations
There are a lot of risks to account for in a multinational company, such as price risk, product risk, credit risk et cetera. It is existing interrelation between the various risks; however the focus of this study will be to examine problems concerning handling foreign currencies, and the components that affect the currency risk.

The accounting aspect, with the rules and regulation it involves, when dealing with currencies are complicated and out of the educational breach for the researchers. The research will mention a couple of important issues related to accounting, but will not be guided into detailed analysis of those.
1.5 Terminology

- **Appreciation/depreciation** = Refers to currencies increasing or decreasing in value
- **Cash flow** = Stream of cash in- and outflows
- **Default** = When someone is unable to pay, or does not fulfill its obligations in a contractual agreement
- **Duration** = A commonly used method to measure portfolios sensitivity to interest rate fluctuations.
- **Hedge** = Taking a position in order to offset another position
- **Pip** = The smallest quoted change in a currency price
- **Point** = 1/100
- **Position** = Refers to if a security is owned (long) or owed (short). Taking long positions means that you buy a security and expects it to rise in value. Short position means that you lend that security and expect the value to fall.
- **Risk** = The possibility of unexpected movements
- **Risk averse** = A investors attitude, who is reluctant to risk
- **Speculation** = Investors who takes greater risk to achieve profit from expected price fluctuations, exercises speculation.
- **Spread** = The difference between bid and ask price, usually nominated in points or pips (www.investopedia.com)

Currency abbreviations that will be used in the study:

- **AUD** = Australian Dollars
- **DKK** = Danish Kroner
- **EUR** = Euro
- **GBP** = British Pounds
- **MXN=** Mexican Pesos
- **NOK =** Norwegian Kroner
- **SEK =** Swedish Kronor
- **USD=** United States Dollars
2. Methodology

This chapter will show to the reader how the researchers arrived at the choice of topic and the preconceptions that existed. Methods relevant to the study will be presented, along with the researchers’ views and approaches, which allow the reader to critically examine the study. The chapter will further explain how the study was conducted and how the literature for the study was found, and finishes with a critical discussion of the data collection and method used.

2.1 Choice of topic

This research originates from the experience of two business students interested in the subject of finance. The authors share a mutual study abroad experience in Canada in fall 2008. During this exchange study period there was a major exposure to fluctuation between the home currency Swedish Krona and the Canadian Dollar in which the expenditures was accounted for. There was also a global financial crisis occurring throughout the period, which was subject to many discussions and lectures in the studies. All these events had an impact on the choice of the research subject.

The figure below shows how the researchers narrowed down, starting from a broad general interest in finance, then, step by step, descending to the final choice of the study topic.

![Figure 2.1 Determining the choice of topic](image)

When discussing, it transpired that both authors had a history of working with, and relatives continuously influencing them about, forestry companies. This explains the foundation of the interest, but also suggests that there is some degree of deeper knowledge about the topic shared among the authors. Still there was a mutual feeling of achieving greater understanding of the risk management involved when dealing with international trade. This led to the decision of choosing a case study approach, since the aim is not to look for differences between risk management or to try to evaluate its performance, merely to understand and describe.
The multinational company SCA is located in the vast proximity of the researchers’ home university and complies with the requirements of characteristics concerning the problem discussion as well as the purpose of the study. There has also existed a previous relation to the company which facilitates initial contacts and pre-knowledge of the established financial management related to currency issues.

2.1.1 Preconceptions

It is important to include preconceptions in the study because it shows indications of personal values that can affect and bias the research. Bryman and Bell (2007, p. 30) highlights the issue that researchers cannot be free from personal values, and thereby may reflect a bias on important parts of the study.

The paper might be presented in a way where the researcher highlights their gained knowledge and issues important to them, instead of basic information related to the company SCA, which for the reader would be useful when interpreting the business attitude in general.

The current position as business students interested in the area of finance put the researchers in a possible position of idealising the financial managers. This should, however, not be a crucial influence of bias in the study.

The authors’ preconceptions regarding the risk management at SCA were that they were practising hedging to some extent in order to minimize the risk and exposure. There was also an assumption that a company of SCA’s magnitude organizes companies within the Group to gain some advantages through internal trading or indentifying business opportunities.

2.2 Epistemological considerations

Epistemology assesses the theory of knowledge. A major question is in what light knowledge should be considered. Bryman and Bell argues that a natural science approach to knowledge is referred to as positivism. This approach tends to generalize the social entities; it favours hard facts and has strong belief in the data collected to evaluate the study. Therefore, there is a lot of criticism to the limitations of this approach and to which extent positivism can be used

Interpretivism is the contrasting view to positivism. It stresses the fact that the subject matter of the social science is fundamentally different from natural science. The subjective approach renders inconclusiveness in asserting social phenomena (ibid. pp. 16-17).

Grint argues that the social phenomena “leadership” relies on the subjective interpretations of the followers and that there is no such thing as “good leadership”, which can be defined, identified and measured (Grint 2000, cited in Bryman and Bell, 2007, p. 19). This argument relates to the difficulty of interpreting the individual managers’ perception of risk, an underlying issue of this study.

This study should be read in the light of interpretivism. The necessity for the researcher to understand the differences between humans role as social actors is a key feature of the currency manager as his or her personal identification of risk assessment. To further
emphasize the importance of respecting the managers own perspective of risk involvement, Saunders states that when utilizing an interpretivist epistemology it is essential that the researcher adopts an empathetic stance to the research subject to understand their point of view (Saunders et al., 2007, pp. 106-107).

Since business situations like currency risk management often involves rich complexity, generalisability is not of crucial importance. The interpretivist has to respect the uniqueness of the organisation itself and this study aims to endorse that approach.

2.3 Ontological considerations

This section discusses the issue of the nature of being, and is addressing the question “whether social entities can and should be considered objective entities that have a reality external to social actors, or whether they should be considered social constructions built up from the perceptions and actions of social actors”. According to Bryman and Bell there are two ways of approaching this question. Objectivism implies that social phenomena are independent from its social actors and beyond the influence of individuals. The alternative one, Constructionism, states the opposite, that the social phenomena are constructed under the influence of the social actors. Cultures, organizations and actions are, amongst other things, interpreted in these two approaches. The determinative factor of the choice between the approaches lies in how we formulate the research questions and choose to collect the data for the study (Bryman and Bell, 2007, pp. 22-25).

This study is aiming to gain an understanding of how the risk management at SCA indentifies currency risk exposure, and how they relate to it. Risk management is to some extent constructed on individuals’ perception of risk that differs from manager to manager. It is the researchers’ aim to understand the subjective reality of the managers in order to clarify their motives, actions and decisions. This approach to ontology would be considered constructionist, or as Saunders chooses to refer to it, subjectivism (Saunders et al., 2007, p. 108).

2.4 Paradigms

“A paradigm is a cluster of beliefs and dictates which for scientist in particular discipline influence what should be studied how research should be done and how results should be interpreted.”(Bryman, 1988, cited in Bryman and Bell, 2007, p. 25)

When studying an organization there are different aspects the researcher can consider. The objectivist states that the viewpoint is external and that the organisation is constructed of consistent processes and structures. The subjectivist views the organisation as a socially constructed product (Bryman and Bell, 2007, p. 25). The function and purpose of scientific research can also be separated into two aspects:

Regulatory assumption implies that the purpose is to describe what is going on within organisations and possibly comment on some minor changes or improvements to be done. By radical assumption, the researcher tries to make judgements about the way that the organisation is meant to be and suggests ways to fulfil the purpose.
The different approaches create four different frameworks for research and are presented in the table below.

Table 2.1 Paradigms

<table>
<thead>
<tr>
<th>Paradigms</th>
<th>Regulatory</th>
<th>Radical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectivist</td>
<td>Functionalist</td>
<td>Radical Humanist</td>
</tr>
<tr>
<td>Subjectivist</td>
<td>Interpretative (this study)</td>
<td>Radical Structuralist</td>
</tr>
</tbody>
</table>

Source: Bryman and Bell, 2007, p. 25-26

Considering the alternatives and the previous discussion the researchers define this study as an interpretative one. The interpretative choice of paradigm refers “to the way we as humans attempt to make sense of the word around us”. This study’s concerns are to describe and understand what is going on in the decision making progress of the managers in the subjectivist light that organisations are mouldable and alive. Even though some framework within the multinational company is regarded to be consisting, there is still a belief that SCA would indentify and adapt to issues related to an economic recession. This statement could be interrelated to Saunders argument that the interpretative paradigms’ concerns are to understand the fundamental meanings attached to organisational life (Saunders et al., 2007, p. 113).

2.5 Research design

2.5.1 Case Study

A case study is defined by Saunders et. al (2007, p. 139) as a “research which involves an empirical investigation of a contemporary phenomenon within its real life context using multiple sources of evidence”.

When selecting the approach of a case study, the researcher’s emphasis is to provide a deeper understanding, by illustrating the unique characteristics of the specific case. The case study may be a single organization, a location (such as a single factory), a single event or a person (Bryman and Bell, 2007, p. 62).

The case study could be conducted as holistic or embedded, which refers to what the researcher choose to analyze. A holistic way is for example to examine a whole organization, while the embedded is when you observe different subsidiaries of an organization with more than one unit to be analyzed. When using a case study approach, you could also integrate multiple cases instead of just a single case. The reason for why one would want to do this is to see if the result from the single case could be similar to the findings of the multiple cases, to be able to generalize the conclusions (Saunders et al., 2007, p. 140).

The authors have chosen to do a case study to get a wider perspective of how currency risk management works in a specific company, not in every company. The aim is not to generalize, criticize or compare, merely to describe and understand the mechanisms of risk exposure and management at a multinational company. Therefore, a case study design is best
suited to fulfill the purpose. This study will mainly be looking at two parts of the organization, SCA Finans and SCA Obbola, where the first is a centralized treasury unit and the latter an operative subsidiary. This could be considered an embedded analyzing strategy, but the two companies are very different and the results will not be compared in order to generalize. By also using secondary data, in the form of the Group’s annual report, as a critical evaluation to the statements made by the financial managers, the authors aim to grasp the entire organizations assessment towards currency risk exposure.

Critics of case studies emphasize the lack in generating conclusions and the difficulties of generalizing (Bryman and Bell, 2007, p. 63). A well constructed case study strategy can still be valid when challenging existing theory and also provide a source of new research questions (Saunders et al., 2007, p. 140). The aim of this study is not to challenge theories, but to see how the decisions and ideas of a currency risk manager relates to existing theory.

2.6 Research strategy

2.6.1 Qualitative vs. quantitative study

Many researchers argue that there is more to choosing strategy other than the fact that quantitative researchers tend to employ measurement and qualitative researchers do not. There is also a distinctive difference regarding the choice of epistemology and ontological considerations, which suggests that a quantitative strategy incorporates a natural science and positivistic approach to social phenomena, while social entities are viewed in an objectivist angle. On the contrary, a qualitative study rejects the natural science approach and focuses on the individual’s interpretation of the social world. Social entities are constantly shifting depending on the property of the individual’s creation (Bryman and Bell, 2007, p. 28).

Aligned with the other considerations and approach, this study adopts the qualitative characteristics. Emphasis on understanding the management at SCA enables the researchers to dig deeper into the functions of the risk assessment. By gathering qualitative data, the aim is to get a profound understanding of whether the treasury department and currency management is based on the individuals perception of risk and to what extent it is influenced by existing theories or tools.

2.6.2 Inductive vs. deductive approach

There is also a distinctive difference of the choice of strategy approach when it comes to the orientation to the role of theory in relation to research. A deductive method suggests that the researcher gathers data in order to test a hypothesis generated from existing theories. This method is generally associated with quantitative research, while an inductive method is mostly used in qualitative research. The inductive method attempts to draw theoretical conclusions based on the data collected, while in the consideration of existing theory.

However, approaching the study is not as strict as one would imagine. Bryman and Bell (2007, p. 15) argues that “to a large extent, deductive and inductive strategies are possibly better thought of as tendencies rather than as a hard-and-fast distinction”
Saunders (2007, p. 493) does not believe one can take on an inductive approach without sufficient knowledge in the area. The researchers of this study agree with him on that reasoning and are therefore preparing theory in advance, therefore our presentation of theories could be perceived to be in a deductive view, when the actual reason is to obtain sufficient information for a properly implemented interview.

The study also indentifies with his list of characteristics related to an inductive approach.

Gaining understanding of the meanings humans attach to events
- A close understanding of the research context
- The collection of qualitative data
- A more flexible structure to permit changes of research emphasis as the research progress
- Less concern with the need to generalize (ibid., p. 57).

Even if the accepted model of an inductive approach implies that the analysis of the data renders in creating new theory building, the interpretivist paradigm, as previously noted, states a more of a general creation of understanding in the subject matter.

### 2.7 Data collection method

A quantitative analysis is mostly generated from numbers, a qualitative focuses more on words. Bryman and Bell argues that this is the most significant difference between the two strategies (Bryman and Bell, 2007, p. 402).

There are many different approaches to gather the research data for a qualitative study. *Ethnographic observation* puts the researcher in a social setting for a certain period of time, and observation and listening will consequently render an appreciation of the social group. *Focus groups* enable interviewees to discuss issues in larger settings. The one most widely utilized method in qualitative research is, according to Bryman and Bell, the *qualitative interview*. This method could be partly used in the other methods and have many different forms.

In this study the data collection method primary used, will be the Qualitative Interview, which will be presented in the upcoming section.

#### 2.7.1 Qualitative interview

First of all, there needs to be clarification on the main differences compared to a structured interview that is most common in quantitative research. A structured interview focuses more on maximizing the reliability and validity of the research, in the way that they tend to have questions that are less open and thus less exposed to interpretation bias (Bryman and Bell, 2007, p. 473). A qualitative interview is often referred to as a semi-structured or an unstructured interview, where the interviewer leaves the answers or issues open for discussion, in order to obtain a deeper knowledge and understanding of the interviewees. This is considered to be of importance when adopting an interpretive epistemology, where the words and opinions of the persons could lead to discussions in new areas, not previously
considered, but yet be of assistance when addressing the research questions (Saunders et al., 2007, p. 316).

The interviews for this study are prepared in a way so that the interviewers have sufficient background knowledge to be able to present the interviewee with a framework of topics, and at the same time guide the interview to the desired outcome by having a number of issues to address related to each topic. By conducting the study in a familiar setting for the interviewees, in this case their workplaces in Obbola and Stockholm, the interviewers hope to gain trust and positive interrelationship so the interviewee will not feel inhibited or afraid of elaborating within the actual topic.

The most common ways of documenting data from interviews is through an audio-recording or by taking notes. One of the main advantages with audio recording is obviously the fact that you get everything on tape, and could listen to it afterwards, and in that way focus on the interview. Examples of drawbacks can be encountering technical problems, or limiting the respondent by the means that he will not be as open if the interview is recorded, and the reliability of the study can then become a factor. The time issue of transcription is another drawback to consider (Saunders et al., 2007 pp. 333-334).

The authors’ approach is to document data through both interviewers taking notes during the conversations, mainly for the convenience of the respondents. Instantly after the interviews, the notes are compiled into full text transcript of the interview to reduce the amount of data loss. There is always a certain probability that some data is lost due to lack of notes, where some information may have been insufficient. Another factor to consider when taking notes is that it might be the subjectivity involved from transcribing the interviews, which might cause misinterpreted answers. Later there will be a subsequent email correspondence to make sure the interviewers did understand the interviewee correctly, and to add important data missing from transcription.

2.7.2 Primary and secondary data

Data collected specially for the study, is referred to as primary data (Saunders et al., 2007 p. 607). A qualitative interview with financial managers at SCA, would be an example of primary data. Secondary data is data already produced for a different purpose. Examples of this are raw data, articles in newspapers, organisations’ websites, television or published books. Most research questions are answered with a combination of primary and secondary data, but the researcher should beware of the risk of conducting a research based on only secondary data with regarding the trustworthiness (ibid., pp. 246-249).

The main secondary data collected for this study is written documentation such as previous studies with similar objectives, and also more renowned books, dealing with fundamental information regarding the subject. Annual reports from companies within the SCA Group is a good example of secondary data, that will be included when looking at more general guidelines and company policies that are supposed to reflect in the actions of currency- or financial managers. An equivalent treatment will be conducted on additional published text on SCA’s website.
Keep in mind that the research is mainly built on qualitative interview data, but some information extracted from the Annual Reports could be understood as quantitative data. This does not, however, divert from the qualitative study as the main approach.

2.8 Literature review

The purpose of a literature review is among other things to discover research approaches and techniques that may be appropriate to your own research questions. It is also supposed to provide the basis on which the research is built (ibid., p. 57).

When evaluating, the literature should relate to the study research question and objectives. One has to look for relevance to exclude too broad areas of the data, and data insignificant for the purpose. The value of the literature is concerned with the quality of the gathered data. It is supposed to reflect a solid methodology and theory as well as quality in the arguments, areas where articles in newspapers or managerial autobiographies could appear weak or subjective. The third criteria when assessing literature is to find out if one’s own gathered literature is sufficient, meaning that it covers enough aspects and views and does not lack information in certain areas (ibid., p. 87).

To find proper literature, the authors searched for books and journal articles through databases such as Business Source premier (EBSCO), and the library of Umeå University’s information resource, using keywords such as: “Currency risk management”, “Currency Exposure” and “hedging”.

2.8.1 Criticism on primary data

The selection of interviewees presents two different aspects, from the subsidiary and treasury view, which will be complemented with the annual report. This ought to be sufficient information for making a credible study. The researchers also believe that it is useful to look at the risk situation from more than one view.

Using literature as a standpoint gave the authors signals about the most significant and interesting questions to ask and using open questions to influence the respondent to highlight the factors considered important to them. Since the interview questions are formed as open questions, this means to a certain extent that questions go into one another, but provide a broader perspective. The opportunity of elaborating involves a probability of diminishing relevance, since inter interviewee could discuss issues not relevant for the topic.

The authors conducted two face-to-face interviews. The close relationship with the case company contributed to the fact that the interview situations preceded efficiently. The disadvantages with a face-to-face interview are “the interviewer’s effect” (Bryman and Bell, 2007). This is related to the fact that an individual might respond differently to the same question when it is asked by different interviewers. An interview over the phone would no doubt take less time and resources from the authors’ point of view, but would conflict with the purpose of the study. The authors believe that a face-to-face interview would provide more honest in-depth answers, and be easier for the respondents to explain to some extent advanced concepts within currency risk management, which implies an additional strength considering
the value criteria when evaluating. Making the effort to travel to their respective offices would also give a professional impression.

2.8.2 Criticism on secondary data

The relevance of the secondary data could sometimes be questioned as some of the books were published a long time ago. This study has been using some old books, but it mostly concerns theory that is descriptive and hard to manipulate. Most of the literature is also in English, when the mother tongue of the authors is not. This, along with the fact that the chosen subject is complex and the written information is often very technical, could increase the probability of data misinterpretation. Regarding the data on derivatives, new financial instrument are constantly appearing and the choice of proper instrument alternates. However, this study is built upon the views of the financial managers, and the derivatives presented in the theory chapter are those which appeared in the discussion during the interviews.

It has occurred both Swedish and English literature written. The English literature has more of the value aspect, whereas Swedish books highlight the aspects from a Swedish company’s perspective. Finally, we suspect a probability of bias in the Annual Reports regarding the information and how it is presented, since it often tries to reflect a strong position for the company. This data is mainly used to increase the sufficiency of the qualitative research strategy, meaning if some important aspects regarding the company are missing from interviews, the Annual Reports and SCA’s webpage will be useful.
3. Theory

This chapter starts with a general introduction about the risks involved with international trade, then considers theories that deal with how exchange rates are affected by macro economical factors. Following is a definition of the exposures that may exist in a multinational company. It continues with a discussion of managing risk on both the practical and organizational level, and which instruments are available to manage currency risk. The theory chapter should give the reader a foundation of understanding to the rest of the paper.

3.1 Risks with international trade

To be able to show the various types of risks for the companies involved in international trade, Grath (2008) illustrates six particular main risks, illustrated in the figure below. This paper focuses mainly on currency risk, but it should be borne in mind is that there are other important types of risks that will directly or indirectly affect the currency risk, which will be illustrated in this section. The upcoming section is inspired by Grath’s literature.

![Figure 3.1 Main international trade risks](Source: Grath, 2008, p15)

3.1.1 Financial risk

The issue is the financial commitments of purchase, store keeping and time of delivery, which puts pressure on the seller in the form of financial capitalization and interest cost. Compared to domestic trade, international trade often lengthens the time perspective and increases costs. In large international trades there are sometimes even requirements of a bank guarantee to increase the security of the transaction as well as the increasing liquidity demands (Grath, 2008. p. 39).
3.1.2 Product-, production- and transport risk

There are risks connected to the actual product, like expected lifetime, performance or commitments to service and maintenance. Unless these risks are protected by any contract or guarantees, the buyer has the ultimate responsibility on deliverance, which has had some impact on international trade. For example, the issue of unusual or extreme weather conditions and the implications of rust- and moist damages that the product might not be designed to meet.

Transportation risks occurring in international trade are not only associated with the increased distance, but also the related insurances and level of responsibility between the buyer and the seller. This varies from case to case, but is often settled through standard agreements almost exclusively stipulated by the Institute of London Underwriters (ibid., p. 25).

3.1.3 Commercial risk

There is always a possibility of buyer default or not fulfilling the obligations of the agreement. The international issue is the possible lack of information about the buyer in another country, especially outside the EU-region where independent credit rating agencies have difficulties obtaining financial information (ibid., p. 26).

3.1.4 Political risk

Political risk, or country specific risk, deals with the issue of when a business can be conducted according to contract depending on interventions of the buyers, government or other institution. This could for example be a new restriction on import to protect domestic industries, but also changes in currency regulation to minimize foreign capital inflows or outflows (ibid., p. 33).

3.1.5 Ethical risk

There is a lot of international business praxis with negative nature. Corruption, bribes or money laundering are more associated with some countries than with others. These actions will not only alternate business patterns and create bias for the actors involved, but also negatively affect trading and foreign direct investments in the home country (ibid., p. 29).

3.1.6 Currency risk

Whenever a company has revenues and costs in different currencies, a currency risk will occur. Sometimes companies have components of their manufacturing, or similar, purchased abroad, but the main expenditures are often in their home currency. The currency risk is then transferred to the foreign currency invoicing, and thus also influenced by the choice of currency, the amount and the maturity of the contract agreements (ibid., pp. 37-39).
3.2 Equilibrium theories

There are different theorems that explain the connection and relation between inflation, exchange rates and interest rates. The theorems embrace the equilibrium conditions in international market fluctuations. Due to the differences of control and regulation in currency markets, there must be a consideration when assessing these theorems, as well as there are other influencing factors which complicates the pricing. Multinational companies have an opportunity to assess the risk by internally transfer funds and reallocate profits (Shapiro, 1999 p. 436). The upcoming section will present the key theorems, also known as parity conditions, which are vital to managers working under market imperfections and exchange-adjusted prices of tradable goods, also known as the law of one price (ibid., p. 207).

The equilibrium theories are widely established in economics and in business in general. Even though the theorems apply in a broader field than the currency risk, there is still need to understand the underlying function that is the basis of international trade and economic relations. Understanding and forecasting the movements of the interest rates is knowledge that is based on the theorems, which is important to financial managers. Equilibrium theories could help managers understand and explain exchange rate movements, and is a key instrument for forecasting trends in the longer run (Eiteman et al., 2001, p. 64).

3.2.1 Purchasing power parity (PPP)

PPP is the economic theory of the relationship between real purchasing power and exchange rates. In terms of absolute PPP, the price of an identical product should be equal in any market. The price only reflects the exchange rates of the local currencies, disregarding transportation costs, insurance costs et cetera (Shapiro, 1999, p. 210). The relative PPP, which is more common used, states that the spot rate between two currencies will change as the price level in each country changes. So if one country has higher inflation, its currency is expected to appreciate or depreciate towards equilibrium.

3.2.2 Fisher effect

The Fisher effect means that the nominal interest rate consists of two parts, the real inflation and the expected amount of inflation, also known as the inflation premium. As virtually all financial contracts are stated in nominal interest rate, the real interest rate has to be adjusted with the inflation premium. If the expected real rate of return is higher in one currency than another, capital would flow from the second to the first. This equalization is due to the opportunity of arbitrage, which occurs when currencies are not in equilibrium, and a risk-free profit is possible (ibid., pp. 219-220). The theorem only holds if there are no government interventions or transaction costs greater than the arbitrage.

As mentioned in the article in Berstein Journal, author Giulio Martini argues that the long lags that occur between changes in interest rate and the impact it have on the countries creates a risk premium that differs over time. With an effective timing an extra compensation for the managers occurs (www.bernstein.com).
3.2.3 International fisher effect (IFE)

The PPP and the Fisher effect combined would mean that the difference in the exchange rates of two currencies should be equivalent to the difference in those two currencies nominal interest rates. So, the IFE states that currencies with comparatively lower interest rates are expected to appreciate in comparison to the currencies with higher interest rates.

The most essential consideration is that, the arbitrage between financial markets and the difference between the interest rate in two countries should represent the unbiased predictor of changes in the future exchange rate (Shapiro, 1999, p. 228).

3.2.4 Interest rate parity

The interest rate parity states that the difference between two countries’ interest rates should be equivalent to the forward differential in those currencies, given that the transaction cost is zero and the market is efficient. Interest parity ensues that no arbitrage exists when hedging a foreign investment of identical risk as the domestic.

The interest parity does not immediately holds and this could be due to non-efficient market or government intervention, which eventually cause a capital flow between countries. This in turn affects the interest rate; as money flows from country A to country B, interest rates tend to increase in country A and decrease in country B until the interest parity holds (ibid., pp. 162-164).

3.2.5 Efficient market hypothesis (EMH)

The EMH is one of the most crucial theories in finance, and it is a strong and widely adapted fundamental hypothesis. The issue whether financial markets are efficient or not is extensively debated among renowned researchers and experts around the world.

The EMH suggests that prices on the financial markets reflect all relevant current public information (Bain et al., 2008 p. 573). To earn abnormal profits by exploiting existing public information would then be impossible. Kollias (2001, pp. 435-444) states: “Efficient capital markets would lead to optimal allocation of resources”

The market is also supposed to quickly adjust to any new information. Variation in prices of firms, after any additional information is released, is just random. Empirical testing has shown that the major securities markets are reasonably efficient (Eiteman et al., 2001 p. 309).

3.2.6 Arbitrage

Arbitrage is the process of simultaneous purchase and sell of an asset in order to earn a profit by exploiting price differentials. By conducting this strategy, the investor should be able to obtain a risk-free profit (ibid., p. EM-29).

On the foreign exchange market there are discussions whether arbitrage situations ever appear. Akram et al. (2008 p. 237-253) argues that arbitrage opportunities do exist, but not to a great extent.
Kollias et al. (2001 pp. 435-444) agrees with the statement that there exist situations when arbitrage could exist. He stresses the fact that it does not mean that the market is inefficient as the dealer exposes himself to risk by involvement in arbitrage trading. Thus, exploiting the disequilibrium has equivalent risk-return trade off for the investor.

### 3.3 Definitions of currency risk exposure

“Foreign currency exposure is the extent to which transaction, assets and liabilities of an enterprise are denominated in currencies other than the reporting currency itself. The results and financial position of the enterprise are, therefore, susceptible to variations in foreign currency exchange rates.” (Davis et al., 1991, p. 24)

This study is concerned with a single company’s perception of risk. To be able to evaluate and discuss the topic, it is important to show how previous studies define risk perception and currency exposure.

#### 3.3.1 Transaction exposure

Transaction exposure relates to the risk involved with the currently known contractual bound future cash flow that is denominated in foreign currencies. Exchange rates fluctuate until the transaction is settled and the value of the cash flow changes, leading to either a currency gain or loss (Shapiro, 1999, p. 267). The transaction exposure thereby only deals with the changes in cash flow with contractual bound financial obligations affected by exchange rates.

Eiteman et al. (2001, pp. 152-156) states that transaction exposure could arise in four different ways:
- By buying or selling goods nominated in a foreign currency
- Borrowing or lending in foreign currencies
- Being one of the counterparties of a forward contract
- By acquiring assets or liabilities denominated in foreign currencies.

#### 3.3.2 Translation exposure

Translation exposure is also known as the accounting exposure. This is the risk involved, from a firms’ perspective, in the possibility of the change in a currency will affect your financial statements. So when an asset is listed on the balance sheet in a foreign currency, and the value of the currency appreciates or depreciates, the assets value is changed.

The translation exposure actual gain or loss is not realized however until the asset or liabilities are settled or liquidated (Shapiro, 1999 p. 266).

#### 3.3.3 Economic exposure

The risk of real currency fluctuations, in combination with price adjustments can change the company revenues and costs due to competitive disadvantages. So the economic exposure is the possibility of the future earnings being affected by movements in the exchange rate, and thereby the value of the company in measures of future cash flow (ibid., p. 267).
Indirectly, the value of the company is affected, in terms of net present value (Eiteman et al., 2001, p. 152), and thereby, the importance of assessing its economic exposure.

### 3.4 Currency risk management

This section will discuss how the manager approaches currency risk in a general way, supported by frameworks and guidelines. Later on, the study will go into more details showing a more direct approach to currency risk management and what means exist for coping with risk on a daily basis.

A company who trades with foreign currencies will face currency risk and currency exposure. The great complexity of currency risk management is discussed by Grath (2004, p. 98):

“A company could have different attitudes towards currency exposure depending on factors such as the amount of cash flow affected by currency fluctuations or the exposure over time.”

#### 3.4.1 Policies and strategies

According to Grath (2004) there are three main different strategies for currency risk management. The first alternative is to minimize the exchange exposure by hedging all positions. The second alternative is to use selective exchange hedges to keep the exchange exposure at a moderate level, to enable the company to have some freedom. The major way to use this philosophy is by hedging some of the currencies in the currency portfolio, like the largest positions or the main currencies. The third alternative is to not hedge the currency risk at all. The motive for this would be that management believes that currency fluctuations will even out over time or that the home currency will appreciate. (Grath, 2004, p. 98)

#### 3.4.2 Organisational structure

Multinational companies eventually expand to the extent that it could be advantageous to reconsider the organizational structure. One concern might be where to locate the main responsibility for certain company divisions. A decentralized financial management puts the responsibility on each subsidiary, while centralized financial management organizes a mutual body for handling all subsidiaries’ financials. There are lots of different views of whether a multinational company should have a centralized or decentralized financial management, and there are good arguments for both sides. Shapiro et al. argues that the centralized function will work for the best for the corporation as a whole, while the subsidiaries in a decentralized system would only want to optimize their own situation to maximize their profit, not the entire firm. As the subsidiaries in a multinational company probably will use different currencies, the opportunity to net out subsidiaries’ surplus or deficit in different currencies could be used to reduce the firms overall currency exposure.

Arguments against the centralization imply that there is a lack of encouragement, and sometimes even regulative limitations, for the local manager to make quick decisions when beneficial situations arise in the local market. (Shapiro, 1999, p. 289)

In times of volatile markets, an expert centralized management is preferable because it’s hard to handle and experience is needed. It could be costly to have experts in currency risk
management in every subsidiary. Also positive is the pure financial benefits generated by having a centralized financial management, primarily through reducing dealing costs. If transactions are minimized, cash flows are netted and all the money in the firm is centrally handled, the overall costs will be reduced (Kenyon, 1990, p. 227). A centralized financial management could also locate the cheapest way to fund loans for subsidiaries, or the most beneficial placement of excess funds for short term investments (Eiteman et al., 2001, p. 562).

3.4.3 Choice of invoicing currency

An easy way to reduce currency exposure for a firm is to invoice using its home currency, if the main expenditures are in the same currency. This could however lead to some competitive disadvantages, which are discussed further by Grath (2008).

Given that the company has its current expenditures nominated in its home currency, using the home currency solves the arising issue of currency exposure. On the other hand, the foreign customers will then carry the currency risk instead. This could imply that the buyer would have problems to determine the risk of the currency, and thereby prefer a competitor to the firm who could provide the same deal in the buyer’s currency.

To determine what kind of risk the specific currency which a contract is nominated in involves, the company could consider the following;
- Is the currency used in international trading, and is it freely convertible?
- Is it tradable on the currency market?
- Is there any additional cost to hedge a certain volume of the currency to the due date of the deal? (Grath, 2008, pp. 134-135)

3.5 Hedging and currency flow management

The procedure to reduce one’s risk exposure is in financial terms called hedging. Hedging currency issues would be an attempt to reduce the exposure by offsetting existing positions in one currency by investing in an instrument that has negative correlation. This would mean that if that currency you hold fluctuates positively, your offsetting position is affected negatively, and thereby decreases the effect of the fluctuation. The financial manager could by hedging positions reduce or eliminate the risk caused by currency fluctuations. The idea with a hedge could be to fix the price at a pre-determined level to reduce its exposure for any unexpected change in price. Hedging will thereby work as insurance, protecting the owner of an asset from losses caused by the price fluctuation. It will also reduce any possible gains in the case of reverse fluctuations, so both losses and wins are limited (Shapiro, 1999, pp. 282-283).

A perfect hedge would be if the investor takes an offsetting position that eliminates the total risk from the original position, by using instruments that are absolutely uncorrelated (www.investopedia.com).

If a multinational company should hedge its exposures or not is viewed in various opinions.
Proponents of hedging argue:
- Reducing the risk by hedging will improve the planning capability of the company since the value of the future cash flow is known.
- Reduction of volatility of the cash flow will also insure that the company future cash flow is above critical level.
- A manager has more knowledge about the company than the shareholders in terms of the real currency risk.

Opponents of hedging however argue:
- Managers cannot outperform the market, and with the parity conditions in mind, the net present value of the hedge will be zero.
- Currency risk management does not add any value to the company, but rather consumes its resources for hedging and thereby reduces its cash flow.
- Since the management generally is more reluctant to risk than the shareholders, maximizing shareholders profit will not be prioritized. The hedging is thereby a drawback to the shareholders since it will generate less profit (Eiteman et al., 2001, pp. 154-155).

According to studies of Swedish firms hedging behaviour Hagelin and Pramborg (2004, p. 1) finds following:

“We find that transaction exposure hedges significantly reduce exposure, and that translation exposure hedges also reduce exposure. A possible explanation for the latter is that translation exposure approximates the exposed value of future cash flows from operations in foreign subsidiaries (i.e. economic exposure). If so, by hedging translation exposure, economic exposure is reduced”

3.5.1 Netting
Collecting all the inflows and outflows at a given maturity to net out the amount of receivables or payables at the maturity date is called netting. In terms of risk, the cash risk is zero at maturity if all positions are netted that day. Depending on its policy, the company aims to reduce the exposure to desired levels. The netting could be done through use of instruments such as swaps and forwards, and is not an instrument itself, but a process for a company to reduce or increase its exposure (Kenyon, 1990 pp. 204-209).

3.5.2 Currency matching
A company could use matching to minimize its net positions in a certain currency, and thereby limit or eliminate the risk involved of holding a surplus. This is acquired through funding of its capital expenditures or acquisitions using the same currency. However, matching for zero risk positioning, a company has to bear in mind factors such as tax, the interest rates and inflation in order to avoid currency exposure (ibid., p. 204).

3.5.3 Cash pooling
Cash pooling is an approach for corporations that allows them to benefit from current credit and debit positions by “pooling” assets and liabilities (www.wisegeek.com).
The basic concept of cash pooling means to relocate excess affiliate cash into a central account (the cash pool), where all the groups funds are managed by corporate staff. If possible it should be located in a country where the taxes are low (Shapiro, 1999, pp. 431-32, 794).

3.5.4 Derivatives used for hedging

Derivatives is the umbrella term that refers to contracts that derive their value from an underlying asset, such as currencies, commodities or stocks (ibid., p. 787). Derivatives are generally used for hedging purposes and for speculation (Bain et al., 2008, p. 435). Empirical studies, such as Mohammad and Stewart’s (2009) on the use of derivatives in risk management, find that hedging through the use of currency derivatives is significantly correlated with reduction of foreign exchange rate exposure. Derivatives are either traded on an organized exchange or over the counter.

Over the counter (OTC) refers to trading of securities (such as currencies, stocks, derivatives) directly between two counterparties, whereby they set their own conditions for the agreement (Shapiro, 1999, p. 794). Buyer and seller usually settle over the phone or through a computerized system, where the latter is preferable to be able to verify the agreements (Nyberg et al., 2006 p. 90).

A security is usually traded OTC because it is not eligible on the ordinary exchange. The OTC markets are well organized and less formal and it is less regulated than the organized exchange, but it does also include some lack of transparency due to its absence of possibility to compare prices. Randall (2008) further mentions another drawback with OTC markets: “It is noted that dealers in an OTC security can withdraw from making a market, which causes liquidity to dry up”.

The most common types of derivatives are options, swaps, forward and futures. A more thoroughly explanation of these follows next.

Options

An option is one type of derivative that contracts the counterparties (buyer-seller) to trade an asset of specified amount at a specific time. A call option gives the buyer the option, but not the obligation to buy the underlying asset at a pre-determined price, also known as the strike price.

Reversibly, the put option gives the seller the option to sell. Depending on the probability if the option will be exercised, a premium is expected in return, in other words, the price of acquiring the option to buy or sell the underlying asset (Bain et al., 2008, pp. 433-449).

When calculating the premium of the option, mainly four factors are used:
- The difference in spot price and strike price
- The volatility of the underlying asset
- Time until maturity
- The risk-free rate, as it is used to discount future cash flow and indirect affects the price of the option. (Nyberg et al., 2006, p. 81)
There are two ways of stating when the option could be exercised, either the European style option where it only can be exercised at maturity, or the American style when it could be exercised at any time. The underlying asset in a currency option is a nominal amount of a currency. (Bain et al., 2008, pp. 417-418, 434)

**Exotic options**

More complex options that differ in terms of size, exercise, or how and when the buyer receives the payout are called exotic options. Exotic options are generally traded over the counter (Bain et al., 2008, p. 433). One of the advantages of buying options OTC is that one can get them customized for the company specific requests (Eiteman et al., 2001, p. 124).

**Swaps**

A swap is a derivative that concerns the exchange series of cash flows between two parties. An interest swap is for one part of an agreement to swap its fixed interest rate to a floating interest rate. The simplest kind of interest rate swaps, to exchange fixed from floating rate is often termed plain vanilla swaps. So, using this derivative, synthetically you can change a floating debt payment to a fixed. This could be useful when for example, a company cannot exceed a certain level of interest payment, but their debt is nominated with a floating rate agreement. Since the interest payments then could fluctuate, the company needs to revise its loan conditions. By instead using a swap this could be achieved without re-arranging the loans and the additional costs this would imply. A currency swap refers to an exchange of interest and principal between two parties for the equivalent in another currency. In both these kinds of swaps, the instrument itself got no monetary value but provides the service that could help companies adjust maturities and debt associated cash flows (Eiteman et al., 2001, pp. 279-280).

Usually there is no fee for entering the swap agreements, and thereby one of the factors why this instrument is so attractive.

Swaps often have long maturity and large volumes are traded, whereby the default risk in these instruments could be an issue. To overcome the default risk of the counterparties the swap could be done through financial institutions such as a bank. The bank will then act as a guarantee to both parties and will charge a fee including the risk of default (Bain et al., 2008, p. 449).

**Forwards**

A forward contract is a type of agreement that implicates that an underlying asset should be delivered at a specified date at a specific price. The contract could be between for example a bank and a firm, and the asset is a certain amount of a currency. The contractual agreement maintains unchanged until maturity date, where the loss or gain is realised. So buying a forward contract could provide an asset at future delivery for a pre-determined price. Thereby the investor could also be protected by negative fluctuations in the value of the asset. The bigger the difference between the market price and the forward price at maturity, the greater the realized loss or gain will be. Thereby the risk for default implies a payment increase, since no formal assurance is necessary in a forward contract. Forwards is generally traded OTC, since they often are customized to fit a specific customer requirement (Nyberg et al., 2006 pp. 54-56).
Futures
A future is basically a forward contract traded on an organized exchange that is standardised, in terms of both size of the contract and the date of delivery. Quality and quantity of the asset is also specified in the contract (Bain et al., 2008, p. 412).

Since futures are traded on the organized exchange, the currency futures market provides transparency and the possibility to compare prices (Srinivasan, 2009, p. 4). The main difference concerning default risk of futures and forwards is that the future is confirmed through a clearinghouse. The clearinghouse will act as an accommodator for the counterparties, and the purchaser has to make a deposit as collateral. The collateral could be for example cash, or a letter of credit.

In contrast to the forward, the future is marked to market every day. This means that the daily changes in the underlying asset will update the value of the future on a daily basis, and changes in price will be paid in cash (Eiteman et al., 2001, pp. 114-115).

The future also requires a margin to ensure that the change in value of the future could be paid. So if an investor is losing money on his position of the contract, daily marking to market will ensure that losses are limited. So if the value of an investor’s future rises, he can withdraw that amount from his margin account, and reversely if the price of the future falls, then he has to deposit that amount to cover up the loss. This is in opposition to the forward contract, where huge losses could be realized at maturity (Shapiro, 1999, p. 176).

Eiteman et al discusses how futures are not particularly useful for large firms, due to the restrictions of the futures contracts in terms of size and maturity. Another issue is that the future has to have a margin deposit at market price, which implies that the firm must put cash aside every day. As the deposit could fluctuate, this means that the firm has more uncertainty and gets to deal with maintenance of having to put in extra deposits if the market value of the future is changed. On the other hand, firms who don’t have the access to forward contracts from financial institutions will find futures very convenient (Eiteman et al., 2001, p. 117).
4. Empirical Data

The data collected for this thesis, through interviews and reports is presented in this chapter. It starts with a brief introduction of the company and the interviewees. It continues with the main strategies for organize currency risk management and ends with the practical managing of the exposure and the financial managers view of the recent turbulence on the market.

4.1 Introducing the…

4.1.1 … Company, treasury and subsidiary

The group Svenska Cellulosa AB (SCA) is an international paper and forestry company who manufacturers and develops personal hygiene products, tissue, packaging and solid-wood products. SCA was founded in 1929 by the Swedish financial magnate Ivar Kreuger by merging some forestry companies into the SCA group. It has since then developed from a pure forestry company to one that offers a wide range of paper products (www.sca.com).

The group currently employs approximately 52,000 people in more than 90 countries. The annual net sales for 2008 are 110 billion SEK, which makes them the one of the single biggest actors on the European market, 6th largest Swedish company as of 2008 in terms of net turnover (www.largestcompanies.com). SCA is an advocate for ethical and sustainability corporative. This has been notice by numerous awards and recognitions in the last decade. Examples of these are mentioned in the Cheuvreux Large Cap Conference from 25 March 2009;

“Ranked 2nd greenest company in the world (2007), one of the world’s 100 most sustainable companies (2007) and one of the world’s most ethical companies (2008), most ethical companies by the Ethisphere Institute in New York” (www.sca.com).

SCA is largely owned by AB Industrivärden and Handelsbanken, whom together controls 43% of the votes in the company. Also notable is the foreign/domestic distribution, where 59% of the company is owned by Swedish shareholders. SCA’s market is primarily in Europe but also operates is Northern America, Latin America, Asia and Australasia. The main markets country specific are, in ranking order from largest to smallest; Germany, UK, France, USA, Sweden, Italy, Netherlands and Spain (ibid).
AB SCA Finans
SCA Finans is a wholly owned subsidiary of SCA Treasury B.V. Netherlands, a branch of the SCA Group. SCA Finans is not only responsible for the risk management relating to currencies, interest rates and energy at the SCA Group, but also works as an internal bank for the Groups’ companies and arranges the borrowings from banks and other credit institutions. The financial operations are centralized at SCA Finans and supported by a policy framework of rules and guidelines, recognized by the Group as a whole.


SCA Packaging Obbola AB
SCA Packaging Obbola AB is a one of seven mills to manufacturing containerboard the SCA Packaging segment, with its facilities located in Obbola, Sweden. The factory in Obbola is a paper mill which since 1975 produces kraftliner, and has one of the most modern and widest liner machines in the world (www.scacontainerboard.com).
4.1.2...Interviewees

Fredrik Lindvall, Head of Finance, SCA Packaging Obbola AB
Lindvall has an academic background from Umeå University, where he studied Business administration. He also has work experience from other parts of the Group, for example the headquarters in Brussels. The department in Obbola handles the financial management for the Obbola- and Munksund mill which both are subsidiaries to SCA packaging.

Ulf Stengard, Senior Dealer Foreign Exchange, SCA Treasury
Stengard has an academic background from Lund’s University where he studied economics. He has also previously been working at the Swedish Central Bank, Riksbanken. Stengard is currently located at the office at AB SCA Finans in Stockholm.

4.2 Currency risk management

4.2.1 Organisation

SCA Finans operates as an internal bank for all subsidiaries in the SCA group companies. The financial operations are centralized to take advantage of economic concepts such as economies of scale, synergy effects and minimize operational risk (SCA Annual Report 2008, p. 48). To better describe the synergy effects, Ulf Stengard mentions in the interview that a central treasury department with increased capitalization have stronger negotiation power than the subsidiary when dealing terms and lending conditions with local banks.

SCA Finans manages the borrowing programs for the Group when money is needed for larger investment, and expenditures with longer time horizon. For managing current expenditures and smaller overnight loans, Fredrik Lindvall says that SCA Obbola instead turns to a local bank where an account with a sufficient credit is available. This strategy is expected to be similar throughout the Group, since SCA Finans do not have the resources and feel it is necessary to centralize the daily management of current expenditures.

To manage the currency flows, the subsidiaries weekly report all future transactions from 0 – 18 months in advance so SCA Finans will have sufficient information to hedge the future in- and outflows or choose proper method of borrowing or invest.

4.2.2 Risk policy and strategies for risk management

The SCA Board of Directors constitutes a framework of guidelines and rules for financial risk management that is reviewed on a regular basis. One policy regarding the transaction exposure is that subsidiaries are hedging all transactions concerning assets and liabilities related to the balance sheet against the functional (home) currencies.

Since the consolidated balance sheet is noted in SEK, subsidiaries outside Sweden are exposed to an exchange rate risk when stating anticipated future earnings, also known as translation exposure. SCA’s policy is not to hedge the total of the future earnings but a proportion sufficient enough so that the consolidated debt/equity ratio is not affected by exchange rate fluctuations. Tax considerations are also affecting the capital structure
depending on country, this means that the debt/equity ratio for the subsidiary could differ from the Group’s consolidated one. (SCA Annual report 2008, p. 48)

When looking at the more local and direct strategies for handling risk, the subsidiaries have instructions on how to operate the financials. When interviewing Fredrik Lindvall, he mentions that all payments are registered at the daily exchange rate also known as spot rate, while invoices from sales are collected and registered every month.

When assessing the hedging, subsidiaries reports the specific currency in- or outflow to SCA Finans, who operates via a multibank platform. The platform localizes the best offered currency spot rate offered by a stream of banks. During 2008 there were approximately 13 different banks connected to the multibank platform, the largest Swedish banks plus 3-5 international banks. SCA Finans has no preference when choosing the dealing partner, simply the most attractive rate offered at the time of execution.

The subsidiaries have the ultimate executive decision when making business in terms of deciding which currency to denominate. Stengard says that subsidiaries are allowed to denominate contracts in mainly all currencies. However, it could be difficult when the currency got some kind of restriction. As an example, Stengard mentions making business in Ukraine and Russia, where problems arise since the Ukrainian currency have issues of convertibility from the current strains on the financial market. Even the in case of the Russian Ruble where the currency nowadays is fully convertible, but other restrictions exists, mostly originated out of political difficulties. He further argues that in the end it all comes down to that it takes more effort to make the transaction possible, and the extra cost that it cause becomes a slightly higher spread for the subsidiaries to pay. Nowadays virtually all major currencies are fairly easy to obtain on the market though.

4.2.2.1 Restrictions

The outspoken policy of non-speculation among subsidiary is thoroughly followed, and all speculation is regulated and supervised by Finansinspektionen, a Swedish government agency. The EU standard IAS 39 is demanding more transparency of all international transactions. IAS 39 is a European accounting rule that is set “to establish principles for recognising and measuring financial assets, financial liabilities and some contracts to buy or sell non-financial items” (www.iasb.org).

Due to the fact that SCA is a net buyer and net seller of different currencies, some complications arise when the accounting rule requires them to recognize the transaction made by a subsidiary to a trade of that specific currency. SCA Finans have to do some additional cross exchange, meaning that you have to exchange a currency via a third currency. If, for example, SCA wants to exchange a large amount of SEK to Ruble, perhaps no dealer can offer that amount at the spot. Then they have to exchange some SEK to USD and USD to Ruble always making sure to show transparency of these transactions. Even though Stengard argues spreads are comparatively low, it still means adding additional transaction costs and exposure.

SCA Finans have no restrictions when dealing with different currencies. Ulf Stengard still stresses that he prefers to work with currencies and markets where he feels he has the best
information. He also believes that he could make the most profitable deals with familiar currencies. However Lindvall adds, that it is easier to evaluate if deal is attractive when it is nominated in SEK, which he uses on a daily basis.

To avoid solely influence and all company risk in the hands of one manager, SCA Finans has a few risk mandates given to persons in executive positions. This allows them to make quick and important decisions on interest and currency markets when they see an opportunity. They are though restricted by a loss limit, a maximum amount they are allowed to lose, to prevent too severe speculation. The loss limit is based on a value-at-risk theory where the calculations derive from the Riskmetric model, used for measuring the variance of the risk at the firm. According to Stengard the loss limit (of x million SEK) has neither increased nor decreased during the last couple of years he has worked for SCA Finans.

One of the main tasks for Stengard is to deal and trade currencies, which continuously includes making a numerous decisions concerning risk. His everyday decisions doesn’t have to be formally explained, but as Stengard states “if something fails (like a huge loss), the persons with the risk mandates will be responsible”.

4.3 Risk exposure

4.3.1 Currency risk
To understand the impact a fluctuation in the SEK has on SCA as a consolidated group, there is an example in their Annual report showing that a weakening/strengthening by 5% against all other currencies, outstanding financial hedges as well as trade payables and trade receivables would have increased/decreased the profit for the year 2008 before tax by 53 million SEK.

As already mentioned export revenues and import costs is denoted in many different currencies. Large assets and liabilities in the SCA Group are thereby exposed to currency fluctuations. Hedging positions in 2008 had a total negative impact of 116 million SEK (2007: -5, 2006: +146) (SCA Annual report 2008, pp. 48-50).

4.3.2 Interest rate risk
The impact of a change in interest by one percentage point higher/lower, with unchanged fixed interest terms and volume in the net debt, would result in increased/decreased interest expenses of 290 million SEK.

In the annual report SCA also states that besides the direct impact shown in the example before, there is also an indirect risk exposure related to the general economy variables surrounding a change in net interest rate SCA borrows mainly with short-term interest. The argument for this is that it will result in lower interest expense over time. A maturity profile in the annual report visualizes the exposure shown below (ibid, pp. 50-52).
Table 4.1 Interest risk

| Source: www.sca.com |

On a total of 13,579 million SEK forecasted for the year 2009, 10,201 m. of the gross debt are financed by short-term bank loans and commercial papers.

SCA Finans is responsible for identifying and managing the interest rate exposure. The average term for interest rate per currency is between 3 and 15 months (SCA Annual report 2008, p. 48). To minimize the risk and avoid large volumes of renewals at the same time, SCA Finans seeks to achieve a good spread of the interest due dates. Using financial derivatives, the desired currency balance and fixed-interest period is achieved. According to Stengard, interest swaps in order to shorten the maturity horizon is the primary tool used to manage this. The average fixed-interest period for 2008 was 4.6 months with an average of 5.61% interest rate for the outstanding debt (SCA Annual report 2008, pp. 48-52).

4.4 Currency flows

4.4.1 Netting

The Group SCA uses netting to cancel out or partially set-off positive and negative currency flows within the company. All internal payments between subsidiaries are run through SCA Finans and are executed at the same time, usually specific date at the end of the month. By netting the flows, SCA Finans can limit the number and amount of external loans and instead internally finance expenses. As an example, subsidiary A have a sale in USD and subsidiary B have an expense in USD. Instead of subsidiary B should borrow or change currency, which in both cases would involve an additional cost, SCA Finans uses the sale from subsidiary A to pay for the expenses of subsidiary B. Though they aren’t using this process to net out cash flows on anything else than intraday basis.

Lagging payments or shorten the invoicing period is nothing that SCA Finans neither recommend nor requests from the subsidiaries. Stengard also argues that systematically lagging payments would probably be justified economically, but is harder to defend ethically. However, to make sure the subsidiaries are not careless with the handling of invoicing and payments, matching result in negative exposure, Stengard stresses that cash managers working at the interbank carefully evaluates the financial subdivisions a few times a year.
4.4.2 Matching

For SCA as a Group as well as for SCA Packaging Obbola, EUR, USD, GBP and SEK are the primary exposed currencies. SCA is a net buyer of USD and SEK, meaning that SCA has more expenses than revenues in those currencies. This applies especially on the SEK, because Swedish operations are mostly invoiced in a foreign currency, mainly EUR.

SCA had a total of 80,631 million SEK in foreign currencies. Matching is achieved by using derivatives to finance each currency’s external net debt. SCA optimal matching is depends on their financial leverage, meaning the proportion of assets that is financed by either debt or equity. A table of each currency’s net sales and operating expenses within the Group is shown below (SCA Annual Report, 2008, pp. 50-52).

Table 4.2 Matching

<table>
<thead>
<tr>
<th>Currency</th>
<th>Sales %</th>
<th>Expenses %</th>
<th>Operating profit SEKm</th>
<th>Closing rate 31 Dec. 2006</th>
<th>Average rate 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>EUR</td>
<td>49</td>
<td>47</td>
<td>6,874</td>
<td>10.93600</td>
<td>9.57788</td>
</tr>
<tr>
<td>USD</td>
<td>11</td>
<td>13</td>
<td>-788</td>
<td>7.73300</td>
<td>6.50898</td>
</tr>
<tr>
<td>GBP</td>
<td>10</td>
<td>8</td>
<td>3,667</td>
<td>11.22140</td>
<td>12.06750</td>
</tr>
<tr>
<td>SEK</td>
<td>8</td>
<td>15</td>
<td>-7,611</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DKK</td>
<td>3</td>
<td>2</td>
<td>1,175</td>
<td>1.46786</td>
<td>1.28484</td>
</tr>
<tr>
<td>MXN</td>
<td>2</td>
<td>2</td>
<td>392</td>
<td>0.56534</td>
<td>0.58998</td>
</tr>
<tr>
<td>AUD</td>
<td>2</td>
<td>1</td>
<td>1,163</td>
<td>5.34892</td>
<td>5.54984</td>
</tr>
<tr>
<td>NOK</td>
<td>1</td>
<td>0</td>
<td>990</td>
<td>1.10393</td>
<td>1.17118</td>
</tr>
<tr>
<td>Other</td>
<td>14</td>
<td>12</td>
<td>2,702</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
<td><strong>8,554</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: www.sca.com

4.4.3 Cash pool

All netting made is affiliated in a cash pool. The Group has cash pools located in most of the countries they are operating in, and all cash pools are monitored by SCA Finans and the parent company SCA Treasury. The subsidiaries use a bank account with expanded credit that is connected to the cash pool. Each day the bank accounts are cleared and SCA Finans transfers money to or from the cash pool depending on the net value of each subsidiary’s account. Similar to a bank, there is an interest rate on lending or borrowing. If there is a net profit, SCA Finans uses it to repay or re-finance the debt portfolio. In the end of the month the cash pool is cleared and internal payments are cancelled out by netting the currency flows between subsidiaries.

4.4.4 Forecasting

The future currency flow reports to SCA Finans from the subsidiaries are the fundamentals of the strategy on how to forecast their currency hedges. Stengard informs that it is several more
variables than the parity conditions to consider when forecasting. Especially the current general financial climate has a great impact on currency prices. When forecasting currency movements, instead of using equilibrium theorems, Stengard relies on his personal experiences in currency trading, on other professional analysts and macro variables. Below is a table on the transaction exposure and to what extent they hedge the different currency flows in the aspect of the forecasted currency flows.

**Table 4.3 Transaction exposure**

<table>
<thead>
<tr>
<th>Currency</th>
<th>2009 Forecast flows&lt;sup&gt;a&lt;/sup&gt; SEKm/year</th>
<th>2009 Total hedged volume&lt;sup&gt;b&lt;/sup&gt; SEKm</th>
<th>2009 Hedges %</th>
<th>2008 Forecast flows&lt;sup&gt;a&lt;/sup&gt; SEKm/year</th>
<th>2008 Total hedged volume&lt;sup&gt;b&lt;/sup&gt; SEKm</th>
<th>2008 Hedges %</th>
<th>2007 Forecast flows&lt;sup&gt;a&lt;/sup&gt; SEKm/year</th>
<th>2007 Total hedged volume&lt;sup&gt;b&lt;/sup&gt; SEKm</th>
<th>2007 Hedges %</th>
<th>2006 Forecast flows&lt;sup&gt;a&lt;/sup&gt; SEKm/year</th>
<th>2006 Total hedged volume&lt;sup&gt;b&lt;/sup&gt; SEKm</th>
<th>2006 Hedges %</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBP</td>
<td>1,958</td>
<td>699</td>
<td>36</td>
<td>2,404</td>
<td>688</td>
<td>29</td>
<td>2,901</td>
<td>455</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DKK</td>
<td>1,582</td>
<td>627</td>
<td>40</td>
<td>1,957</td>
<td>257</td>
<td>18</td>
<td>805</td>
<td>98</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EUR</td>
<td>1,044</td>
<td>955</td>
<td>69</td>
<td>1,628</td>
<td>1,028</td>
<td>56</td>
<td>2,122</td>
<td>863</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RUB</td>
<td>1,155</td>
<td>–</td>
<td>–</td>
<td>254</td>
<td>–</td>
<td>254</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHF</td>
<td>1,004</td>
<td>149</td>
<td>15</td>
<td>472</td>
<td>65</td>
<td>14</td>
<td>407</td>
<td>64</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUD</td>
<td>902</td>
<td>74</td>
<td>8</td>
<td>965</td>
<td>–</td>
<td>–</td>
<td>908</td>
<td>83</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOK</td>
<td>808</td>
<td>273</td>
<td>34</td>
<td>770</td>
<td>288</td>
<td>37</td>
<td>779</td>
<td>124</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAD</td>
<td>694</td>
<td>47</td>
<td>7</td>
<td>626</td>
<td>13</td>
<td>2</td>
<td>449</td>
<td>107</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>2,070</td>
<td>318</td>
<td>11</td>
<td>1,814</td>
<td>124</td>
<td>7</td>
<td>2,002</td>
<td>131</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEK</td>
<td>–10,764</td>
<td>–2,837</td>
<td>26</td>
<td>–10,182</td>
<td>–2,585</td>
<td>25</td>
<td>–9,983</td>
<td>–1,590</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> = currency inflows, <sup>b</sup> = currency outflows

4.5 Derivatives

We have previously mentioned that SCA has some restrictions in its risk policy. Considering what derivatives that could be used for hedging purposes, subsidiaries have restrictions to only hedge their balance sheet using forwards, swaps or spots. So no options or other financial instruments are being used by the subsidiaries in terms of currency management. This is to prevent them from breach the policy of that the balance sheet should be hedged. For SCA Finans, however, there are no restrictions in terms of what financial instruments to use.

4.5.1 Options

Stengard explains that the main reason why the options are not particularly common at the moment is mostly because the implicit volatility is high. The premium of the options increases with the uncertainty of whether the option will be exercised or not, which implies that options are currently an expensive alternative.

In times when SCA Finans do use options, Stengard informs that exotic options are the preferable choice. In this context exotic options are customized options to fit their demands, and traded OTC.

The digital option is a good example of an exotic option. In the digital option the strike price is predetermined and depending on whether the option is in or out of the money (when you
can or cannot exercise the option), either pays a fixed amount fully or does not pay out at all. One of the advantages of using options is briefly discussed by Stengard:

“There may be advantages of using options in a long-term position taking as it becomes easier mentally to maintain its position if it is through options”. “Digital options can be used for both short term and long term positioning. The digital options we have used have been from 1 month up to 1 year’s maturity”.

4.5.2 Swaps

Currency swaps are used continuously in the everyday business. SCA Finans uses swaps in the currency they need for expenditures for funding their affiliates. Stengard gives an example:

“Let us assume that we are borrowing the SEK but one of our affiliates wants to borrow EUR from us. Then we can fund the borrowing with a currency swap. If we receive a EUR spot and pays the SEK and in the counter agreement of the swap, is flows back again”.

Swaps constitute the primary source of funding short-term foreign currency for SCA Finans. Stengard estimates that around 75% of the total volume is swaps. This is mainly because it applies for refinancing issues through the debt portfolio. “We switch the funding currencies we have, against the currencies that subsidiaries want to borrow from us”.

Plain vanilla swaps are mainly used to convert long term interest payment into short term. Since the borrowings are often conducted through commercial papers or bonds, the payment of interest is usually fixed. They can then use interest swaps to switch the long term coupon rate to a short term rate, such as the 3 month interbank rate. An example is provided by Stengard:

“Assume SCA issues a 5-year bond and the including coupons yield is 4% over the period. SCA then have to pay 4% in 5 years. If we execute a swap in which we instead receive 5 years of interest rate but pay 3 m STIBOR (Stockholm Interbank Offered Rate). Then we have got rid of the 5 years of interest, we pay interest in the bond but receive in the swap, and pays instead a 3m STIBOR that is denoted every 3rd month. So, by using these interest swaps we reduce the duration of the debt portfolio.”

The swaps are also commonly used when the subsidiaries are hedging. So if one subsidiary has a hedge in form of for example a forward to a certain date, but it turns out that the cash flow will occur on another date. The subsidiary could swap the hedged amount to another day.

4.5.3 Futures and forwards

Both instruments are in terms of hedging used to fix the price of an asset for future delivery. In this case study, and in context of currency management, the “asset” is equivalent to foreign currencies.
The only exchange traded products they use at SCA Finans is interest futures, such as treasury bonds and treasury notes. Since they got specific demands for their currency contracts, futures are not to be preferred. The standardized amount of days in futures is one of the main drawbacks since not many transactions will be able to apply to fixed dates.

Stengard also argue for the OTC market “When trading currencies, the OTC market is much larger and more liquid”. According to Stengard, trading currency futures on the exchange market is more of an American phenomenon, and not that common in Europe.

The last derivative instrument used by SCA Finans that is brought up is forward contracts. The forwards are primarily used to hedge for movements in exchange rates. As earlier mentioned SCA Finans works with a bank platform, which acts as their main OTC partners. Stengard, whose daily work mostly involves currency trading, explains the banks function when making forward contracts. Practically it could work like this:

Stengard got the information that he will need 100m USD in 10 days. He contacts the banks through the bank platform and specifies his order. The contract will be on 100m USD, 10 days maturity and he transmits his order. The best price available will be listed, and the forward contract could be confirmed instantly. Longer maturity often results in a premium in addition to the spot price.

To sum up, Stengard says that “If the SEK depreciates, we lose money because of the hedges, but the whole group is doing better, and reversely, if the SEK appreciates, we earn a lot of money but SCA as a group is losing money due to lack of competitiveness in prices. By hedging currency exposures it is more a process of reducing the volatility and an extension of the coming ‘suffering’”.

### 4.6 Other aspects of currency management

During the interviews, a few other aspects of currency risk management occurred. They are mentioned in an own section of the paper, due to the fact that they were added and not to confuse the reader.

#### 4.6.1 Intraday risk

Stengard also mentions that he can keep a net positive position in a currency over a day in order to make money on fluctuations if he believes it will appreciate. For example, if he gets a payment in the morning, and the spot price is relatively low, they can hold the currency instead of selling it to the bank. The possibility of losing or gaining a profit in this process is something Stengard refers to as an intraday risk.

#### 4.6.1 Arbitrage

Stengard argues that arbitrage is difficult to find in plain vanilla instruments, since it is a huge liquid market with a lot of actors and the spreads are low. The prices are updated regularly and there are large sums of capital moving around every day. Searching for arbitrage situations is not one of their main tasks, but if there are clear arbitrage situations then Stengard will of course take advantage of it.
4.6.2 Impact of the financial crisis

According to Stengard the financial market “collapsed” when the Bear Sterns hedge funds went bankrupt in mid 2007. Following this, the liquidity in the market has been bad and the interbank rates have increased due to the issue of the banks’ difficulty to determine who is able to repay or not. The spread of interest rate differences was also wider before, but due to the global recession interest rates are comparably low worldwide.

Stengard discusses how the financial climate affects the home currency. Saying that, even though the SEK is relatively low valued, and internationally compared interest/inflation are equivalent to levels before the crisis, the global recession implies that there is no demand for goods. Since Sweden relies on export, the SEK is affected by reduced demand. So even though the relative PPP is high, (for example, goods nominated in SEK is more worth than if nominated EURO) the SEK does not appreciate.

Both Lindvall and Stengard discuss the issue of having a small currency, meaning the low capitalization of the Swedish Krona. From Lindvalls perspective as an exporter, customers and suppliers have a different view on the current fluctuations. When the SEK is comparably low valued, the (often Swedish commodity) suppliers are upset, and international customers are satisfied. Most of the customers are big actors though, and the range of customers is fairly stable. Lindvall further explains:

“There is no current downsizing or occupation termination at SCA Obbola related to the economic recession, but since we are a cost intensive industry, currency fluctuations puts much focus on marginal costs”.

Stengard, who is practically dealing with the exchange of the SEK, discusses that since the kronor market is well developed there is no problem of having SEK as the main currency. Neither Stengard nor Lindvall argues that an adoption of the EUR would have no obvious advantage, and having the SEK as currency is really not a problem.
5. Analysis

The analysis moulds the empirical data together with the theoretical chapter. The chapter is divided into three sections, structured in a way to assess the problem discussion and purpose of the study. The three sections interrelate, and the authors are striving towards a pedagogical way for the reader to relate their ideas and thoughts.

5.1 Identifying currency risk exposure

“If the Swedish Krona unilaterally had weakened/strengthened by 5% against all currencies, outstanding financial hedges as well as trade payables and trade receivables would have increased/decreased profit for the year before tax by 53 Million SEK (2007: 43, 2006: –4)” (SCA Annual report 2008, p. 51).

5.1.1 Parity conditions and economic exposure

In this first part of the analysis the authors aim to provide the reader with the understanding of that SCA is indeed connected to the international markets and exposed to the risks involved. During 2008 due to the financial crisis, the SEK has taken a pretty hard beating compared to “harder” currencies like EUR and USD. SCA which is a net buyer of SEK, meaning that the company has more costs than revenues in that currency, has most certainly been exposed to the market conditions. Lindvall says that one of the effects of a depreciation of the home currency is that the suppliers, who get paid in SEK, become less satisfied since the real value of the money has decreased, while international customers receive a lower price when SCA translates the price in SEK to USD or EUR.

In the theory of relative purchasing power parity (PPP) (Shapiro, 1999, p. 120), it is stated that the spot rate between two currencies will change as the price level in each country changes. If other equilibrium conditions, such as interest rate- and inflation differences, are met simultaneously, SCA would not have been affected in terms of competitive disadvantage. In coherence with the article by Guilio Martini (2009) there most certainly exists a degree of time lagging in achieving the parity or equilibrium, and from the empirical findings of this study the company is absolutely affected since customers and suppliers feel more or less satisfied and the appreciation of the Swedish Krona has, according to Stengard, not yet occurred.

The solution to this is difficult for a currency manager to assess. In the long run, equilibrium theory will hold and strive towards satisfying prices for both customer and supplier. The strategy must be to evaluate the company’s business partners and promote strong, stable and healthy relationships to avoid the uncertainty and additional costs of constantly finding new business partners whose short run PPP is desirable. Though Lindvall confirms that the subsidiary SCA Obbola have a solid circle of costumers, something that should be considered throughout the whole SCA group.
SCA is being largely exposed both in scope and depth, meaning that operations are executed in many different countries, exposed to their respective interest rate and also that the large value of the exposed loans and financial assets are of essence. The risk exposure involving interest rate differences is indeed shown by the example of a increase of one percentage point resulting in a decreased interest expense of SEK 290 millions. This is due to SCA’s severe economic exposure of its debt portfolio.

The definition of economic exposure is the possibility that the future earnings are affected by movements in the exchange rate, and thereby the value of the company in measures of future cash flow (Shapiro, 1999, p. 267).

According to the International Fisher effect theory the difference in the exchange rate between counties should be equivalent to the difference in the nominal interest rate for the same countries. So if the interest rate is supposed to decrease, like in this example, the value of that currency is supposed to increase.

As previously mentioned, an appreciation/depreciation of the currency would have both positive and negative effects which equals in the long run, while the increase in interest rate would have a direct bad impact. This is a way of stating that there are more variables to consider than the general equilibrium theories, especially in the short-run management. What the authors imply is that though macroeconomic strategy could be out of decision level for a currency risk manager, a large multinational company is to a great extent exposed to economic variables, which affects the daily work of a currency risk manager.

5.1.2 Transaction exposure

SCA operates all around the world and facilitates more than eight currencies within the Group currency management. When a time difference of setting a price to the actual payment occurs, a transaction exposure appears. The exchange rate fluctuation results in a value difference of the exposed currency compared to the domestic Swedish currency. SCA is net buyer of the USD and SEK and net seller in the remaining mainly employed currencies, theoretically implying that deprecations in the two mentioned currencies would render in positive result for the group, due to diminished value of costs and thus negative results for the hedging activity at SCA Finans. Hagelin et al. (2004, p. 1) mentioned in his article that transaction exposure hedging significantly reduces exposure. This exposure is to a great extent assessed by hedging strategies at SCA, however there are too many transactions and contracts circulating in the company to hedge them all.

5.1.3 Translation exposure

The translation exposure is visible when the foreign subsidiary reports are translated into SEK for the consolidated Group annual report. This exposure is therefore strongly related to accounting purposes and includes both translations of income statement and the value of equity concerning the balance sheet.
Hagelin (2003) discusses translation exposure and states that “The general recommendation of the finance literature is not to worry about this type of exposure and thus not hedge it”. The strongest argument is that it has “little direct impact on firms’ cash flows”, which implies that a hedge would not create enough value for the shareholder for it to be validated (Hagelin 2003, p. 2). However, Hagelin et al. (2004, p. 1) argues against this, and states that translation exposure approximates future cash flow, and thus hedging translation exposure also reduces economic exposure.

The translation exposure in SCA is approached by financing a certain portion of foreign capital with loans and derivatives in corresponding currency. This is known as the concept of matching which will be discussed later in the analysis.

5.2 Strategies for managing currency risk

5.2.1 Organisation

When companies expand internationally and open subsidiaries on different continents, financial advantages as well as issues are appearing. Empirical findings show that SCA benefits on the economies of scale and the synergy effect by centralizing its finance function. By acting as a bank to its subsidiaries, SCA Finans can offer both financial and currency lending and borrowing that is far more attractive and efficient than offered at a regular bank, illustrated by the number mentioned in the empirical findings, very close to interbank market rate. These findings are in line with Eiteman, where he also sees the central function as the most beneficial place for the subsidiaries invest in short-term perspective (Eiteman et al., 2001, p. 562).

Although the financial managers in the subsidiaries are highly experienced and educated individuals, there are benefits of gathering the expertise in currency management in one location. Kenyon (1990, p. 227) talks about the importance of knowledge in times of volatile markets, where it would be costly to have experts in all the subsidiaries.

Arguments against a centralized function would imply that the local manager could be limited in the decision making process regarding possible beneficial situations in the local market (Shapiro, 1999, p. 289). Keep in mind that empirical findings show that SCA is not fully centralized, considering the daily expenditures that have to be financed by the credit account at the local bank. Lindvall highlights the good communication with the SCA Finans, and the use of the local credit account is making him feel less restricted and more independent, but by not interviewing more subsidiary financial managers it cannot be assured to say that this is true for the whole group. This could be viewed as a counter argument against limitation of the local manager but also gives the concept of centralization a bit more complicated and floating meaning.

These are merely organisational structure benefits, further ahead the practical benefits that occur at daily basis within the company’s finance function will be looked into.
5.2.2 Policy and strategy
The forming of strategies and policies starts at the top level of the company and should be consistent throughout the whole group. According to the Annual Report of SCA (2008, p. 48), the framework of guidelines constituted by the Board of Directors is reviewed on a regular basis. The guidelines should consider the macroeconomic variables and the general climate and provide the currency management with fundiment for approaching risk.

The attitude within SCA Finans is that they have advantage by them considering having excess information about the market. So, then it is fair to say that SCA applies Grath’s (2008) second alternative where they hedge some of the currencies or the largest positions, even though they hedge all subsidiaries’ balance sheets. This is supported in table 4.3 (p. 31) from the empirical findings. Stengard further mentions that he prefers to operate in currencies which are familiar to him even though the company do not have outspoken restrictions on which currency to use.

Having the Group main currency in Swedish Kronor involves some additional consideration on SCA’s strategy when addressing their customers and suppliers. Grath (2008, p. 134) addresses the issue of choosing invoice currency and says that nominating invoices in the home currency is an easy way to reduce the risk exposure, given that costs are in the same currency. This does not mean that the risk disappears, rather that the currency risk moves to the customer. Demanding payments in SEK would most certainly create a competitive disadvantage among international customers for SCA, and is an obvious reason why they avoid this. Still, Stengard sees no difficulties of having SEK as a main currency, arguing that hedges works no matter the currency. The SEK is also freely convertible and easily tradable, criteria that Grath (2008) mentions when measuring the risk of a currency.

5.2.3 Cash pools
The Group has cash pools in the countries they operate in. On a daily basis the net cash flow is transferred to the pools. The cash flow remaining, after the procedure of netting is completed, is used to repay outstanding debt in order to lower interest expenditures. Theory suggests that the location of the cash pool should be in a country with tax advantages (Shapiro, 1999, p. 432). SCA’s operations are so extensive that gathering all subsidiaries’ cash flow in the same pool would imply more advanced management controls and transaction cost to fulfil a purpose that is already achieved by having country specific cash pools.

SCA Finans manages the cashpool in the similar way as a regular bank would. Although they offer more attractive rates than a regular bank would, it is a fact that SCA Finans profits on the cash management on the expense of the subsidiaries.

5.3 Practical management of currency flows

5.3.1 Netting
The empirical findings showed that SCA’s uses of netting to a certain extent. Even though they did not try to find an equivalent part for every transaction, SCA has an overview of the flows via the cash pool systems and when opportunity occurs, netting is practiced, usually by
internal swaps. The risk related to the remaining cash flow instead treated by the cash pool system.

5.3.2 Matching

Referring back to the section about translation exposure, SCA is trying to minimize the exposure of having subsidiaries operating in different currencies. Table 4.2 visualizes the difference in sales and expenditures in the main operating currencies, and is showing that SCA is a net buyer of the currencies USD and SEK. If those currencies would appreciate, the group SCA would suffer losses, which also implies that the opposite is true for the remaining operating currencies. The reflection is that, though there are large sums, the difference between sales and expenses are relatively small. One could agree that, minimizing net currency positions is definitely practiced by the financial management in SCA, thus relates to theory about matching (Kenyon, 1990, p. 24). The only remarkable net position is in SEK, which could be explained by the historical patterns of being a Swedish company with a lot of capital investments in the main operating country, Sweden. This risk relates to both translation- and transaction exposure and is partly offset by the hedging strategies.

5.3.3 Derivatives

The empirical findings states that most transactions and financial contracts are made OTC, through the bank platform. According to Stengard, this is because the OTC market is large and liquid they could obtain customized contracts to fulfill their specific needs. The only exchange traded products they use is interest bearing bonds. Randall (2008) stated that the liquidity could dry up on the OTC market, which is nothing that Stengard mentioned as a particular issue.

The financial management of SCA is currently reducing the use of options due to the relatively high volatility on the market, which relates to the probability of the option being exercised, thus implying a higher than usual cost (Bain et al., 2008, pp. 433-449). This is also the only issue being considered related to the recent economic recession. Understood from the interviews, no radical changes or intensified hedging activities on SCA have been made. A contradictory reasoning to Carter (2009, p. 1) who implies that investor both are more observant and more willing to hedge in times of volatile markets.

According to Stengard, using options is mentally an advantage to maintain a position in a currency by holding a put/call, and thereby have a choice of withdrawing from the transaction. The managers with risk mandates are the only allowed using this type of derivative.

At SCA Finans, swaps are the single most used instrument for hedging, because of its usage in managing the debt portfolio. SCA uses swaps to shorten the length period of the interest payments, which means shorter duration on the loans and thereby less interest rate risk. This way of adjusting maturity is supported in theory as one of the services provided by the use of swaps, without the swap itself having any monetary value (Eiteman et al., pp. 279-280). Swaps could also be a supplement to forward contracts, in the sense that if the forward hedge fails, a swap could be used to change the expiration date of the hedge.
At SCA, Forward contracts are the main instrument being applied to hedge currency fluctuation related to the subsidiaries’ balance sheet. It derived that futures was not particularly useful for SCA. The main reason for not using futures is because of the standardization of fixing days and price. According to theory one of the main advantages with futures is because of its standardization and also transparency which makes the process of comparing prices of easy (Srinivasan, 2009, p. 4) SCA simply compare prices through the bank platform and then picks the cheapest rate available. There are similar arguments in theory, that futures are not that useful for large firms (Eiteman et al., 2001, p. 117).
6. Conclusion

This chapter contains a concluding discussion of the most interesting and important topics and how the researchers reflect to the initial purpose and problem statement. An assessment of the truth criteria’s and suggestions for further studies is included to help the reader evaluate the study.

6.1 Concluding discussion

The aim of this study was to give a more profound understanding of the currency risk management in a multinational company. The study interprets the actions of the currency management on Svenska Cellulosa AB and visualizes the risks the company is exposed to. Companies can have policies, guidelines and framework for managing risk, but ultimately it is the risk manager who directly controls the risk assessment. There is no single approach to this, thus the responsibility ends up in the hands of the individual and his or her perception of risk. Due to market imperfections, fluctuations and the general financial climate, the attitudes towards risk can alternate with time and economic global changes.

The awareness of the currency risk exposure at SCA is foremost shown by the way subsidiaries report their anticipated future cash flow, for each currency, to the central finance function. This enables the financial managers to get an overview of and indentify which currency exposure that needs to be assessed and managed.

Transferring the responsibility and gathering the monetary assets to the central finance function enables the company to benefit on practical economic factors, such as synergy effects and economies of scale. The centralization also creates strategic opportunities regarding currency flow management. For a multinational company of the magnitude like SCA, to centralize has its obvious advantages. However, there must be a borderline where centralizing would not be regarded as beneficial for example when a company either is not large enough, or where policies and currency strategies interferes with concerns about fluctuations.

The method for managing the currency flows to reduce exposures is minimizing the imbalance between surplus and deficit for each currency. This is made through processes such as netting and matching. A higher degree of matching currency flows would imply a decreased exposure and thus a lesser need of hedging through derivatives. Due to extensive operational costs compared to sales in SEK, an imbalance occurs, and SCA is thereby mainly exposed to the fluctuation of this currency. SCA originates and has mainly Swedish ownership structure. Reallocating the business in order to reduce the imbalance would probably be strongly opposed, thus hedging the SEK would be a sounder alternative.

Company policies, strategies and restriction construct a framework in which the financial manager responsible for hedging is enabled. The framework of SCA must be considered to be fairly wide, leaving the interpretation and risk managing in the confidence of the manager. There was a feeling that the financial manager at SCA Finans felt secured in his profession, trusted by the organisation, and provided with the proper instruments for conducting his working tasks. A dilemma regarding hedging is that even though it might have a negative
impact on companies like SCA, the impact is not necessarily a result of bad management. On the contrary, a perfect hedge implies that all possible gains from a currency fluctuation would be resulting in a total of zero income, due to the hedging purpose. This makes the evaluation of the currency managers a difficult task, and a reason why there are so many different views on the idea of hedging. It also affects the currency manager in the way that the benefits of hedging are not clearly visible, when it only diminishes the fluctuation of the Group’s total earnings. Figuratively, this implies that the result of the hedging either reduces a suffering or reduces a success, none of them really satisfactory in the end.

In terms of predicting the market, the managers of SCA Finans feel that they possess the knowledge advantages and some degree of positive risk attitude, since they choose to hedge currencies differently, sometimes with dissimilar hedging instruments, depending on the personal perception of risk to the specific currency. SCA still has company specific strategies and limitations, such as the requirement of hedging of subsidiaries’ balance sheet. In terms of risk, this strategy reduces translation exposure, which in accounting terms means a higher degree of fairness, when evaluating and comparing different subsidiaries.

### 6.2 Truth criteria

To be able to evaluate the quality of a qualitative study, the research has to fulfil some criteria. When assessing qualitative research, Bryman argues that there are concerns regarding how relevant the criteria actually are. Especially validity, which primarily targets the issue of measurement, would have little bearing on qualitative studies with focus on a deeper understanding (Bryman and Bell, 2007, p. 410). There are severe restrictions on making generalisations of the population when conducting a qualitative research using semi-structured or unstructured interview (Saunders et al. 2007, p.319). This is especially true for a case study strategy (Bryman and Bell, 2007, p. 63).

**Reliability** refers to if information collected for the purpose of a study would result in the same findings no matter who is investigating it, or if another researcher would study the same thing and identify comparable conclusions. (Saunders et al., 2007, pp. 609-614)

One can also distinguish between the external and internal reliability, where the former refers to the replicability of the study, and the latter to the situation when there is more than one researcher and whether their results concur with one another (Bryman and Bell, 2007, p. 410).

This research could be replicated only to some extent, by repeating the procedures of it. Bryman and Bell argue that this is nearly impossible to apply to a qualitative study, since the social surroundings will have changed and that will have impact on some of the respondents’ answers (ibid., p. 410). Throughout the study it has been argued that managers’ perception of risk is a subjective concept and could alternate with time and external influences. This addresses and complicates the issue of *external reliability*.

Since that there are two authors of this thesis, the interpretation of the answers is authenticated by verifying that both authors perceived provided answers in the same way. Both researchers were present at the interviews and took notes. By comparing the answers and
following up with e-mail correspondence if something was indefinite, the internal reliability should be assured.

Validity refers to the degree of accuracy that the data collection method is measuring what is meant to be measured, and also to the extent the findings from the research actually describes what they are meant to describe (Saunders et al., 2007, pp. 609-614).

As this research is conducted as a qualitative case study, the ability to generalize from the conclusion from this research is not crucial. The study exemplifies the situation for financial managers at SCA, and the researchers cannot say that the findings could be generalized because it merely describes this unique case situation. The characteristics of multinational companies vary from one entity to another, and thereby weaken the external validity, a concept which according to Bryman and Bell (2007, p. 410) would include the ability to generalize the results between social entities or environments.

Since the transcribed data was validated by the respondents, the perception of the data collected from the interview should be accurate. The interpretation of the data could, however, render in subjectivity to some extent, perhaps due to idealizing the interviewees, from the authors. The application of the empirical findings to the existing theories refers to the internal validity. The researchers try to constantly reconsider the statement made by the interviewees, who have a fairly subjective approach to amounts and numbers. For example, the researchers perceive Stengard being relatively unconcerned when talking about spot transaction amounting to 10,000,000 SEK.

Triangulation is defined by Saunders et al.(2007, p. 614) as “the use of two or more independent sources of data within one study, to make sure that the data are telling you what you think they are telling you”. The credibility of a qualitative study could be improved by the use of triangulation to address the research question from different angles (Svenning, 2003, p. 93).

This study utilizes triangulation to ensure that the data obtained from the qualitative interviews is valid in the way they cohere with the data collected from the SCA’s annual report. This will mainly be utilized in topics concerning organisation structure and policies.

6.3 Suggestions for further research

While doing this study, several issues have been thoroughly discussed and reviewed. This generated ideas for further subjects of research and new areas of interest for the researchers. To be able to draw wider conclusions concerning risk management, an analysis with more similar companies involved could engender interesting results. It could also be an idea to look at how risk management at SCA differs from for example that of a Finnish forestry company, which uses Euro as its home currency. The currency risk aspect probably differs between companies in different countries, to some extent.

Another suggestion for future research is to develop a method to evaluate the results of hedging and financial management. Except for the loss limit, there are really no restrictions for the hedging methods. If the hedges are generating positive results, SCA as a group is generally negatively affected. Thus another question arises. How to assess and evaluate the result of currency hedges for a company?
The authors saw many beneficial objectives for a multinational company to have a centralized finance function, and indeed it resulted in positive result, but what are the actual operating costs? Rent expenses, salaries, office supplies, computer programs and trading derivatives all add up to an extensive sum of money, and what are the opposite opportunity costs relating to the decision of having a decentralized organization? Related to this issue, a study of how expanding companies determine when benefits from centralizing exceed the decentralized organization, and what factors that influence this decision, could be conducted. Is it when a company opens a subsidiary abroad, or is it the number of currencies it is dealing with?
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2009-03-11, Fredrik Lindvall, SCA Obbola AB, Obbola, Sweden
2009-04-28, Ulf Stengard, SCA Treasury, Stockholm, Sweden
Appendix 1

Interview guide
Unstructured Interview – Topic-based

Interview with Fredrik Lindvall, Head of Finance at SCA Packaging Obbola AB.

Obbola 2009-03-11

Heading 1: Organization
Under this topic we want to address issues as:
We want to know what they do on the finance department in Obbola and what they leave to interbank SCA Finans in Stockholm? How you cooperate with each other? What is your view of having a centralized finance department? How does money flow between the different parts of organization?

Heading 2: Purchasing and Sales Policy
Under this topic we want to address issues as:
What is the role of SCA Obbola? What currencies are used for buying or selling? What timeframe are the purchase / sales contracts, delivery payments and investments?

Heading 3: Risk
Under this topic we want to address issues as:
What is the guidelines from the group in terms of managing currency risk?

Heading 4: Swedish krona
Under this topic we want to address issues as:
The advantages and disadvantages? What is your approach to reporting and decision making because of the Swedish krona?
Appendix 2
Interview guide
Unstructured Interview – Topic-based

Interview with Ulf Stengard, Senior Dealer Foreign Exchange, SCA Treasury
Stockholm 2009-04-28

1. Organization

Under this topic we want to address issues as:
- SCA Finans role in the organization
- Pros/cons with centralized monetary management
- At what level are decisions made?

2. Policy and Strategy

Under this topic we want to address issues as:
- What risks are identifiable in advance? How to measure your risk (group and individual company level)? The reported risks? Different attitudes to risk in different parts of the business?
- Any strategies?
- What's your view of hedging?
- Decision scheme, responsibility and delegation of tasks?
- Any restrictions? Speculation? How about arbitrage?
- Any changes in policy on the financial crisis, or in low / high economic cycles?

3. Currency flows

Under this topic we want to address issues as:
- Currency Portfolio, borrows up the deficit in any specific currencies?
- External currency flows (banks, suppliers, customers)
- Internal currency flows (other SCA companies, cash pool, Netting)
- Loans / investments (the maturities, the currencies)? Spread?
- Matching (the adaptation of in-and outflow of capital)?
- Netting, internal adjustment of currency flows between companies, how does it work (for example)?

4. Derivatives

Under this topic we want to address issues as:
- What are the different instruments are allowed to be used? To what extent these are used?
- Examples of how you use them?
- How do you make predictions for exchange rates? Forecasting?
- Hedging? Accounting affects your trading?

5. Risk & exposure

Under this topic we want to address issues as:
- Identified risk and exposures?
- Transaction Risk - Translation Exposure - Economic exposure - Interest rate exposure