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Managing a Credit Portfolio
A pilot study for Sandvik AB

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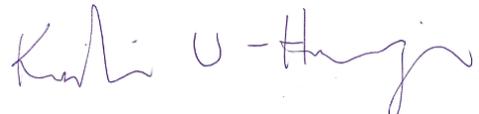

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Abstract

Title: Managing a Credit Portfolio – A pilot study for Sandvik AB

Course: Bachelor Thesis, Business Economics, 15 ECTS-Credits in Finance

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Background: If a company does not have an optimal model for credit portfolio management they can face difficulties if they cannot forecast how the credit portfolio will behave during recessions. It can be explained with the fact that the management for the company might ask how the department forecasts a probable default within the credit portfolio. The senior management might want to know how the management for the credit portfolio measures how big credit losses can become. They might also want to know how it is possible to reduce the risk of big credit losses. The key factor in this type of questions is how it is possible for a company to forecast a default.

Purpose: Our purpose is to make a pilot study where we bring out the components that are necessary for the creative of an optimal model that is applicable on Sandvik's credit portfolio.

Method: For the collection of empirical data, we used a qualitative method. The qualitative method was based on interviews with respondents from Scania Financial Services, Volvo CE International and Swedbank. In addition, we had discussions with our "employer" Sandvik about their credit portfolio management. We analyzed the empirically gathered data with a hermeneutic perspective.

Conclusions: Sandvik has a credit portfolio with many small companies which imply that it is a high risk portfolio. For that reason we brought out components that are necessary for their credit portfolio. The components we brought out were by a comparison between the theory and our cases. The components are following: parameters within country assessment, customer's customer, payment history and payment behavior, judgement of customer's management, utterances from the management, investment plans, cash flow analysis, stable earnings, key performance indicators, profitability, future forecasts, balance sheet analysis, legal situation, business expertise and securities.

Contents

1. Introduction

The introduction provides the reader with a presentation of the chosen research object. It will go through the background, the motivations to why the subject was chosen and also the purpose of this thesis. In addition, we describe the disposition of this thesis. The reader will be able to see what is included in every chapter as well as an explanation to why our thesis is designed like it is.

1.1 Background

Swedish multinational corporations (MNCs) have worked towards an international market during decades. A lot of these (MNCs) have had the opportunity to build financially strong funds thanks to several years of billion profits. According to Peel et al. (2000) small companies are in need of more short-term credits, as compared to large companies. However, an affect due to today's economic downturn is that small companies have problems with funding for their investments. This will in turn affect the multinational corporations (MNCs), from whom some of the small companies usually buy or invest.

A company with solid credit rating can usually borrow capital without any problems. This can create a competitive advantage if the company takes advantage of the opportunity to fund its customers' investments. In normal cases, the customer can discuss the funding with the company. There are several alternatives to fund their customers' investments. The most common alternatives are financial lease or operational lease, where the customers lease the product (e.g. drilling machine). The MNCs operates in an international setting and to facilitate for their customers the MNCs usually have finance companies in their core markets working with this kind of questions.

The multinational corporations who fund its customers' investments usually fund this by borrow money to a specific interest rate. The MNCs need to profit from the deal. Thus, they make a deal which will benefit themselves by lending to customers to a higher interest rate. However, the higher interest rate comes from a need to pay the costs (costs in terms of rent, employees, administration etc.) to have a department dealing with this kind of financial solutions.

Furthermore, the departments within the MNCs working with funding their customers' investments have different goals. One company can work in a niche market which means that the company probably will only fund customers with same type of risks. The finance company's goal can also be to support the sales of the group. However, as mentioned before, the MNC will probably demand a higher interest rate compared to the interest rate they borrowed to. This will affect the customers that are borrowing. The only customers that are willing to borrow to a higher interest rate are the customers who are not bankable. They do not fulfill the requirements from a normal bank, which also means that it is a high risk customer or that the bank has tightened its credit policy. Imagine a MNC with only high risk

customers in the credit portfolio. The management of that credit portfolio needs to consider several risk perspectives and be able to overview the credit portfolio on an aggregated level.

Consider another MNC, a corporation operating in a global market with customers in different lines of businesses. The MNC has several finance companies around the world and the customers either lease or hire purchases the product. Thanks to several lines of businesses this type of MNC will not face as many risks as the one described earlier. However, perhaps this kind of finance company will have another goal. The finance company's goal is to be profitable and they only fund their customers' investments if they can make a profit from it. A finance company working with the goal of being sale supporter might not have the same demand.

There are several MNCs possessing the competitive advantage of funding its customers' investments, e.g. General Electric with its GE Money Bank, Volvo, Sandvik, Ericsson, Scania and Atlas Copco. In the different departments this kind of business is usually called customer financing (Fullen, 2006).

1.2 Problematization

A multinational corporation, with customer financing, can have several financing companies around the world, depending on where the main market is. It is important to get an overview on an aggregated level for the credit portfolio. It can be hard to achieve that if you have several risk profiles.

A company that is listed on the stock exchange has to come up with answers for their actions. Imagine if a risk manager would get a question from a stockholder that asked him or her if the future was stabile or if the credit portfolio would make a terrible year. If the risk manager would not manage to answer that question in an acceptable manner, the stockholder would probably wonder if the risk manager knew what he or she was doing. Nobody can forecast the future, but it is important to have a hint on what is to come. It is especially important in the case where the company is listed on the stock exchange. The risk manager must be able to explain the credit portfolio in an understandable and reasonable manner. In difficult times this is a key factor to assure the stockholders about the stability of the credit portfolio.

If a company does not have an optimal model for credit portfolio management they will come up against difficulties if they cannot forecast how the credit portfolio will behave during recessions. It can be explained with the fact that the management for the company might ask how the department forecasts a probable default within the credit portfolio. The senior management might want to know how the management for the credit portfolio measures how big credit losses can become. They might also want to know how it is possible to reduce the risk of big credit losses. The key factor in this type of questions is how it is possible for a company to forecast a default.

A company without answers for the type of questions asked above can get defaults for some of their credits. In a worst case scenario, the management of the credit portfolio is not able to answer why it happened and how the company could have forecasted it. The company will lose money, even though they might reclaim their machine. A division working with this kind of business needs to have access to information about the credits in a way that it is possible to make forecasts. They should also be able to describe the portfolio in terms of risk. From a risk manager's perspective, this is an important part. He or she should be able to make an aggregated statement about the credit portfolio. This will eventually satisfy the division, the management and also the stockholders.

If a MNC is taking the roll as a lessor, they might face some difficulties and risks. Imagine a customer who is willing to lease the product and later on get the opportunity to buy the product. This is what we call financial lease (Ross et al, 2008). If the customer is not willing to buy the product after the lease, the MNC can reclaim product. In worst case, with a lower value compared to the market value (Culp, 2002). The customer does not face any residual value risk as the lessor does. In other words, the customer has no incentive to maintain the future value in the product by maintaining good service.

However, the residual value is often uncertain. The risks are therefore also greater and more evaluation is needed. The lessor can reduce the uncertainty by insuring the residual value. Nevertheless, the lessor faces costs and risks with the residual value risk.

Credit portfolio management is frequently used by the banks. It is important to remember that the banks naturally get a diversification from their large circle of customers. MNCs can in some cases only have customers from a specific line of business. The risks are therefore different and considered to be higher when it comes to credit portfolios in MNCs. Our thesis will investigate the credit risk assessment from a point of view that is different. We are not going to deal with bank's perspective; rather we are going to deal with Multinational Corporation's perspective, which has not been investigated thoroughly.

The area described is important because of the requirements from the management and above all, from the stockholders. It is interesting because of the improvements that are possible to make. During recessions, it is important to have credit control on an aggregated level and being able to describe the credit portfolio in terms of risk level.

1.3 Purpose
Our purpose is to make a pilot study where we bring out the components that are necessary for the creative of an optimal model that is applicable on Sandvik's credit portfolio.

1.4 Delimitation

Our thesis will investigate the credit management from a different point of view. We are not going to deal with bank's perspective. Bank's perspective is the most investigated area within the field. Rather we are going to deal with a MNC's perspective when it comes to bringing out components for an effective credit management process, which has not been investigated.

1.5 Disposition

We chose to divide the thesis into the following chapters:

- **1) Background**

The introduction provides the reader with a presentation of the chosen research object. It will go through the background, the motivations to why the subject was chosen and also the purpose of this thesis. In addition, we describe the disposition of this thesis. The reader will be able to see what is included in every chapter as well as an explanation to why our thesis is designed like it is.

. **2) Methodology**

The methodology describes the procedure of our thesis, how we analyze the information and how we collect the data, e.g. from already existing data-material or perhaps a personal interview where we analyze the respondents answers. It also describes what scientific perspective we decided to use.

- **3) Theoretical framework**

In this section we describe previous studies but also suitable subjects for our thesis. The theoretical framework has the shape of a funnel; starting from the wider (general) part and going towards the narrower (important) part. Firstly, we introduce the reader with general subjects within the area of customer financing and leasing. Secondly, we give the reader a narrower introduction to different areas of risk and thirdly we provide the reader with the most important theories about credit risk management.

- **4) Cases**

In this section we provide the reader with the results from our three cases. The cases describe how respective company works with credit portfolio management and credit assessment. The cases are Scania Financial Services, Volvo Construction & Equipment and Swedbank.

- **5) Sandvik, analysis & components**

In this section of the thesis we let the reader get familiar with our "employer", Sandvik AB. An overview of the company and their credit management is provided. We also chose to provide the reader with our analysis of the theory and cases that eventually will result in components for a credit portfolio model.

- **6) Conclusion**

This section will provide the reader with our conclusions from this thesis as well as proposals for future research.

- **7) List of references**

This thesis is designed in such a way so that the reader can follow the development better. We chose to separate the cases from Sandvik because we thought that it would not confuse the

reader. Putting Sandvik together with analysis and components instead of cases will be more consistent. In order to provide the reader with better understanding and make it easier to see the connection between Sandvik and the components, we chose to put the analysis together with Sandvik. The theoretical framework and the cases provide the reader with theories and empirical gathered information needed to make an analysis. At the end of this thesis we provide the reader with brief conclusions of this thesis.

In addition, we chose to structure our cases by case 1, case 2 and case 3 instead of different themes. We thought that the companies are different in so many matters that it would not be effective to divide them up into themes like for example "Credit approval process". If we had three similar companies (for example three banks or three companies dealing with leasing) that could be a way to go because it would better elucidate the similarities and differences between the companies. However, our cases consist of one major leasing actor in Sweden, one bank and one company that acts like sales support to customer financing. It means that we have three different perspectives and all of these three companies work in differently. One example is that Scania Financial Services creates portfolio while Volvo CE International does not. Therefore, it would be unfair to compare the companies under themes because the weighting between the companies would be unequal. However, it could have been an interesting comparison but we believed that if we did a contexture of the three cases into themes, it would be too confusing for the reader. In the end of every case, a brief summary of each case is provided so that some comparison can be made easily.

2. Methodology

The methodology describes the procedure of our thesis, how we analyze the information and how we collect the data, e.g. from already existing data-material or perhaps a personal interview where we analyze the respondents answers. It also describes what scientific perspective we decided to use.

2.1 Scientific perspective

The scientific perspective in our thesis is the hermeneutics. Hermeneutics is about "soft data", construing what is experienced. The opposite of hermeneutics is positivism which deals with "hard data" (Thurén, 2006). A metaphor can explain the differences between the two directions. Assume a murder has been committed. A man was shot with two bullets. The investigation focuses on the murder weapon, the bullets and the dead body. Positivism represents this part of the investigation. The other part of the investigation is the hearing, discussing the motives for the murder and similar. This part of the investigation represents hermeneutics. In our thesis, we have chosen to use the hermeneutics perspective because of the fact that we will increase our knowledge by interviewing respondents. There is no "hard data" in our thesis. We have to construe interviews and utterances by the respondents and it is therefore necessary for us to use the hermeneutics perspective to accomplish our aim.

The hermeneutic perspective is about construing texts, to win a valid and mutual understanding of a text (Kvale, 1997). In our thesis we have interviewed four persons and construed the meaning of their utterances. Within hermeneutic there is a difference between construing texts and construing interviews. The literature (text) consists of well-written and highly concentrated expressions for meaning. The texts are "exceptionally" texts. Construing interviews is more complicated, the researcher needs to construe the meaning of the utterances. Sometimes the researcher needs to further explain the statement the respondent did. Hence, there is a possibility that the researcher might miss a vital part of the statement. (Kvale, 1997)

When we construed the interviews it was necessary to construe the texts in a way which made it possible for us to "discuss" with the text. We sat down with the respondents one by one and basically construed the utterances in two steps. Firstly, we had to concentrate on the moment when we interviewed the respondents, in order to ask follow-up questions and understand the meaning of the utterances. Secondly, we had to map their working processes and construe the utterances once again.

Construing is the process which leads to understanding (Lindholm, 2001). To get an understanding for the entire picture in our thesis it was necessary for us to construe the vital parts within the area. We had a blurred picture in our minds about how the final work would look like. If we would not have the blurred picture in our minds it would be difficult to make the thesis. We cannot understand anything without prejudice (Thurén, 2006). In hermeneutics

it is said that the researchers should have knowledge about the theme to be able to perceive the shade of meanings in the expressions during the interview (Kvale, 1997). When we decided the structure in our thesis (interview, analysis, components etc.) it was necessary to increase our understanding for the area. We read literature, journals, theses and working papers to increase our knowledge. It helped us with the basic knowledge and during the interviews we had the knowledge to be able to perceive the shade of meanings in the expressions. During the interviews with Sandvik, we started to better understand the differences between the texts that we read and the real world work. Before we started working out our questions for the interviews we had a prejudice about their answers. Sandvik was the contributory factor for this. The interviews gave us even more knowledge and better understanding because we had the opportunity to talk openly with persons that had knowledge within the current area.

In hermeneutics it is common to talk about the ensemble between vital parts and the totality (Lindholm, 2001). The ensemble between parts and totality has been honored with a special expression in hermeneutics. It is the hermeneutic circle, a picture of how thinking, understanding and construing function (Ödman, 2007). During our interview moments we constantly used the "ensemble-thinking" by comparing one respondent's utterance with the total construing of the interview. We also compared the respondents' utterances with our blurred picture of the final work. The process of the ensemble continued throughout our whole work.

To make this clear for all the readers, we can tell a metaphor that everybody probably can relate to. Imagine the researcher as a puzzler and the thesis as a puzzle. In the beginning are all the pieces just parts which in the end will contribute to the totality. After a little while the puzzler starts to see similarities between the pieces. After a few pieces are fitted together, he starts to compare it with his picture of the totality. He processes the pieces and ponders how they will contribute to the totality. In other words, he constantly compares the pieces with the totality, an ensemble. Without the ensemble it would be impossible to reach the goal. When the last piece falls into place, it is possible to see the true totality (Ödman, 2007). Every piece has its purpose. Our work throughout the thesis has been exactly like the puzzle-metaphor. To reach our goal, it has been necessary to have an ensemble between the vital parts and the totality.

2.2 Choice of path

In our thesis we will investigate the credit portfolio management at a multinational corporation level. We have interviewed people with valuable information within this area and thereafter analyzed the information. In the methodology literature there are, above all, two directions to choose between. One of them is quantitative data, where the author of the thesis collects information through analyzing several numbers (e.g. how many companies use net present value as a company valuation method). The author do not analyze why the companies use the company valuation method, the method only verify the facts from the survey (Creswell, 2008). The other method is qualitative data, where the researcher analyzes the

collected information (e.g. interview the managers and ask them why they prefer one company valuation method in front of another).

Our study is about collecting information from several interview objects. To accomplish our goal, the use of quantitative data is not useful. To base our study on surveys for example would not provide us with the facts and information that we need. The preferable one for us is the qualitative method. Therefore, we have chosen to work with qualitative methodology. In order to come up with our final result we will look at the existing literature within this area and the interviews we have done throughout the thesis. Our aim with this is that we will bring out the best components from respective area and hopefully come up with relevant components for a preliminary model applicable at Sandvik's credit portfolio.

The choice of respondents was made through discussions with Sandvik. We discussed proposals of potential cases. However, we ended up with Scania Financial Services (SFS) and Volvo Construction Equipment International (VCE Int.). In addition, Sandvik provided us with contacts (numbers and e-mails) at the mentioned companies. Information about these companies is explained in the empirically part of the thesis. We decided that the companies would work as cases in our thesis. In addition, we decided that it was necessary to visit the companies in order to get a complete picture of their work (Sandvik in Sandviken, SFS in Södertälje and VCE Int. in Eskilstuna).

Furthermore, we decided to contact Swedbank in Gävle to investigate how they work with credit portfolio management. This decision was made after the visits to SFS and VCE Int. The reason is that we wanted to get another input in our "cases-part" in the thesis i.e. another perspective. We hoped that Swedbank would provide us with valuable information about their work and the area. We considered more inputs as positive for the trustworthiness in our thesis. In addition, our prejudices told us that it did not matter which bank we would contact. In the beginning of our thesis we read theses dealing with banks credit management and our conclusion was that the banks practically used similar credit models. Therefore, we chose Swedbank randomly.

The qualitative method (interview) is characterized by the closeness to the research object (Creswell, 2008). It is a situation where you need to understand where individuals, groups or organizations situate themselves in. It is then necessary to try to get closer to them (Holme et al, 1986). In our case we needed to get an understanding of the management for a credit portfolio. We got this understanding from our interview objects. In one case we had lunch with the respondent (R1) and in the second case (R2) the respondent demonstrated their machine park. In addition, he served us with coffee and cookies. Nevertheless, it is necessary to establish a close relationship with the responder (Cooper & Schindler, 2003).

The strengths with qualitative method can best be described with examples of when the method is suitable. It is suitable when it comes to understand the meaning of an area, identifying unanticipated phenomena and influences and finally it is suitable when the authors need to understand a complicated process (Maxwell, 1996). Our purpose with the interviews

was to understand the respondents' thoughts on managing a credit portfolio. We definitely needed to understand the complicated processes they were dealing with. In other words, the strengths of qualitative method satisfied our needs.

2.3 Interview

An interview can be performed in different ways, via telephone, face-to-face or via e-mail questions (Cooper & Schindler, 2003). In our thesis it was necessary to achieve a close relationship with the responder, so that he or she could be transparent and open about their management. Hence, we chose the face-to-face direction. We did that for a couple of reasons. It would allow us to ask follow-up questions and the respondent could use necessary equipment. In a telephone interview it is also possible to ask follow-up questions but you will not get the same contact as you get through face-to-face interviewing. One reason for that is that a telephone interview might be viewed as less-confident. The respondent cannot see the interviewer and they cannot have eye contact. For us it was easier to achieve a close relationship using the face-to-face interaction. The disadvantages with telephone interviewing can be viewed as the advantages with face-to-face interviewing (Creswell, 2008). That is also the reason for our choice. We wanted to have the possibility to look the respondents in the eyes and thereby get a better contact and hopefully infuse trust.

2.3.1 Personal interview

A personal interview (face-to-face) is a two-way conversation initiated by an interviewer to obtain information from a participant. They are typically strangers and the interviewer generally controls the topics and patterns of discussion (Cooper & Schindler, 2003). Throughout the working process we have interviewed and discussed credit portfolio management with several respondents. At an early stage it was important for us to understand how Sandvik works with their current credit portfolio management. Through presentations and "question and answer-sessions" they have provided us with this information. It was their way of controlling the agenda. Further down in this thesis we will go through the interview process in detail.

We called the persons and asked them respectively if they could take the time to describe and explain how they worked with credit portfolio management. They accepted the inquiry and thereafter we e-mailed them the "main-topics" of our coming visit. We clearly told them that we did not want the interview to be a structured one where we in detail asked the questions. They fully understood this and agreed with us.

It is also possible to interview the respondents in different ways. One way is where the interviewer writes down a couple of questions for the responder and thereafter let the conversation develop in a direction which benefits the interviewer's perspective. It is also possible to ask open questions where the responder decide the outcome, easily explained, and the interviewer allow him/her to let the conversation develop in an "not decided in advance"-way. (Cooper & Schindler, 2003)

We considered ourselves having limited knowledge in the area compared to the managers working with this. We therefore decided to ask open questions and let the respondents lead the discussions. However, we wrote a couple of "open-questions" in our e-mail and told the respondents that the questions were a hint on what we were interested of. If you e-mail the respondents in advance you will be perceived as a structured person and that infuses trust (Forssell, 2007). As mentioned earlier, we considered trust to be important and an e-mail could lead us in the right direction. It also provided us with the opportunity to briefly explain our purpose with the coming interview. The respondent then had time to prepare answers.

When we came to their offices we started by explaining our intensions with the thesis and the purpose of our visit. We checked the meeting agenda and after that the respondents had prepared a presentation of themselves, their role in the company and their areas. With help from the background information the presentation gave us, we increased our understanding of what follow-up questions we needed to ask to finally reach our goal with the interview.

As mentioned before, we e-mailed the respondents before the meeting. However, they construed our goal with "open discussion" differently. One of the respondents (R1) had prepared a complete presentation where we received answers to "all" our questions. He had worked with this for over a decade so he probably knew what kind of answers we were looking for. Albeit, he answered all of our questions without us even asking them, we came up with follow-up questions thanks to his presentation. The other respondent (R2) gave us a short presentation of his area. Thereafter we had more of a discussion compared to the other interview. However, this respondent could not give us all the answers we were looking for.

Volvo Financial Services (equivalence to SFS and Sandvik Credit) is situated in Göteborg. We tried to get as close to them as possible within their area. With the result in our hands it can be said that we did not fully succeeded and we did not get the results we were hoping for (more of this in the empirically part of this thesis). We can therefore point out that it was not the respondent's fault that he could not give us all the answers we were looking for. Each interview lasted approximately two hours, mainly because of the discussion part.

After the interviews with the respondents we decided to put most weight on Scania. Scania Financial Services is one of Sweden's most prominent departments and they provided us with most valuable information. Volvo CE International works differently compared to Sandvik Credit and Scania Financial Services. In the end, we realized that it would not be fair if we put as much focus on each case. It would not be a benefit for our thesis. Scania Financial Services can be viewed as our main case. Swedbank and Volvo CE International can be viewed as our "addition cases". Hopefully, this will be clearer later on in the thesis.

2.3.2 Participant motivation

The interviewer can do little about the information that the participant provide the interview with. However, the interviewer can explain what kind of answers is sought, how complete they should be and in what terms it should be expressed. When we had e-mail contact with our participants we wrote down our purpose with the interview and what kind of answers we

sought. We did that to be sure that he was the right person to talk to. By doing so we also increased participation from the participant. Participant motivation is a responsibility of the interviewer. Studies of reactions to many surveys show that participants can be motivated to participate in personal interviews and even enjoy the experience (Cooper & Schindler, 2003). We tried to accomplish this by telling the participants that they would receive our final result and thereby perhaps get another perspective on their working area.

2.3.3 Participant receptiveness
It is important to remember that what we do or say as an interviewer can make or break a study. Participants often react more to their feelings about the interviewer than to the content of the questions. Furthermore, it is important to ask the questions properly, record the responses and probe meaningfully. The absolutely first goal in an interview is to establish a friendly relationship with the participant. Three factors will help with participant receptiveness (Cooper & Schindler, 2003):

- The participant must believe that the experience will be pleasant and satisfying.
- The participant must believe that answering the survey is an important and worthwhile use of his or her time.
- The participant must dismiss any mental reservations that he or she might have about participation.

A lot of these factors depend on the interviewer. Generally, participants will cooperate and be transparent with an interviewer whose behavior reveals confidence and who engages people on a personal level (Cooper & Schindler, 2003). Early in our study we tried to establish a close relationship with our participants. For instance, we ate lunch with one participant (R1) and thereby started our meeting with a common conversation. We can point out that it was the participant who came up with the proposal for lunch. So, our relationship had a good start and he exceeded our expectations.

To convince the participants that it is important to answer and discuss our questions, we explained the purpose of the thesis. It is the interviewer's responsibility to discover what explanation is needed and to supply it (Cooper & Schindler, 2003). To fully satisfy the respondents we told them that we would send our summary from the interview to them for their approval. This probably made them even more receptive and transparent about the information.

2.4 Gathering the data
There is a technique of stimulating participants to answer more fully and relevantly. In method literature it is called probing (Cooper & Schindler, 2003). However, the phenomenon is also mentioned in trust-based selling. To achieve trust in a selling process, there are several techniques to adopt and these techniques are much like probing (Green, 2005).

Let us exemplify the probing part by go direct into the parts that an interviewer should adopt to achieve a successful interview. With comments like "I see" or "Yes" the interviewer can

tell the participant that the interviewer is listening and is interested in more (Green, 2005). You "think" high instead of keeping your thoughts in your head (Green, 2005). If you do not understand the answer from the participant, say so and do that for instance by saying "I am not quite sure I know what you mean by that, can you tell me a little bit more about it?". This will point out that when you do not say "I do not know", you understand the answer. It also says that you are open and not embarrassed of telling the participant that you do not understand the answer (Cooper & Schindler, 2003). During the interviews we used terms like "I see, yes, I am not sure what you mean". We were honest with our comments and told the responder that we did not understand when we did not. An example can be taken from our interview with VCE Int. We told the responder that we did not understand what he meant. He responded to our utterance by exemplifying and further explaining his statement. Our perception was that he apprehended our utterance in a positive way.

If you expect the interview to last for an hour or two, it will be difficult to write down every answer and comment to your question. You will see that it will be difficult to catch the punch line in the participant's answers and it will also be difficult to remember every little detail in the discussion. Therefore, we decided to record the interviews. It helped us to focus on the respondents. If you record the interview you will record the responses as they occur. If you wait until later, you lose much of what is said. The tape recorder increased our attention and we truly listened to what was said and not just focused on the words. With this technique it is easier to follow up an answer with a quick question, otherwise you are kept with your thoughts on what they said and really meant by that explanation (Cooper & Schindler, 2003). During the interviews we noticed that it was much easier to ask follow-up questions thanks to the tape recorder. In addition, we could focus on the presentation and the discussion we had with the respondents instead of being afraid that we would not succeed to write down every important utterance.

When you record an interview it is important to ask the participant for approval in advance. If you put the recorder on the table without asking if it is acceptable, you will probably hurt the relationship (Flick, 2006). We asked our participants in advance and their reaction was positive. We chose to use a tape recorder thanks to all the advantages. As we can see it there are no disadvantages accept one. If the participant looks at the recorder or behaves nervous it can be a sign of that he or she is thinking of how the words come out. This little disadvantage should not appear if you have asked the participant in a polite way. The participants usually forget about the tape recorder after a while. Therefore they will behave like the interview was not recorded, word by word. Our perception was that the respondents were relaxed. They did not focus on the tape recorder, indicating that they were not seeing the tape recorder as an annoying thing.

Gathering data by personal interviewing might have some disadvantages. One obvious is that it is costly (Cooper & Schindler, 2003). If you plan a trip to the participant it will cost you both money and time, due to repeated contacts (a need to decide time, place and also write down an agenda, purpose, aim etc). When we contacted SFS and VCE Int. we knew where their offices were located. Nevertheless, we decided to visit them. The information would

outweigh the eventually transport costs. However, we asked Sandvik if they could contribute to our transport costs. They accepted our inquiry. The costs have therefore not been an issue for us.

With a personal interview you have to decide a meeting day that works for both you and the participant. We asked the respondents when they could meet us and in all cases there were no problems with deciding a meeting day. Therefore, the theoretical disadvantages with personal interview were not disadvantages to us. We solved the potentially disadvantages with the help of our respondents.

To make it easier for the reader to understand how the different companies work with their credit portfolio management we decided to write them in row in the "case-part" of this thesis (case one, case two etc.). The reason for that is that we after the interviews realized that there were perceptible differences between the companies. A presentation of their work would then be more correct and fair in our way of presenting them, compared to a way where we would illuminate similarities and differences.

2.5 Trustworthiness

It is important to be critical even after you have decided to use a method. In this episode we will therefore look at our data from a criticizing perspective with the help of qualitative criteria. Lincoln and Guba (1985) discussed the criteria available and their conclusion was that it was not suitable to use validity and reliability in a qualitative research. Therefore, they came up with the expressions trustworthiness. The aim of trustworthiness in a qualitative inquiry is to support the argument that the inquiry's findings are "worth paying attention to". For issues of trustworthiness demand attention in a qualitative research, these are: credibility, transferability, dependability and confirmability. (Lincoln and Guba, 1985)

Credibility is an evaluation of whether or not the research findings represent a credible conceptual interpretation of the data drawn from the participants' data. In our methodology we tried to describe the performance of this thesis as detailed as possible. In our opinion it will increase the credibility. Transferability is the degree to which the findings of this inquiry can apply or transfer beyond the bounds of the project. In the cases part of this thesis, we have described the different companies and their departments. The respondents approved our description of their working areas. It is therefore possible for another part to analyze and draw conclusions from the same material. Dependability is an assessment of the quality of the integrated processes of data collection, data analysis, and theory generation. We decided to use a tape recorder, this helped us to perceive right information and minimize the risk of losing important information. Confirmability is a measure of how well the inquiry's findings are supported by the data collected. Our analysis and conclusion of this thesis are based entirely on the data collected, from Sandvik and the different cases. Thereafter, it is up to the reader to decide how well the inquiry's findings are supported by the data collected. (Lincoln and Guba, 1985)

As mentioned earlier in the thesis our prejudice in the area was limited. In order to increase our knowledge we read journals, books and workings papers about the area. We also discussed issues with Sandvik and they explained the area. We cannot say that we were "experts" in the area, but one of the interesting things with writing a thesis is to choose an interesting subject. It is also important to choose a subject that you are willing to learn more about. We therefore did not considered it as a disadvantage that we had not dealt with the specific area in earlier courses or similar. To increase the credibility in our work we sent a draft of the interview to the respondents. By doing that we wanted to prevent misunderstandings and "external information in wrong hands".

We decided to interview persons working with credit portfolio management. In order to get the correct information we interviewed the ones that we considered would have the best knowledge within this area. We can point out that we discussed the persons with Sandvik. They came up with proposals of persons within this area. Swedbank was our own proposal and we decided to interview them to increase our knowledge in the area and increase the credibility in our thesis by increase the inputs.

It was also important for us to get another perspective on the area. SFS, Sandvik and Volvo CE work with products (e.g. machines, tubes). Swedbank can be considered as "experts" in the area thanks to their business activity. Their purpose is to sell credit products. Therefore, it was interesting for us to understand how they worked with issues in the area. In addition, the respondents chosen were managers of their divisions. Our expectations were that they would have answers to all our questions and explain the area in an understandable manner.

The technical quality of tape recording can be viewed as an issue. If something is lost in the recordings or if the quality is too bad to hear what the participant actually said, there is no way of recovering the lost data. It can be frustrating to have some badly recorded sections during the interview period, especially if the section contains vital information (Silverman, 1998).

This kind of information issue can be minimized in the planning stage by paying enough attention both to the quality of the equipment and to the arrangements of recording. We had used our tape recorder in previous interviews in other courses. We were therefore pretty sure about the quality in our recorded data. We minimized the risk by writing down a few words in complex areas so we would not forget the explanations when the interview ended. Thereafter, we wrote down the entire interview in a Word document as soon as possible after the interviews. If any data would have been lost we would in worst case have to look at our "few words" notes in our paper. Fortunately, we did not lose any of our tape recordings. The qualities in our data were as good as we had hoped and we could write down the entire interview without any "questions".

2.6 Critical review of method

Starting from the beginning; we can be critical to our choice of "glasses" i.e. our choice of scientific method. Every method has its disadvantages. The disadvantage of our choice of

method is that we can never know if our respondents tell us the truth or not. Thus, we needed to have confidence in our respondents and we also had to take what they said for granted. Because we did a qualitative research, we had to be cautious in how we construed the information we were provided with.

Furthermore, using hermeneutics means that we need to construe the information collected. We chose to use this scientific perspective because it was suitable to our thesis. However, when construing information it is always necessary to be critical about the "construers". In this case, the "construers" are us. Therefore, our scientific method puts the reader in a position where he needs to be critical about our construing. If we would have used another method, it might have been easier for the reader to construe this part.

In our theoretical framework we chose to have a mix between different kinds of references. We chose a mix between books and published journals/articles/working papers on the internet. We thought that this would give us an academic standpoint that is viewed as a reliable source. Books are not as reliable and scientific as published journals/articles/working papers but because of the hard time finding relevant academic sources we had to use books. However, we chose not to use non-reliable internet sources. By non-reliable internet sources we mean personal home pages that anyone could have created and supplied with information.

Another important issue that we reviewed critically is the big focus on one case. We chose to put our focus on Scania Financial Services because they could provide us with the most suitable information. One could be critical to this but because Volvo CE International could not provide us with the "right" information, we therefore chose to get an additional perspective. The additional perspective was the third case, Swedbank. Thus, Volvo CE International and Swedbank were our additional cases and they probably weight up the importance of Scania. We could also have chosen to interview more companies but due to lack of time, it was not possible.

Early in our thesis we decided to work with Sandvik as our "employer". It can be confusing and difficult to take influences and listen to advices from two parts. The two parts we are thinking of are our supervisor and Sandvik. In one way, we can say that we needed to satisfy both parts and sometimes it can be hard to fulfill the demands from both the academic world and the practitioner's world. However, according to our opinion we managed to do this brilliantly. Even though, it is necessary to consider the dilemma when criticizing our method.

3. Theoretical framework

In this section we have described previous studies but also suitable subjects for our thesis. The theoretical framework has the shape of a funnel; starting from the wider (general) part and going towards the narrower (important) part. Firstly, we introduce the reader with general subjects within the area of customer financing and leasing. Secondly, we give the reader a narrower introduction to different areas of risk and thirdly we provide the reader with the most important theories about credit risk management.

3.1 Previous studies

During the preparation period we have tried to search for similar studies and theories to the one that we wrote about. The result of the search was that we could not find anything that investigated credit portfolio management out of a multinational corporation's perspective. However, we could find studies and theories about bank's credit portfolio management and credit portfolio risk (especially in banks). Even though the area might sound the same, it is not. However, Morgan et al. (1996) and Grenadier (1980) says that multinational corporations use leasing in their customer finance operations. Even though many corporations use leasing, we did not find any study that was identical to our. Banks does not finance their customers in the same way, but the credit risk modeling is similar.

Banks will naturally get a diversification from their large customer base. Multinational corporations tend to use their credit portfolio to similar customers and in large scales within the same area (manufacturing, heavy trucks, drilling equipment etc.). Hence, this study is different from other studies within credit portfolio management. The data collection was quite similar with the studies investigating the bank's credit portfolio management. We got some inspiration from existing theory within similar areas (mentioned above). According to the theory it is important to get inspiration from existing literature. Maxwell (1996) says that this can be motivated with the fact that existing literature is legitimate and valuable in qualitative research.

To get inspiration we read articles and papers about credit portfolio risk and the leasing industry. In one way they investigated similar areas. We therefore thought it was necessary to read about it. A lot of the thesis investigating credit risk portfolio and leasing are studies investigating the auto industry or the bank sector. A lot of studies dealing with the bank sector are using modeling of probability of default. According to Müller (2008) probability of default is the probability that customers will not fulfill their payment obligations. It should therefore be possible for us to pick up influences from the bank sector.

One paper by Schmit (2004) presented the first empirical results on the default and loss severity of leases by implementing a non-parametric simulation based on ex-ante and ex-post data on four types of leased assets. The result showed that physical collaterals played a major role in reducing the credit risk associated with lease portfolios. A similar study by Pirotte et

al. (2004) said that the greatest part of recovery risk is diversifiable. Their conclusions were that a wider recognition of physical collateral under Basel II should allow for better reflecting the relatively low-risk profile of automotive lease exposures.

Another study by Rosch & Scheule (2009) stated that financial institutions are faced with the challenge of forecasting future credit portfolio losses. The study also pointed out that it is common practice to focus on a limited rate given default or exposure at default. Risk models are developed for the credit portfolio loss as well as the underlying parameters (probability of default and loss given default). A study made by Beastaens's (1999) gave an insight into using scoring/rating models in a credit environment of a large European bank. She concluded that the main challenge of forecasting credit default risk in loan portfolios is forecasting the default probabilities and the default correlations. However, because our purpose is to bring out components for an optimal credit portfolio we will not focus on probability of default, rate given default or exposure at default.

One interesting study by Wilson (1998) investigated portfolio credit risk. The author wrote about how important it is for the management to first answer several technical questions before taking advantage of credit portfolio management. What is the risk of a given portfolio? How do different macroeconomic scenarios, at both the regional and the industry sector level, affect the portfolio's risk profile? What is the effect of changing the portfolio mix? How might risk-based pricing at the individual contract and the portfolio level be influenced by the level of expected losses and credit risk capital? The paper answered these questions by tabulating the exact loss distribution arising from correlated credit events for any arbitrary portfolio of counterparty exposures, down to the individual contract level. With the losses measured on a marked-to-market basis that explicitly recognizes the potential impact of defaults and credit migrations. The questions mentioned above are similar to our investigation area. However, this study investigates the questions from a bank's perspective.

3.2 Customer financing
When companies finance their customers it is called customer financing. Customer financing can be found in different areas. In the banking system it is well known that the banks provide their customers with loans. In the electronic market it is well known that a customer can buy a television with installment. This can also be viewed as customer financing. Customer financing is also well known within the multinational corporations. A customer to a multinational corporation might ask them for a loan. According to Fullen (2006) this will create a win-win situation where the multinational corporation will get their sale and the customer will get their product thanks to the loan provided by the seller. We believe that customer financing is an important part of the financial services for a multinational corporation.

For a multinational corporation customer financing can be seen as a competitive advantage. Thierauf et al. (2006) says that in best case it will help the group to sell more products. In worst case, the credits that the company is providing to their customers will force the company to reclaim their product. We believe that the worst case scenario is important to try

to avoid. It can hopefully be avoided with a well functioning credit risk management. We also hope that our thesis will provide guidance to components that will help multinational corporations to avoid this scenario.

Multinational corporations provide their customer with financing thanks to a large fund in the company. They can also borrow money, but this will probably not be as effective as if they already had the cash coming in from interest payments. Damodaran (2001) gives Boeing as a superb example within the customer financing area. Boeing often provides their customers with financing to acquire its planes.

3.3 Leasing

Leasing contracts are credit contracts that can consist of machinery equipment to customers. It can consist of drilling machines or items like mining and tunneling machines. Leases can consist of short, medium or long term financial or operational leases. What financial and operational leases are will be described in their respectively subheading. The aim of the leases is mainly to support the customer or dealer sales. According to Grenadier (1996), in 1993, equipment leasing was valued at over $125 million and has continued to increase since then. Smaller firms had a large share of total lease value. Schuch et al (2006) corroborates with Grenadier and says that equipment leasing has grown in importance. We also corroborate with this. We believe that leasing has grown in importance and will continue to grow even more. Leasing has become a more effective financial solutions (in many cases) than buying assets and therefore we believe that it will continue to grow in importance. Smith and Wakeman (1984) say that a company that has market power also has incentives for leasing. Further on, Schuh (2006) says that there are several reasons for leasing. The reasons for leasing for a lessor are that it has tax benefits and it provides them with regular cash flows. We have thought about the difference between a regular purchase and leasing regarding regular cash flows. Are they not the same? We came up with the answer that the difference is in the tax benefits that leasing provides.

3.3.1 What is leasing?

A leasing contract according to Schmit (2003) and Abrahamsson & Ljungberg (2004) is defined "as an agreement whereby the lessor conveys to the lessee, in return for a payment or series of payments, the right to use an asset for an agreed period of time". The same type of contract is by Gregoriou & Hoppe (2009) defined as an alternative source of financing whereby a lessor (owner of an asset) licenses the right to use and obtain possession of the asset to a so-called lessee (user) in exchange for regular payments. Thus, the customer acquires only the right to the asset's services for a period specified in the contract according to Smith & Wakeman (1984).

Covaci (2007) has a different definition of leasing. It is that lease contract is a financing technique that helps business that wants to purchase machinery and equipment, but cannot afford it. We believe that it can also help companies that cannot obtain loan from banks to purchase needed equipment. Thus, a lease contract is a help for companies that are having

hard time obtaining bank loans and a help for the selling company to get cash. This would, according to Covaci (2007) mean that a lease contract is a contract where a lessor (seller) rents an asset to a lessee (buyer) to an in advance decided payment. This payment is like a usual rent that is paid every month. The difference between a rent and a lease is that in a lease contract, the lessee has the option to buy the asset at maturity. If the lessee defaults (cannot pay the rent), then it is possible for the lessor to reclaim the leased asset. When a lessor has customers that are possible defaults and when he is about to reclaim an asset, he is facing a something that is called residual risk. Our interpretation is that residual risk is an important part in leasing and we will further down describe it more thoroughly.

A lease contract is a legal non-callable contract for the fixed period of the lease according to Schmit (2003) and Gregoriou & Hoppe (2009). They say that if a lease contract has a time to maturity of two years, then the lessee cannot call back the lease contract. The lessee is the part that during the time of the lease is responsible for the maintenance of the asset but also the acquisition and the selection. The lessee can at maturity have the right to buy the asset at the residual value of the asset. This means that if the asset has a value of for example £ 10 million at maturity, then the lessee have the option to buy the asset at that cost.

3.3.2 Operating Lease
An operating lease is a lease where the lessee receives an operator along with the equipment according to Ross et al (2008). We have distinguished between three different characteristics according to the same authors.

The first characteristic is that operating leases are not fully amortized. In other words, this means that the payments required under the terms of the lease are not enough to recover the full cost of the asset for the lessor. The reason for that is that the economic life usually is longer than the life of the operating lease. In this situation, the lessor must either expect to recover the lease or to be ready to sell the asset for its residual value. The type of assets that is most usual for this is for instance Scania's trucks or Sandvik's drilling equipment.

The second characteristic is that the lease contract usually requires the lessor to maintain and insure the asset according to Abrahamsson & Ljungberg (2004). This would, according to Ross et al. (2008) mean that the lessor has to pay the maintenance and even insure their machinery and equipment. If they do not insure their equipment they can be facing a situation where the lessee can misuse the equipment and where the lessor does not have any legal rights to bring an action against the lessee.

The third characteristic is that the lessee has an option to cancel the lease contract even before the expiration date. What happens when a cancellation occurs is that the lessee then is forced to return the asset or the equipment to the owner of the asset, the lessor. Nevitt et al. (2000) says that operating leases do not have to be disclosed on the balance sheet as financial obligations but instead they are shown in the footnotes to the financial statement as fixed obligations.

3.3.3 Financial Lease

Financial leases are quite different from operating leases according to Ross et.al (2008). They have different characteristics than the operating leases. When lessees want to finance an asset, they turn to financing institutions or corporations that hire out the assets instead of asking their bank for a loan or using equity to finance the asset. That definition can, according to Abrahamsson & Ljungberg (2004) be applied to a financial lease. We believe that this is important because this is just what the thesis is all about. Customers ask their suppliers (MNCs) for loans instead of asking banks or dealing with equity financing. We also believe that this is the most widely used lease because it does not require maintenance or other obligations (as operating lease) from the lessor.

Ross et al. (2008) also says that in a financial lease, the lessor does not have an obligation or requirement to maintain or service the leased equipment. It means much less duties for the lessor which in turn could mean lower costs. A financial lease is, in contrast to an operating lease, fully amortized. The economic value of the asset is equal to the lease contract value. Another characteristic of a financial lease is that the lessee on the expiration date has an option to renew the lease contract if he wants.

The maybe most important characteristic of a financial lease is according to Ross et al. (2008) that the lease contract cannot be cancelled. Observe that this also is the definition of a lease in general terms. What this means is that the lessee cannot call in the lease contract. He is obligated to make all the required payments to the lessor. Otherwise, the lessor runs a risk of defaulting or even run into bankruptcy. If the lessor runs into bankruptcy it would cause trouble for other lessees.

3.3.4 Residual value risk

Pirotte et al. (2004) says that the definition of residual value risk is "a company's exposure to potential loss due to the fair value of the physical asset declining below its residual estimate at lease inception". We believe that this is based on the fact that the lessee may keep the asset at the end of the lease in exchange of its payment. Pirotte et al. (2004) compares this with the strike price of an option that the lessee may or may not exercise. Should the debtor default and declare bankruptcy, the creditor can generally expect to recover only a part of the total exposure. The creditor will then focus on the residual value of the financed equipment. In addition, Schuch et al. (2006) says that the creditor will try to re-market the equipment as fast as possible at a net selling price as high as possible in order to minimize the loss given default. We believe that the sooner the lessor can get the asset re-leased (or re-sold), the better it is. If the asset is not sold quickly, the value can dramatically decrease and thereby the asset will not be easy to sell to an acceptable price.

According to Goldberg et al. (2009) a lease is usually done with a period of maximum a couple of years. As compared with credit risk and interest rate risk, residual value risk is the greatest uncertainty in lease financing due to the difficulties in forecasting residual value in advance. Furthermore, the magnitude of the residual value at risk decreases with the term of the lease as a fraction of the economic life of the underlying asset (whereas default and

interest rate risks tend to increase the lease term). The owner of the asset, the lessor, bears the default and interest rate risks associated with the contractual lease payments. However, the allocation of the residual value risk depends upon the type of lease contract.

These types of contracts can according to Goldberg et al. (2009) best be described as open-end lease or a closed-end lease. In an open-end lease, the lessee is obligated to compensate the lessor if the market value of the underlying asset at lease expiration drops below the projected residual value. In other words, the lessee is required to guarantee the underlying asset at lease maturity at the fixed residual value even though its market value may be lower. The lessee issues a residual value guarantee, which is essentially a real put option, to the lessor in exchange for a real call option to purchase the underlying equipment at the residual value at lease termination. We believe that this is an incentive for lessees to better maintain the asset so that lessees do not have to compensate for the difference between residual value and market value.

Goldberg et al. (2009) says that he other type of contract is a closed-end lease contract. It exposes the lessor to residual value uncertainty. The lease for new equipments exposes the closed-end lessor to sizeable residual value risk, the risk that the market price of the leased equipment at the end of the lease period varies from its predetermined residual value. The closed-end lessor holds a not-diversified risky position in the underlying residual asset.

3.4 Risk management

3.4.1. Definition of risk
What is the real definition of risk? According to Bodie & Merton (2000) we can distinguish between risk and uncertainty. The definition of uncertainty is whenever you do not know what is going to happen in the future. We could for example never know what is going to happen later today, tomorrow, next month etc. This is the kind of situation we are faced with constantly. Bodie & Merton (2000) says that risk, however, is uncertainty that matters because it affects people's welfare. It would mean that uncertainty does not have the same meaning. We could state that there can be uncertainty without risk. At the same time we could also state that every risky situation is uncertain. According to March & Shapira (1987) risk can, in economical terms, be conceived as reflecting variation in the distribution of possible outcomes, their like hoods, and their subjective values. In other words, we believe that risk means the chance that it is more likely that several different outcomes can occur and how big chance it is that they actually do occur. It is then risky depending on its variation and its probability.

3.4.2 Credit risk
According to Coyle (2000) credit risk is one sort of risk and it can be defined as potential losses from the refusal or inability of credit customers to pay what is owed in full and on time It is always uncertain if a debtor is going to pay the credit what he owes and therefore there is also a risk because there is a probability that the debtor defaults. Credit risk is a form of counterparty risk. The definition of a counterparty risk is by Jarrow & Yu (2001) defined as

the risk that the default of the counterparty might affects its own default probability. Thus, it means that counterparty risk can be seen as interaction between defaults. Counterparty risk can also by Coyle (2000) be defined as that the other party to a contract or agreement will fail to perform his side of the deal. If the counterparty fails in his payments he can be considered as default. This is according to us the most important risk that a lessor can deal with. The credit risk is crucial when managing a credit portfolio.

3.4.3 Country specific risk

Country specific risk can be divided into two different types; political risks and financial risks according to Butler (2008). Political risks can in turn be separated into two parts; business environment factors and political environment factors. Business environment factors (risks) consist of taxes and tariffs, local content and labor regulations, protection of intellectual property rights, protectionism, tradition of law and order. Political environment factors on the other hand consist of civil war, corruption, military or religion in politics, racial or ethnical tensions and terrorism. We believe that many of these risks are important to a company that either wants to invest in a foreign country or is planning to grant credits to companies in high risk countries. Many countries have corruption, protectionism etc. and that can unease and obstruct companies that want to make business in those countries.

Butler (2008) says that financial risks can be divided into macro (economic) factors and micro (asset-specific) factors. Macro factors consist of currency risk, inflation risk, interest rate risk, the current account, the balance of trade. Micro factors consist of cancellation of contracts by a host government, capital controls on investment, repatriation or FX, involuntary loan defaults or restructurings, payments delays, expropriation. Simpson (2005) corroborate this and says that country-specific risk can for example consists of political risk and can depend on legal, social and cultural influences. We think that which risk factors that needs to be considered depends where investors are investing. Many companies are facing difficulties when investing in emerging markets. The financial risk and political risk put all together concludes that many countries still are bureaucratic. When all these factors are intertwined, we can conclude that many international companies and creditors suffer from country specific risks and they need to find a way to manage them.

3.4.4 Risk aversion

Bodie & Merton (2000) states that risk management is the process of formulating the benefit-cost trade-offs of risk reduction and deciding on the course of action to take. Thus, risk management is the step in which managers for example actively (or to take no action at all) acts to reduce the risk. We can illustrate that with a rainy day example. If one act actively and take their umbrella with them on a rainy day, then one acts actively to prevent the risk of getting wet. The same is true for risk management in business; one can act actively through different risk operations to prevent different types of risk. We believe that this is important because managers can act very differently depending on their risk aversion.

Bodie & Merton (2000) also states that dealing with risk management includes risk aversion. Different people are differently risk-averse. Risk aversion is a characteristic of an individual's

preferences in risk-taking situations. Risk aversion can also be interpreted as the willingness to pay to reduce the exposure to risk. Another definition of risk aversion is also put like this by Ross et.al (2008); "A fair gamble is one with zero expected return, a risk-averse investor would prefer to avoid fair gambles". What does this mean? We believe that this means that anyone who is risk-averse does not want to take on unnecessary risk. If two stocks have same expected return but one has higher risk, then a risk-averse investor would prefer the stock with less risk.

How does risk aversion apply to credit risk management? We think that it is connected through the apprehension that in a credit risk portfolio, an investor (creditor) can choose between what types of companies it will lend to. The investor can either choose to invest in high risk assets, low risk assets or in a mix of both high and low risk assets.

3.4.5 Risk diversification
We believe that portfolio diversification is comparatively indifferent from risk diversification. The aim of diversification is for the investor to minimize or eliminate risk. The investor wants to eliminate or reduce his exposure to firm-specific risk and reduce the systematic risk. The figure below shows the diversification effect. The figure tells that the more assets an investor invests in, the lower risk he will be exposed to. Bodie and Merton (2000) say that the power of the diversification depends heavily upon the correlation between assets that make up the portfolio. Mostly, assets are positively correlated with each other because they are affected by common factors, meaning that it can be hard to reduce the risk of the portfolio without lowering the expected return.

The portfolio selection is explained by Markowitz (1952). He talks about selecting the most efficient portfolio which computes the highest possible expected return and lowest possible risk. There is no certain answer to what the most efficient portfolio is because it is depending upon the risk aversion of the investor. However, according to Bodie & Merton (2000) the efficient portfolio frontier is a set of portfolios of risky assets offering the highest possible rate of return for any given standard deviation. Thus, the efficient frontier shows the combinations of the most efficient portfolios and the investor can choose where he wants to be on the efficient frontier depending on his risk aversion. We believe that if an investor is less risk-averse he will be higher up on the efficient frontier, taking on more risk. In addition, with diversification the investor can sometimes also reduce risk without lowering the expected return.

Figure 1
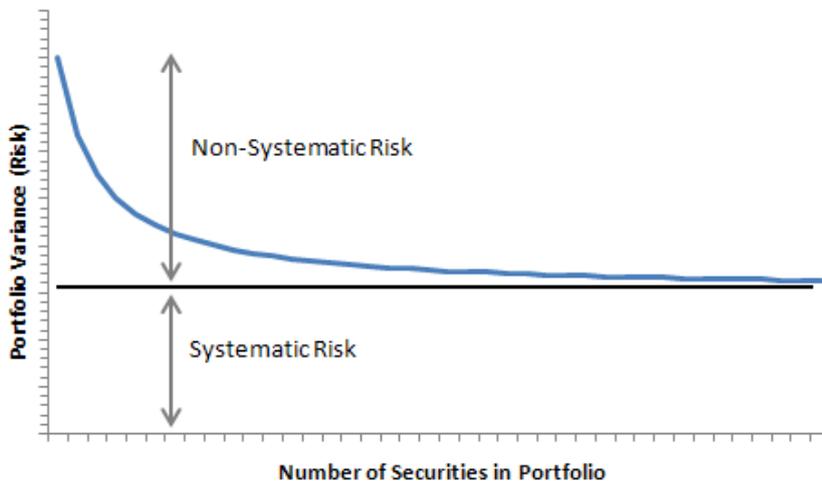
(The figure shows the diversification effect)[1]

There are several kinds of risk that need to be taken into account. It is firm-specific risk and systematic risk. Systematic risk is also by Ross et al. (2008) called country-specific risk. Country-specific risk can be divided into different types; political risks and financial risks according to Butler (2008). Political risks can in turn be separated into two parts; business environment factors and political environment factors. Financial risks can be divided into macro (economic) factors and micro (asset-specific) factors.

Diversification tells us that investors can reduce the firm-specific risk if they spread their risks. Instead of investing in one asset, the investor can invest in many assets and thereby reduce the firm-specific risk. The total risk is the portfolio risk (which includes the systematic risk) and the unsystematic risk. The systematic risk though is not diversifiable according to Ross et.al. (2000). However, in an international setting, even the systematic risk can be diversified away (at least to some extent). Butler (2008) and Swartz (2006) confirm this by the fact that the systematic risk is diversifiable in a global portfolio. Investors that only are diversified within their local economy cannot diversify away country-specific risk. Because of that, the country-specific risk indifferent systematic risk. We think that the importance in this is that global investors can reduce their total risk (both country-specific and firm-specific risk). Butler (2008) says that the extent to which it is possible to diversify away systematic risk also depends on market capital segmentation, e.g. if markets are integrated or segmented from each other. Globally diversified investors in an integrated capital market can reduce or eliminate many country-specific risks.

In addition, we think that when investing in emerging markets, investors usually add an extra country risk premium. This extra country risk premium is added because of the higher systematic risk in emerging markets (or in third world countries). What country risk premium to add is not certain and it is investigated further by Bodnar et.al (2003). However, it is not

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[1] http://www.executivefinancialplanning.com/wp-content/uploads/2008/07/systematicrisk.gif

always necessary to add an extra risk premium to countries with higher systematic risk. Erb, Harvey & Viskanta (1996) found out that countries with high country risk tend to have lower betas than countries with low country risk. What does this mean? It means that a well diversified investor does not need to add an extra country risk premium on segmented markets because the low beta correlation with the world portfolio offsets their exposure to systematic risk. Thus, the low correlation of emerging markets with the world market portfolio tends to overcome the high volatilities of emerging markets. This results in lower systematic risk or betas in emerging markets than on comparable assets in developed markets. We find these results interesting because it actually does tell us that systematic risk can be diversified away. We do not, however, have the definition of a global investor but we consider CalPERS (The California Public Employees' Retirement System) to be a global investor. Thus, it is mostly different funds and institutions that are global investors.

3.5 Credit risk management

3.5.1 Elements of credit risk management

The elements of Credit Management are shown below. We have concentrated us on the "left side" of the circle. Mainly, we have focused on Credit analysis and Credit policy. The reason for focusing on the left side is that it is the part that we are dealing with in this thesis. The right side does not concern our topic. According to Coyle (2000) the figure shows the different stages in credit risk management e.g. what steps that are needed to achieve efficient credit management.

Figure 2
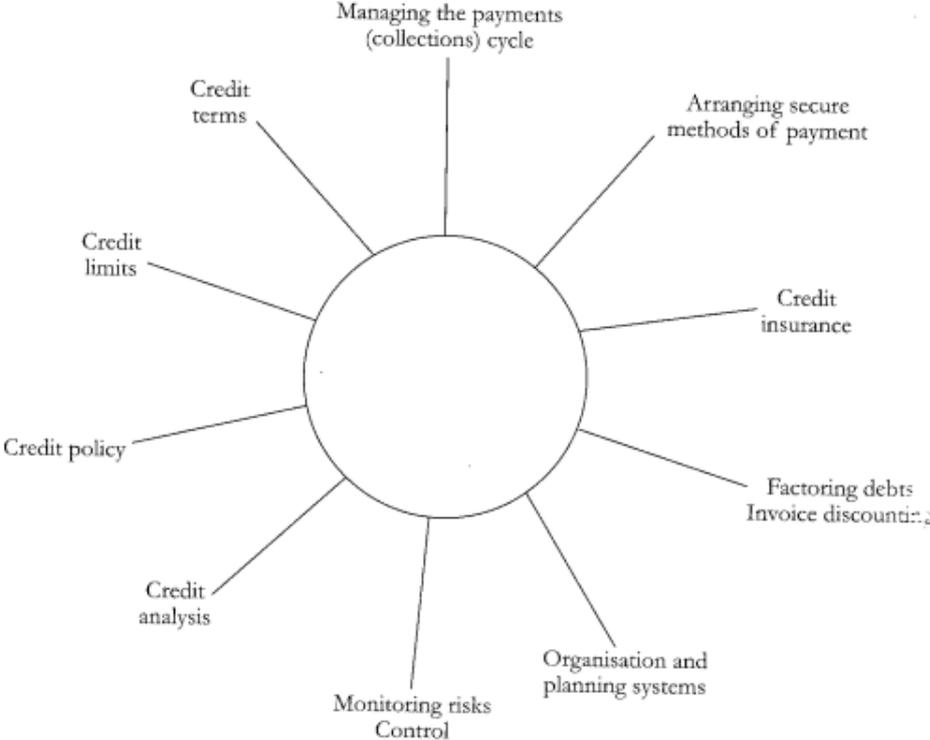
The figure shows the elements of Credit Management (Coyle, 2000)

According to Coyle (2000), every company should have a credit policy and it could be contained in a formal document. Credit policy could be formal or informal, but in either case, there should be rules for how credit is granted and who should be responsible for applying them. Within the credit policy there should also be a credit limit about how much credit the company could grant to its customers. The company could also have a credit policy about how long payment time the borrower could get. The most usual is 30, 60, 90 days etc. However, because we are dealing with leasing this time is not really the same. Usually in leasing, the payment time is 2-5 years. It is important for us to remember that credit policy should be realistic and manageable. Coyle (2000) says that without realistic credit limits there could be pressures to break policy rules. Imagine credit controllers versus sales staff; credit controllers are more risk averse than sales staff. Sales staff grants credits more often and with not as hard rules as credit controllers and this could be the difference between good and bad credit management. We believe that this is where credit analysis has its importance. With extensive credit analysis the company can make a more detailed assessment of its customers and thereby avoiding making the wrong decisions.

What is credit analysis then? Credit analysis by Coyle b (2000) defined as a structured process of investigation and assessment. The role of the credit analyst is to assess and evaluate the potential credit risk with any customer or borrower and to advice on decisions about granting credit. Thus, we believe that it means that credit managers have an important role when granting credit. It is of highest importance that they make a thorough credit analysis. According to Coyle b (2000) companies can otherwise be faced with big credit losses if they have failed in their process. Credit managers are better off if they have a system for deciding how much credit can be given in total and whether credit should be given. This is a continuously ongoing process. Granting credit is also important to make sales and earn a profit.

Ganguin & Bilardello (2004) says that credit analysis can also be defined as an investigative framework that permits the systematic and comprehensive assessment of a firm's capacity and willingness to pay its financial obligations in a timely manner. Thus, the focus is on the customer's ability to fulfill his payment obligations. We believe that the company (lender) is focused on the insolvency of the customer (borrower), i.e. the default risk. The credit analysis has an important role in detecting an insolvent customer. In summary, Schuch et al. (2006) says that assessing the creditworthiness of the potential borrower remains the fundamental factor deciding whether or not to continue negotiations with the customer. If the potential borrower is not creditworthy, the negotiations can be canceled.

3.5.2 Credit assessment
An important issue within the credit policy is credit vetting according to Coyle (2000). This is also known as credit assessment. We have chosen to refer to credit assessment or credit analysis instead of credit vetting because credit assessment and credit analysis are much more widely used expressions.

Schuch et al. (2006) says that credit assessment is the process of assessing customer applications for credit. The aim of credit assessment is to evaluate the liquidity of the borrower. According to Coyle (2000) the analysis can look at the performance of the customer (the borrower) and try to assess if the customer is creditworthy i.e. if the customer has the liquidity to meet its credit obligations. Thus, we believe the creditor is trying to evaluate the default risk of the debtor. Within the credit assessment (credit analysis) there are several areas that can be analyzed. The figure below shows a brief overview of which areas that is possible to analyze.

Figure 3
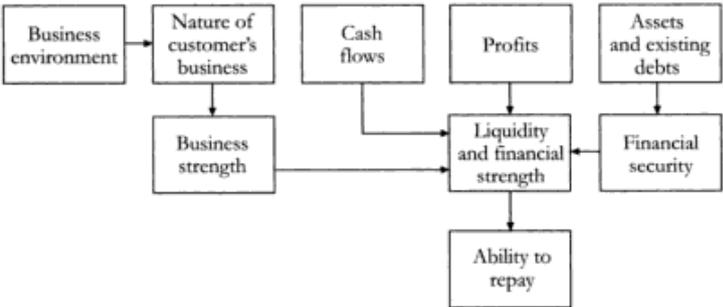
Areas of credit assessment on companies (Coyle b, 2000)

According to Caouette el al. (1998) and Kalapodas & Thompson (2005) the credit assessment can be divided into two different categories; business risk and financial risk. The business risk category says that the borrower should assess customer's creditworthiness by analyzing industry characteristics, competitive position (e.g. marketing, technology, efficiency) and by looking at the performance of its management. The financial risk assessment components are financial characteristic, financial policy, profitability, capital structure, cash flow protection and financial flexibility. We believe that the former analysis of the business risk and competitive position can be related to the business environment, nature of customer's business and the business strength. It is also important to make an assessment about customer's management. A skilled management could be the difference between the customer's default and its payment. If the customer has skilled management, the relationship between creditor's and customer's managers can facilitate the credit process.

In addition, a document that is called Credit approval process & Credit risk management (2004) says that other factors also need to be included in the credit assessment. Those factors are the legal situation of the customer, the market situation, the economic situation, project evaluation and debt service capacity. We interpret that the legal situation can be whether the customer is a company listed at a stock exchange or what kind of company it is. The legal situation can also tell whether the customer is a parent company or affiliate. If it is a parent company; how big is the corporate group then? These and other similar questions tell the legal situation of the customer. The environmental situation of the customer is also important which includes industry or economic growth. If the customer has economic or industry growing plans it could indicate that the customer has excess cash to make investments and therefore this specific customer can be viewed as creditworthy. We think that the project evaluation

means that the creditor can evaluate their customer's planned projects or investments. Are these projects or investments going to yield a good return is one of the questions that can be asked. Arvidsson & Hermansson (2000) say that different industries are characterized by different risks and it is important to know what industry the debtor is doing business in. Some factors in one industry are not as important as other factors in another industry. For beverage corporations the risk is not the same as for petroleum corporations. For that reason, we believe that knowledge about debtors' investment plans in a certain industry is important.

Colquitt (2007) says that through credit analysis, an assessment can be made of the borrower's income, balance sheet, cash flow statements, along with character, capacity, and capital adequacy. The creditor is dependent upon that the obligor provides them with the right information. We think that there can be some differences between debtors; some will provide the creditor with more information than others.

According to Guideline on credit risk management (2003) there can be more criteria that the customer needs to fulfill before he can be viewed as creditworthy. The components that the lender can evaluate are the amount and purpose of facilities and sources of repayment, the integrity and reputation of the applicant as well as his legal capacity to assume credit obligation, customer's risk profile and the sensitivity of the applicable sector to economic fluctuations. We believe that if the customer operates in a sector that is sensitive for fluctuations, then the lender should be aware that customers in that industry can get into payment difficulties. The reputation can also mean a lot in business. We think that if a company has a reputation of defaulting several times in the past, they will not be viewed as creditworthy and thereby be granted financing. For that reason, the creditor should view the payment history and payment behavior of the debtor as well as the other components.

Further on, Guideline on credit risk management (2003) says that the lender should asses the performance of the borrower in any credit previously granted and try to seek out credit reports from previous lenders. It can be a good indication on whether this customer has met his payment obligations. We think that the lender should also review borrower's business plan to see his capacity to repay based on his business plan. The exposure of the customer to other credit debtors should also be review. That gives the lender an opportunity to see how much the customer has in debt and whether he is able to repay the loan. Customer's business expertise is also an important component to take into account when assessing his creditworthiness according to Guideline on credit risk management (2003). We believe that if the customer is well established in his industry and have a lot of experience; it could be a good indication that the customer is more reliable and a more secure borrower (with less risk).

Broomé et al. (1995) says that credit assessment also consists of an analysis of the company, of other assessment factors that are important to the lender, analysis of the company's possibility of get financing and analysis of security requirements. Both we and the authors state that a credit assessment should consist of a consensus between these components. The analysis of the company consists of a valuation of the competence that the corporate management possesses. We believe that a company with a skilled management can easier get

access to financing. The other component under the category of the analysis of the company is the total market prospective. Increasing export and steady growth indicates that the company will increase revenue in the future. Our opinion is that this could be a good indication, but all should have in mind that this could change very fast. The best example is during present recession, where customers literally over a few weeks almost canceled all their orders. For that reason, one should be careful when evaluating revenues.

In addition, Kalapodas & Thomson (2005) says the lender should also check the solvency, the cash flow (liquidity), profitableness and the result after net interest income. According to us, the solvency is different in different industries and the lender should be aware of that. Moreover, other assessment factors that are important to the lender are the credit policy of the borrowing company and the status of the company. Efficient working capital (profitability & liquidity) is an important component of success and survival. According to Peel et al. (2000), managing cash flow is a vital component for every financial management in every firm. The status of the company is the question whether the borrower already is a customer to the lender or not. Broomé et al. (1995) corroborates and says that strong and longstanding business relationships are often based on trust which means that the lender can grant his customer's credit without a more detailed credit risk assessment. We think that this is an important statement because longstanding relationships based on trust are many times much more connected then just through different economic numbers and parameters.

Furthermore, Broomé et al. (1995) states that operating risk needs to be monitored as well. Included in operating risk are these following parameters; price competition, customer dependency and export plans. Price competition describes how the customer's prices on its product are in comparison with its competitors. Do competitors have lower prices and why? We believe that the second parameter is of big importance for the lender. It describes how much the customer is dependent of its own customers i.e. whether the customer is exposed to individual customers or not. We can distinguish between high risk and low risk. Coyle (2000) says that when the customer is heavily exposed to one or a few customers, he is commercially vulnerable. We interpret that as high risk. If the customer has contract with only one major customer, he is heavily exposed to risk that the major customer can cancel the deal, take his business elsewhere, runt into trading difficulties, reduce the volume of orders or run into bankruptcy.

Our opinion is that the creditor should try to find customers that are not over-exposed to individual customers. Hence, for creditors lower risk of their customers is preferred. Low risk implies that the customer has many customers and is not over-exposed to any customer. Thus, the customer is well diversified in his customer base, implying a much lower risk. The third parameter described by Broomé et al. (1995), the export plans, describes whether the company has plans to export. What new markets can the customer compete in? Do those markets have much sales potential? These questions and several others should be considered.

According to Coyle (2000) it is also of importance to assess a company's profitability because this tells the lender about how profitable the customer is i.e. if the customer is earning cash or

not. There are three main ratios that are considered to be a good measure for profitability and that can be assessed. These are: return on assets (ROA) or return on capital employed (ROCE), profit/sales ratio (profit margin) and asset turnover. The asset turnover is sales/assets employed. We think that it is an important measurement because it provides an indication of how well the business generates sales turnover. A bigger asset turnover means a higher sales volume. Which of these three is the best is hard to tell but we can imagine that the creditor can make an assessment on all of these three and about the collected information make an appropriate evaluation. In all, with Schuch et al. (2006) and Coyle b (2000), we believe that the creditor could and should make a contexture of key financial ratios.

The following study by Apelqvist & Larsson (2002) distinguished between quantitative assessment and qualitative assessment of the customer. The quantitative assessment relates to a company's profits and balance sheet. The quantitative data can easily be analyzed with key financial ratios (sometimes called key performance indicators (KPI)) and it is important for the lender that the customer is in good financial shape. It is made clear that when the lender is making an assessment of new customers, the financial ratios become even more important. Eight different financial ratios are pointed out by Apelqvist & Larsson (2002) as important and these are; debt-to-equity ratio, return on equity (ROE) , profitability, average interest on debt, the extent of interest cover (fixed charge coverage), current ratio, liquidity ratio, profitability margin and return on assets (ROA). The purpose of these key financial ratios is to act as support in the credit assessment process. We believe that even if these key financial ratios indicate that the company is profitable and have stable earning etc, it can dramatically change. The best example is today's recession in the world; customers almost instantly stopped buying goods and services and ran into financial trouble. Therefore it is of high importance to always make appropriations for all customers. We also believe that which of these ratios the creditor should use depends on what industry he acts in.

Apelqvist & Larsson (2002) says that the qualitative credit assessment is to assess the management of the debtor. The management should understand the business environment they are acting in and they should also be innovative and enthusiastic. That means that management should have a solid business plan for the future. This study also states, as earlier, that strong relationships are important. We think that if the debtor has proven himself to be a trustworthy customer that fulfills its' payments it is then much easier to make a credit assessment. Furthermore, Apelqvist & Larsson (2002) says that exposure to other creditors should also be assessed by the creditor. If the debtor has too much debt (too low solvency dependent on what industry the customer acts in), then the creditor should be careful when granting financing. In opposite to quantitative analysis, we think the qualitative analysis is much harder to evaluate. It is much more dependent upon human judgements and cannot be classified into ratings or some kind of scoring as the quantitative analysis. For that reason the qualitative analysis is much harder to assess.

According to Kalapodas & Thomson (2005), fluctuations in the performance of shares are usually considered as signs of danger. We believe that if the company is listed on a stock exchange and their performance of shares is very volatile, this is a sign that the company can

be in trouble. It is all participants on the market that set prices for the shares and that reflects the current situation of the company. Kalapodas & Thomson (2005) says the company can be examined with a SWOT analysis. A SWOT analysis consists of: strengths, weaknesses, opportunities and threats. Thus, an assessment of company's strengths is made. It includes strengths as market position, competitive advantages etc. Weakness describes in what areas the company is most weak. Opportunities describe what opportunities the company has. It can be possibilities to enter new markets, increase sales on current markets etc. Threats occur if the company has competitors that are trying to enter their main market etc.

3.5.3 Country assessment

Besides corporate credit assessment, as we described, there is also country assessment. In country assessment, a risk assessment of countries is made. Political and financial risks are the main factors that need to be assessed. A study by Takang & Ntui (2008) calls this "a sovereign credit rating". The sovereign rating is the risk level of the investing environment of a country and is used by investors looking to invest abroad. During present time, many investors and corporations act on global markets. For that reason, it is important to be able to make a country assessment. Erb, Harvey & Viskanta b (1996) says that the country assessment mostly has a rating from 0-100. Countries with the lower country risk have a high rating and countries with lower risk have a low rating.

A country risk assessment can consists of several parameters that have to be taken into account (Coface Country Risk Assessment). These are:
- Assets – weaknesses
- Country rating
- Industries overview
- Insolvency trends
- Major macroeconomic indicators
- Market size
- Means of payment and collection methods
- Payment incidents index
- Risk assessment

These are the most important groups (parameters) but there are also others depending on what country that is being assessed. Within those groups, several more detailed parameters are mentioned but it would be impossible to write down all of them. Besides the rating scale between 0-100, the rating can have the look of letters. We know that rating levels can have the following look: A1, A2, A3, A4, B, C, D. A1 represents the best country with lowest risk and D the country with highest risk (Coface Country Risk Assessment). Other rating agencies can have different rating models. Standard & Poor, Fitch, Dun & Bradstreet & Moody's do not have the same rating levels as Coface. In summary, we have stated that country risk assessment is important when deciding to invest or grant credits in foreign countries. This is especially true for third world and emerging markets where the country risk can be very high.

4. Cases

In this section we provide the reader with the results from our three cases. The cases describe how respective company works with credit portfolio management and credit assessment. The cases are Scania Financial Services, Volvo Construction & Equipment AB and Swedbank AB.

4.1 Case 1 - Scania Financial Services

4.1.1 About Scania AB

Scania is a leading manufacturer of heavy trucks and buses as well as industrial and marine engines. They are world's third largest maker for heavy trucks and the world's third largest maker in the heavy bus segment. Scania operates in 100 countries and has approximately 35,000 employees. Of these, 2400 work with research and development mainly in Sweden, close to the production units. The headquarter is also in Sweden, in Södertälje and production takes place in Europe and Latin America. They have operations in Europe, Asia, Africa, Latin America and Australia. The company also markets and sells a broad range of service-related products and financing services. The CEO of Scania AB is Leif Östling.

4.1.2 Scania Financial Services

Scania Financial Services (SFS) is a business unit within the Scania group. Their goal is to improve profitability, create synergies for Scania and to improve and protect Scania's market share. SFS is dedicated to provide their customers with flexible services that gives them predictable costs and manageable risks over the entire life cycle of their vehicles. With people highly specialized in the financial side of the transport business, they offer all-inclusive, competitive financing and insurance solutions tailored to the customer's specific needs. SFS never gives financing to a customer just to support the sales; the financing part must be profitable in itself. That requires them to make a credit assessment and to believe in customers' solvency (ability to pay).

At the end of 2008, SFS had 510 employees, 23 000 customers and 95 000 contracts. They also possessed a credit portfolio of 47 billion SEK and the profit for year 2008 was 400 million SEK. These 510 employees at SFS are spread out around the world in 15 Scania-owned finance companies covering more than 40 countries. 12 finance companies are in Europe but SFS are also covering South Korea, South Africa and Chile. The reason for the geographical spread of the finance companies is that Scania wants to be close to their customers. Scania wants to work locally and the decisions should be made close to their customers. That is the best way to add value to the customers.

4.1.3 Scania Financial Services strategy

Scania Financial Services has a strategy to be an integrated part of Scania's total supply and Scania's total offer. They accomplish this by having a close partnership with their distributors and dealers in their markets. The distributors are the importers in every country. It is the

dealer that always meets the customers first and therefore it is important that Scania has a close relationship with the dealer network. If a close relationship is establish, the dealer can help Scania to offer their financial services to their customers. Thus, trust between Scania and their distributors and dealers are very important. This is a competitive advantage for Scania towards their competitors. The competitive advantage is that Scania offers a monthly cost for their products and services.

Insurance, repair, maintenance contracts and the financing are included in the monthly cost which allows Scania to offer their customers everything they need for their products. Scania only establishes finance companies where there is a market demand for their services. The distributors are the ones that can detect this demand and again, it is important that there is a close relationship between the two parts.

4.1.4 Types of contracts/products

Scania offers their customers several financial options. It is financial lease, operating lease, contract hire, loan agreement and hire purchase. A financial lease means that the customer has the option to buy the vehicle to a good price at the end of the contract. An operating lease is a lease where the customer pays a monthly rent and returns the vehicle at the expiration of the contract. A contract hire is a packaged product with an operating lease and an R&M contract, including for example insurance. A hire purchase/loan agreement is when the customer agrees to buy a vehicle and to pay installments.

Thus, we can distinguish between two types of contracts. Either, the customer gets financing for owning the product or to just use the product. The most traditional financing product for owning the vehicle is the loan agreement. The customer gets financing to afford to buy trucks or other products from Scania. The customer then owns the vehicle, includes it in his balance sheet and makes depreciations.

An operating lease means that Scania is the owner of the vehicles but the customer pays leasing fees including interest and amortization. The customer amortize down to a pre-decided residual value. Thereafter he returns the vehicle to Scania and starts over with a new vehicle. Customers that have operating leases do not have any interest of building up their own fleet of vehicles. They are more interested in getting access to the vehicle and benefit from the flexibility an operating lease can offer. Usually, it is the bigger customers that work in this manner. Because there is always a residual value at the end of an operating lease, it has a higher risk. Financial leasing means that the customers amortize down to a low residual value and thereby the structure has a much steeper amortize-curve. This also influences Scania's credit assessments depending on what type of product it is. The most common type of contract is a financial lease. The financial lease dominates heavily in Central- and East Europe. The customers there want the traditional amortization where they pay down the whole amount. In Scandinavia, England, France, Holland and Germany operating lease is a more common product.

4.1.5 Credit approval process

Scania require a credit formula and decision formula to fill in. In this decision formula set-up of the deal is described. The necessary parts that needs to be included are whether it is an operational lease or not, what the residual value would be so that Scania can follow the development, if the customer gives any securities etc. Scania always has security in the vehicle financed but sometimes additional securities are required and can consist of owner guaranties or other vehicles. Scania has a credit rating model that takes into account both quantitative data and qualitative data. This is considered to be a very important judgement because it is personal. However, in their credit rating model this judgement is going to be weighted with other components so that "a Monday dilemma" should be avoided. A Monday dilemma is when personal judgements are not the same on a Monday as on a Friday. The principle of the rating model is to be able to categorize the answers (components/factors) that have been assessed.

The credit formula is more comprehensive than the decision formula. What needs to be included is the credit assessment of the customer. The first parameter that needs to fill in is how long history Scania has with the customer. In addition to this, it is required that the payment history is included. When was the last credit approval? What was approved then? Does a parent company exist? What structure does the corporate group have? Who is the legal owner? These are questions that need to be answered in the credit formula.

Moreover, the customer and its management should be assessed. What knowledge and experience does the management have? Thus, the data will be unbiased because the information will both be gathered from financial statements and from the word of customers as well as from risk manager's personal judgements. The risk manager will judge the competence of customer's management. He can look at what work experience the CEO has, how long he has been CEO, what education he has and how good job the CEO is doing. The CEO's control functions will also be judged.

Another question that needs to be answered is: What kind of business are we dealing with? It should clearly be described if it is an industrial concern or if it is a transportation company. It is also necessary to assess what kind of customers Scania's customer has. The customer can have big exposure to one big company or several smaller exposures to many companies. If the customer is exposed to one big company like Coca Cola, then it can be an indicator that Scania's customer is safe. However, if Coca Cola for some reason would run into bankruptcy or if their customer would lose the contract with Coca Cola, it would create problems also for Scania. Therefore, Scania are checking so that their customers are diversified and not exposed to only one big company.

Moreover, Scania also checks how their customer's fleet of vehicles looks like. They check what kind of brands their customer has, how old the vehicles are, what kind of financing the customer already has and why they want new vehicles. What is the reason for leasing 25 new vehicles etc.? In addition, the customer also needs to comment upon their profitability. What was the reason for the increasing/decreasing profitability? Scania's customers also need to

give comments on their cash flow, balance sheet, liquidity and upon other relevant financial issues. The management of the customer also needs to give a forecast about the future. Will the profitability increase? Is the customer going to access new markets or increase its current market share?

Scania also has to evaluate the payment history of existing customers as mentioned earlier. Usually, an assessment of customer's payment history three years back in time is considered to be enough. In addition, it is easier to make a credit assessment on existing customers than new customers. When Scania makes an assessment of an existing customer, they look at the present net exposure. However, they also need to estimate what the exposure will be on year into the future to be able to evaluate the risk today. It is required that a payment plan on the outstanding value is created; if it is 12, 24 or 36 months and how it developed parallel with the market value.

The Scania finance companies that are responsible for each customer need to evaluate the risk. They also need to evaluate Scania's customer's client risk but also all the other parameters that have been assessed. The finance companies should come to a conclusion whether the customer is creditworthy or not. If the customer is not (or is) creditworthy, the reasons behind that should be explained. What were the reasons for not granting this customer the financing? What does the customer have to do to get a financing?

Moreover, an important part in their credit assessment is whether the customer can make cash contribution or not. The more cash contribution the customer can make, the higher rating the customer will get in return. The idea behind that is following; if a customer has high credit risk but makes cash contribution, then Scania can grant financing to this customer. The same is true for the opposite; a customer with low risk can be granted a financing with high risk. It is a constant adjustment between financing risk and customer risk.

4.1.6 Customer offering
Scania also says that they should be able to understand their customers better than other creditors. They should understand their needs as well as the product that they are financing. It does not necessary imply that Scania is more willing to take on risk than banks but they state that they can make other conclusions of the same information than the bank would do. After all, Scania is offering package deals to their customers and they also have to think about their sales to customers. A customer does not just make the purchase of the vehicle, the customer also wants financing, insurance and services. Scania can offer the client a fixed monthly payment that covers all expenses and thereby it is easy for the client to make his own calculations.

4.1.7 Global Credit Rating Model
Scania has a new Global Credit Rating Model (CGR Model) that they will implement and use. The demand for a new model is because they want their credit decisions to be more effective. A rating model facilitates their credit process. It also makes lending decisions more efficient and the administrative work will be reduced. Another reason for implementing a new rating

model is that Scania can overview their risks better and their decisions will be more objective. The model also helps to structure the credit decision process in a favorable way. This will improve the consistency and the transparency. It can also be used to determine what interest rate Scania should apply dependent on the risk. Setting lower interest rate limits based on rating grade or setting upper credit limits based on rating grades are also the advantages of this new rating model. In addition, it can also be used to set authority limits. A rating model is also important when communicating the risk in the portfolio.

What Scania wants to accomplish with this model is to calculate the estimated loss. The estimated loss (EL) is a function of; probability of default (PD), Exposure of Default (ED) and Loss given default (LGD). Probability default is a classification system, exposure of default is a contract system and loss given default is a market value model. Exposure of default answer questions like; if a customer runs into bankruptcy, what is our exposure at that time? Loss given default tries to answer a question that is similar to this; our customer has run into bankruptcy and we have an exposure of 1 million SEK, what is it that we really loose? Can we reclaim our product? At present, Scania has a good general view over exposure of default and loss given default. The Global Credit Rating Model should help Scania to estimate the probability of default i.e. what is the probability that the customer will run into bankruptcy? The result from the GCR Model should be able to tell what the estimated loss will be.

Other inputs in the GCR Model are both macroeconomic data and microeconomic data. Macroeconomic inputs can consist of country-specific risk (e.g. country rating from Standard & Poor), GDP, oil price, local PD, company PD etc. Other important inputs are current ratio, equity ratio, asset coverage ratio, management experience, qualification, planning, system, business prospects, payment behavior etc. All of these inputs are categorized and given an estimated weight with the different ratios. This model should then give a ratio between 1 and 10 with 1 representing the lowest risk and 10 representing the highest risk. Customers with ratio 1-4 could be offered low down payment, customers with ratio 5-8 could be offered high down payment and customers with rating 9-10 should be rejected. In summary, it can be said that this model is a mixture of statistical data and of forecasts of the future. Scania not only want to look at the history of their customers, they also want to know what can happen in the future. The qualitative data and quantitative data will be weighted and then intertwined into a "Borrower Rating Model" which in turn concludes into "Borrower risk". The "Borrower risk" in turn concludes into a "Facility Rating Model". All of these steps then conclude to an "Overall risk of each transaction". The figure below will show the process.

Figure 4

Global Credit Rating Model
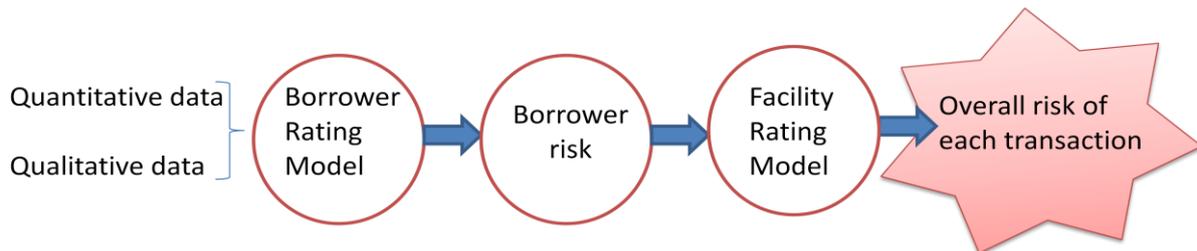
The figure shows an overview of Scania's Global Credit Rating Model

This is a theoretical model and theoretical models cannot always predict what will exactly happen in the future. A model like this would never have predicted such a dramatic recession as in present time. The risk manager at Scania said that "the model has its advantages and disadvantages; I am an advocate for the essential part of business. That is to get out of office and meet the customers. That is our strength at Scania, we know our customers." He also pointed out that it is very important to have a model but that the model should be complemented with human interactions because a model cannot alone tell you how a customer will perform.

4.1.8 Balanced portfolio
The expression balanced portfolio is used for the purpose to measure what the balanced risk of a portfolio is. The size of Scania's portfolio is 47 billion SEK. That is approximately 40% of their balance sheet total. That is a very large part of the balance sheet total that consists of financial assets. The question is then; why does an industrial group have so much financial assets? What is behind that? The reason for that is simple according to Scania. They see themselves as specialist in financing within the transport sector. Scania's risk manager says: "That is what we know, but we have to know it very well. This is where our customers are."

At the end of 2008, Scania had 23,120 customers in their portfolio. The diversification was following; 22,722 customers (98.3% of total portfolio value e.g. 22,722 customers are 98,3 % of all customers) had exposures less than 15 million SEK, 325 customers (1.4%) had exposures between 15 – 50 million SEK and 73 customers (0,3%) had exposures over 50 million SEK. Scania has a mandate structure for credit decision. Depending on the size of the total exposure on the customer there are several decision levels for the final credit decision.
Scania is measuring the portfolio risk from a balanced portfolio perspective. Parameters reviewed are:
- large single customers exposure
- country exposure
- industrial sector exposure

Scania has internally decided some frames for how the risk concentration for these parameters should look. If for example a single customer risk exposure would be too high, Scania are working with external partners for syndicating part of that deal.

The follow-up of the portfolio is managed centrally and the risk manager then looks at several key performance indicators and several ratios. They look at customer's due structure, how many vehicles that have been reclaimed and how big the credit losses are and how customer's reserves look like. In addition, Scania brings in statistics about the object risk every month. The statistics tells how many vehicles that have been reclaimed and how many that have been sold and to what price. In every Scania finance company a theoretical market value model is implemented. A vehicle that is sold for a price of 100 000 EUR will be put in the system. In the model it is then amortized every month. The good thing about the model is that parallel with the amortization curve, a shadowed curve can be seen. This shadowed curve shows what Scania believes is the best possible market value at that time. The difference between those curves is the risk that Scania has with its customer if the customer defaults. The model form the basis of how customers set (adjust) their reserves.

Moreover, Scania looks at the overdue-ratio. Overdue-ratio is the number of due invoices relative the total portfolio. This information is put together by every Scania finance company. There is also a category that Scania calls non-performing exposure. The category consists of all customers that are in default of 90 days or more. Scania uses this category for the purpose to put the entire exposure of every customer (not just the amount that they will default on) relative the total portfolio value. In this way, Scania can monitor how the risk has developed over the years and how it is developing in present. It is also possible to make a sub-category and divide customers into country categories. This is also used to see how big stock in hand Scania has on their vehicles on a country level.

The statistics are provided by the Scania finance companies around the world. They report their income statement and balance sheet every month into a consolidated account system. Thereafter they report in the specifications on the portfolio where five different categories are perceived. It is a scale of 0 to 5 where the first category consists of clients that have payment delays of 0-30 days, category two where the payment delay is 30-90 days, category three where the payment delay is 90-180 days, category four where the payment delay is 180 days and onward and category five is where the contracts are cancelled. Scania then identifies how many customers there are in each group and how big their exposure to these customers is. The important issues are then how much reservation Scania has made and what the theoretical market value is.

When deciding upon how much reservation to make, Scania checks what the exposure towards the customer is, the due fees and remaining debt. These parameters are together called the total exposure. The theoretical market value of the vehicle deducted for reparation is what Scania makes for reservation. Scania calls this for net risk exposure.

4.1.9 Summary

Scania Financial Service's goal is to improve profitability, create synergies for Scania and to improve and protect Scania's market share. It is the dealer that always meets the customers first and therefore it is important that Scania has a close relationship with the dealer network. If a close relationship is establish, the dealer can help Scania to offer their financial services to their customers.

Scania offers their customers several financial options. It is financial lease, operating lease, contract hire, loan agreement and hire purchase. An operating lease means that Scania is the owner of the vehicles but the customer pays leasing fees including interest and amortization. Financial leasing means that the customers amortize down to a low residual value and thereby the structure has a much steeper amortize-curve. Scania has a credit rating model that takes into account both quantitative data and qualitative data. This is considered to be a very important judgement because it is personal. Moreover, the customer and its management should be assessed. Another question that needs to be answered is: What kind of business are we dealing with? It should clearly be described if it is an industrial concern or if it is a transportation company. It is also necessary to assess what kind of customers Scania's customer has. The customer can have big exposure to one big company or several smaller exposures to many companies.

In addition, the customer also needs to comment upon their profitability. Scania's customers also need to give comments on their cash flow, balance sheet, liquidity and upon other relevant financial issues. The management of the customer also needs to give a forecast about the future Scania also has to evaluate the payment history of existing customers. Other important inputs are current ratio, equity ratio, asset coverage ratio, management experience, qualification, planning, system, business prospects, payment behavior etc. The Scania finance companies that are responsible for each customer need to evaluate the risk. The finance companies should come to a conclusion whether the customer is creditworthy or not. Scania is measuring their balanced portfolio risk from a balanced portfolio perspective. Parameters reviewed are: large single customers exposure, country exposure and industrial sector exposure. The follow-up of the portfolio is managed centrally and the risk manager then looks at several key performance indicators and several ratios.

4.2 Case 2 – Volvo Construction Equipment International

4.2.1 About Volvo Construction Equipment

Sweden's largest industry company is Volvo. The Volvo Group has several business areas, trucks, buses, construction equipment, Penta, Aero and financial services. Construction equipment provides the market with wheel loaders, backhoe loaders, excavators, articulated haulers, tracked forestry carriers, demolition equipment, pavers and compactors. The business area has a large product portfolio and the market is global. Volvo Financial Services (VFS) works trough finance companies situated in core markets. Their vision is to find the best financial solution for the customer. However, VFS only operates in the core markets; risk

taking is needed over the entire world thanks to the demand of Volvo's products. Volvo Construction Equipment (region International) helps the customers with financial solutions through banks and other financial institutions. The CEO of Volvo Construction Equipment is Olof Persson.

Volvo CE International operates in Africa, Middle East, Ukraine, Russia, Oceania and South America. Volvo CE International provides financial solutions to their customers. Volvo CE International is not a finance company. However, they acts as a supporting sales function and functions like a finance company. The biggest difference between the supporting sales function and a finance company is that a finance company creates a credit portfolio while the supporting sales function does not.

4.2.2 The credit process

Volvo CE international does not take on risk by them self. They always want a third party to guarantee their exposure. Close relationships with EKN (The Swedish Export Credits Guarantee Board), insurance companies and banks are important. If a new customer wants to buy a truck and wants financing for it, Volvo CE International one way could be through a bank guarantee accepted by a Swedish or European bank. The bank then decides if they want to act as a risk taker for the deal.

The financial offering to their customers is no longer than five years. If customers default, Volvo CE International can be forced to reclaim their machines. The life of the truck should be adjusted by the technical wear so that there still is a residual value when the truck is reclaimed. If the risk is considered to be high and there is no third part taking on the risk, then Volvo will not proceed with the deal.

4.2.3 Credit approval process

The first customer selection is made by the dealer. The customers are first in contact with the dealers which in turn contacts Volvo CE International. Volvo CE International then demands documents, balancing accounts, a description of the project and external information necessary to make a good credit assessment. Payment history and cash flows are examples of information that is supporting the deal. In addition, they also check customers' key accounts and the expertise of their management. They want to know the history of the customers, how long the company has existed etc.

When the dealer in the specific country contacts Volvo CE International, they make sure that a contact between the potential customer and Volvo CE International is established. If the customer is willing to perform a bank guarantee Volvo checks on the Swedish or European bank market if the customer's bank is approved. If Volvo's bank will accept the other bank's risk, then the customer opens a letter of credits for example. Volvo CE does not have any problem with the credit period as long as there are banks willing to accept risk.

We have pointed out that Volvo CE International does not build any credit portfolio. However, in some cases, they need to accept five percent of the credit to the customer. EKN always leaves a risk to the company, considering Volvo CE's sales of 2 200 million USD, the

department is building a portfolio in some extent. These numbers are however not "real" numbers. The Volvo department will only have to pay this if the customer files for bankruptcy. In other words, these numbers (five percent of the credit) are only "air" so to speak. They are not included in the department's balance sheets, but as a recourse obligation to the Swedish bank. The five percent are included in a note in the annual report.

Sometimes it is necessary to visit the customer and meet the management, to assure that it is a reliable customer. The managements in different countries are usually not similar when it is about businesses. Companies in high risk countries can show different annual accounts depending to who it is intended for. They can show the tax authorities one kind of annual accounts, the shareholders another one and their suppliers another one. In such cases, it is important to visit the customer and confirm how many machines he has and assure that he is telling the truth. In Africa, however, this can become a problem because the local companies many times do not even have annual accounts or any accounts at all. Thus, a country risk assessment can be made.

Furthermore, Volvo CE International gets a balance sheet from their dealer and it provides necessary information. This information can be summarized in a balance sheet in some cases, but as mentioned above, there are cases where companies do not have balance sheets. Nevertheless, some of the key numbers that Volvo CE International wants to get access to are cash flow, current ratio, working capital, working capital as a percentage of total sales, current liabilities, solvency, debt-to-equity ratio and net income. All these parameters are important when assessing a customer.

4.2.4 Risk aversion & credit limits
They do not want to finance small companies that are risky, rather they want to finance mid-sized to large companies that are solid. If they should, after all, finance a small company, they would demand securities from this company. It can consist of bank securities or other similar securities. This way of making business is based upon the strategy of risk aversion. Volvo CE does not want to take on risk and therefore they consider themselves as risk averse. This is an important issue for them.

The credit approval decisions are always approved by Volvo CE International. They have authorization to take on credit up to 10 million USD, which are quite many machines. A credit committee is the highest authority. They are the ones who can approve decisions when it comes to large amounts. The credit committee is assembled every Friday. If customers do not pay in time i.e. the customer's repayment is delayed, Volvo CE International can see that immediately. If the customer does not pay they can be suited in front of court.

4.2.5 Summary
Volvo CE International is not a finance company but they act as a supporting sales function and functions like a finance company. However, they do not take on risk by them self. They always want a third party (like EKN) to guarantee their exposure. The biggest difference

between the supporting sales function and a finance company is that a finance company creates a credit portfolio while the supporting sales function does not.

The first customer selection is made by the dealer. The customers are first in contact with the dealers which in turn contacts Volvo CE International. Volvo CE International demands documents, balancing accounts, a description of the project and external information, payment history and cash flow analysis necessary to make a good credit assessment. Volvo CE International also believes that it is necessary to visit the customer and meet the management to assure that it is a reliable customer. Sometimes, their customers show different annual accounts to different parties. Some of the key numbers that Volvo CE International wants to get access to are cash flow, current ratio, working capital, working capital as a percentage of total sales, current liabilities, solvency, debt-to-equity ratio and net income. All these parameters are important when assessing a customer. They do not want to finance small companies that are risky, rather they want to finance mid-sized to large companies that are solid. If they should, after all, finance a small company, they would demand securities from this company. It can consist of bank securities or other similar securities.

4.3 Case 3 – Swedbank

4.3.1 About Swedbank AB
Swedbank is one of the four largest banks in Sweden. The bank serves over 9 million private customers and 660 000 corporate customers and organizations. Core operations consist of traditional products and services for private individuals and small and medium-sized companies. Swedbank's office-network consists of over 900 offices in 14 countries, mainly in its five home markets of Sweden, Estonia, Latvia, Lithuania and Ukraine. The Group is also active in Copenhagen, Helsinki, Kaliningrad, Luxembourg, Marbella, Moscow, New York, Oslo, Shanghai, St. Petersburg and Tokyo. In 2009, a new CEO replaced the old one, Jan Lidén. The new CEO of Swedbank is Michael Wolf.

The Swedish banking is divided into 36 business areas. These business areas are also divided into four large regions. However, the bank is reorganizing the system and in the future it will be six regions. Gävleborg is one of the regions. The size of the entire credit portfolio in Gävleborg is approximately 21 billion SEK. The number includes both private customers and corporate customers. The Swedish customers have access to 419 offices in Sweden.

4.3.2 Credit process
The Swedish banking system is divided into 419 offices. Within these offices there are corporate advisors. The credit decisions are usually taken by the local corporate advisors. In additional cases, it is delegation decisions and these decisions have to be approved by a credit committee (the credit chief and two other board members). The credit committee also needs to approve decisions when it comes to cases difficult to decide the outcome. In addition, if the credit amount is large or if the credit is addressed to a specific customer, the credit committee needs to approve it. These decisions also need to be approved from higher instances in the organization.

The first step in the credit process is the contact between the customer and the bank. This can go in both directions. The customer contacts the bank or the bank contacts the customer.

The bank usually contacts a potential customer with an offer. After the contact a meeting will be scheduled between the two parts. In this meeting the customer will give further details about the calculations (capital budget), how they will manage to repay the loan, balance sheet and interim reports. However, the important factor in this is that the bank can see how the future will develop in terms of payment, company, relationship and the customer's customers.

Throughout the years there has also been a marked difference between middle-sized and small-sized companies. Many of the small-sized companies do not have a budget. This usually does not mean, inherently, that it will not be any deal. In these cases the bank has to sit down with the customer and estimate the future numbers. The corporate advisor has to ask the management of the company what they believe the outcome of a certain situation will be, how they feel about the future and what the odds are that they will succeed with the estimations. The bank has to do this so they can get enough information to do a cash flow analysis. The bank usually makes these calculations with the customer, especially when it is an important deal for both parts (large amounts).

Furthermore, after the discussions with the customer, the customer relations manager process the deal, make his analysis and judgements. Thereafter he documents all this in a credit memoranda. He also writes about the management of the company, what the company does, how the economic development has been, the company's network, presents the investment and how it will be proceed, what the capital budget looks like, equity and how the loan and repayments will look like. The cash flow analysis will also be presented in the credit memoranda together with information about collaterals. If the information described in the memoranda sounds normal and acceptable, a credit decision can be taken by the customer relations manager together with a colleague.

There are certain amount levels where the decisions have to be taken by higher instances in the organization. The levels are not official for the public. The decision needs to be taken by the credit committee including the credit chief. The credit committee assembles at least twice a week, in cases of emergency this can be more often.

One factor that is of importance for the bank when assessing the company is cash flow. It will provide the bank with important information. A high-quality company history for the bank is also important. In best case it should show that the company had a good economy throughout its history. When doing business with customers a meeting with the management of the company can make or break a deal. The bank needs to feel confident about the management. Nevertheless, after the company has given its presentation, the bank needs to figure out whether the information is correct or too good for its true value. One way to figure out that is to look at the company history. For instance, the bank can check if the company has exceeded the limits of their budget or not.

The repayments are the most important factor. Even if the customer provides the bank with great collaterals, it does not mean that the customer has met the requirements for credit approval. This can be the case due to low probability that the customer will manage to fulfill the requirements in the deal. In uncertain times, a rearrangement of the credit can be necessary. The customer might not have to pay the amortization for a certain month. It would be stupid to not rearrange a credit in difficult times because of the fact that in worst case scenario the bank will not receive any of the remaining credit. It is better for the bank if the customer survives and continues to pay interest at least. However, in some cases it can be more effective for the bank to not rearrange a credit. This is not normal but if a market is dead and the customer cannot repay the credit, it might be an alternative.

In cases where it is necessary with a second opinion, the bank talks to people with great knowledge in a certain line of business. The bank use the "experts" as support but sometimes they even require a written second opinion. Usually this is the scenario when dealing with complicated businesses, large amounts or with high risks.

4.3.3 Credit model

The bank has sophisticated methods to make a risk assessment on their customers. The model includes several factors, among them it can be "hard facts", balance sheets, trends, market updates, payment remarks, payment applications and changes in the board. In the model there are several factors that are important. Probability of default (PD), expected loss (EL) and exposure at default (EAD) are some of these factors. The model has been used frequently since the Basel II (new regulations for the banks) came into force. The model is individual for all the banks but it has been approved by the SEC in Sweden. Smaller banks might have a similar model but not as advanced as the four large banks in Sweden.

The model gives the bank the opportunity to risk classify their customers and depending on the risk class the bank got different sizes of authority. A low-risk customer gives the bank the authority to take decisions with large amounts.

Since Basel II came into force the bank is risk classifying their customers in more detail. The work has been more structured. The bank had general credit follow-up before, especially with customers that had higher risks. The follow-ups depending on risk are individual but once every year a credit analysis of the total credit portfolio is accomplished. During present recession a more intensive follow-up of the "local" credit portfolios is put to practice. The local chief has to identify the risks, give a statement whether the risk profile is the same or if any changes occurred. They report all this to the region chief every fortnight.

Furthermore, there are other factors that need to be considered when assessing a customer within the model. Payment behavior towards the bank and if customer's payment is delayed are factors that affect the assessment in a negative direction. What the bank also needs to consider is whether changes depends on the auditor, the audit and similar. These changes can affect the assessment, in positive, neutral or negative direction.

Every company within the credit portfolio is categorized with help of the risk model. In some cases it is necessary with a monthly overview of the credit to the customer. If there are any changes, a new follow-up for the credit will be in place and the bank will state a new credit decision. A need for the model came after the bank realized that they devoted a lot of their time to assess the credit portfolio, sometimes in cases where it did not was necessary. The current model therefore helps the bank with screening. "Good" credits will not be assessed as much as "bad" credits. This helps the bank to be more effective and prioritize credits in need of an assessment. Nowadays, the offices actually overview the credit portfolio every month and if there are any bad signs, an investigation will start. This usually starts with a meeting with the customer to explain the uncertain points.

4.3.4 Follow-up and reporting
The local offices has to report an update of their credit portfolio (mentioned earlier) monthly. When it comes to the entire credit portfolio (21 billion SEK) the bank is monitoring the portfolio quarterly. However, a real credit portfolio analysis is made every year. In the early analysis the bank looks at certain parameters, e.g. risk parameter and pricing parameter. The bank also looks at the balance sheet, make a cash flow analysis and talk to the customer. The bank almost makes a new credit assessment of the customer. Furthermore, from all the parameters the bank creates a credit strategy. The bank also communicates the strategy to all divisions within the region. This strategy is monitored through quarterly follow-ups. The follow-up is necessary to see if the credit portfolio's strategy is headed towards the right direction.

The bank does not do a reorganization of the credit portfolio in normal cases. This can be explained with the fact that banks with large portfolios get a natural diversification thanks to the different line of businesses within the society. If the bank's management feels that a certain line of business equals high risks a certain year, the bank looks more carefully at the companies within that line of business. It is often individually assessments that control the decision. If a good manager operates in a bad business, he will make it. If a bad manager operates in a good business, he will not make it. The corporate advisors have to look at the credit applications and the management like this for the assessment to be fair.

If the bank sees that a company is close to default, an individual assessment is made. A discussion with the customer will probably provide the bank with some answers. If debtors are insolvent, a higher instance in the organization needs to be informed. I some cases, the customer solves the problems, but in some other cases a default for the customer will benefit both parts. The important in this is that a discussion takes place with the customer. Hopefully, the customer will answer honestly and the question marks will be solved. However, it is important to remember that it is always individual when it comes to defaults.

4.3.5 Risk profile
The risk profiles for the local credit portfolios may vary. However, if a local office has almost all the pizzerias in town in their portfolio, they might deny the next pizzeria's application. All

companies within the credit portfolio have a risk classification. With the information about risk classification, an aggregated risk profile can also be made.

A corporate advisor receives a scorecard every month. In the scorecard the advisor will get information about his volumes, earnings and risks. This is expressed as risk-adjusted-return, return-on-equity, expected losses. So, it can be said that even at the corporate advisors level there are risk parameters. The local chief and the corporate advisor follow-up his achievement every month, this is an individual follow-up from e.g. scorecard.

If there are any big differences between the employees within this area when it comes to risk, the local chief will point out that with his forefinger. The corporate advisor will be told that his credit portfolio needs to develop in a certain direction (in a less- or more risky direction).

4.3.6 Summary

Swedbank's core operations consist of traditional products and services for private individuals and small and medium-sized companies. The credit decisions are usually taken by the local corporate advisors. The first step in the credit process is the contact between the customer and the bank. This can go in both directions. The customer contacts the bank or the bank contacts the customer. In this meeting the customer will give further details about the calculations (capital budget), how they will manage to repay the loan, balance sheet and interim reports. The important factor in this is that the bank can see how the future will develop in terms of payment, company, relationship and the customer's customers.

The management of the company should be assessed. They document what the company does, how the economic development has been, the company's network, presents the investment and how it will be proceed, what the capital budget looks like, equity and how the loan, repayments will look like and how cash flow is. A high-quality company history for the bank is also important. The bank has sophisticated methods to make a risk assessment on their customers. The model includes several factors, among them it can be "hard facts", balance sheets, trends, market updates, payment remarks, payment applications and changes in the board. In the model there are several factors that are important. The model gives the bank the opportunity to risk classify their customers and depending on the risk class the bank got different sizes of authority. Every company within the credit portfolio is categorized with help of the risk model. In some cases it is necessary with a monthly overview of the credit to the customer.

5. Sandvik, analysis & components

In this section of the thesis we let the reader get familiar with our "employer", Sandvik AB. An overview of the company and their credit management is provided. We also chose to provide the reader with our analysis of the theory and cases that eventually will result in components for a credit portfolio model.

5.1 Sandvik Credit

5.1.1 About Sandvik AB

Sandvik is a high-tech engineering industry with advanced products and a leading position in selected markets around the world. Sandvik are exposed to large interest- and currency risks due to their international activities. The corporation group had 50 000 employees in 2008. 11 487 of these 50 000 employees work in Sweden. The company was represented in 130 countries and the volume of sales was 93 billion SEK. The headquarter is in Sandviken, that is also where large parts of the production is located. Sandvik has three business areas, Sandvik Tooling, Sandvik Mining and Construction (SMC) and Sandvik Materials Technology (SMT). Tooling works with tool and tool system for metal processing. SMC is specialist when it comes to machines, tools and service for the mining and construction industry. SMT develops products in advanced stainless steel. The CEO of Sandvik is Lars Pettersson.

5.1.2 Sandvik Credit

Sandvik Financial Services (SFS) works with securing risk exposures. Within SFS there is a department named Sandvik Credit. Their purpose is to act as payment advisors in payment issues and arrange different kinds of customer financing. It can be said that the main task for Sandvik Credit is to find the best financing solutions for the customers in all customer segments. The department was created in order to increase sales, move the stock and monitor risk. The department mainly works as sales support to Sandvik Mining and Construction (SMC).

Even though the main tasks are mentioned above Sandvik Credit works with other areas as well. They do Sandvik's financing in own books, vendor program financing, trade finance in all its forms, guarantees, export and project finance and also issues global credit policies and head up the Sandvik Credit Team (a network consisting of about 50 credit controllers within the Sandvik group dealing and interacting with any credit management issues of common interest).

Offering customer financing do have its advantages. Sandvik offers it for several reasons. Among them we can find that financing increases sales and generates additional profits, financing opens up business opportunities for service, parts and tool contracts. Financing is also an optimal service for the customers and for Sandvik it will mean increased competition due to information availability generates an advantage to offer package deals. Sandvik Credit

at present operates via three own finance companies in USA, Chile and Germany. The size of the credit portfolio is approximately $150 million and the Sandvik Credit organization as well as the customer finance operation is growing. In order to offer competitive alternatives to customers on other markets than the ones mentioned, Sandvik Credit also works out financing solutions together with banks and other partners.

5.1.3 Credit management process

It is important to first understand Sandvik Credit's working procedures if we want to come up with components for an optimal credit portfolio model applicable in their portfolio management. Therefore, we will state their working procedures within credit portfolio management in this part of our thesis.

To make it understandable and not complicated we will go through a credit process where a customer requests funding for its investment. A salesperson from Sandvik contacts a potential customer with an offer, if the customer is interested but do not have the possibility to raise money on his own the salesperson will provide the customer with a credit application to fill in. The sales organization is primarily responsible for the contact with the customer and for the presentation of the credit application. It is their duty to make sure that the application is properly filled in before presenting it to the credit department.

The credit department is thereafter responsible for the credit assessment, in other words it can be said that the credit department is responsible for assessing the creditworthiness of the customer. To their help they have access to information from internal sources and external sources. Internal sources are information obtained from the sales representative, payment history and information gathered by the financial department through direct contact with the customer. External sources are credit reports from credit agencies, bank references, trade references and financial statements. The possibility to use and the reliability of different sources varies from country to country. Where export sales are considered, the amount of political risk in the customer's country should be taken into account. For orders over a given amount an extended risk assessment is necessary, in normal cases it is only necessary with a simplified or a standard risk assessment. The amount is specified in the local credit policies.
When the credit assessment is done a risk category is assigned to the customer. The classifications are from category one to category five, one being the lowest credit risk and five being the highest credit risk.

The credit department only has one more thing to consider before they offer the release to the potential customer; they need to write down the financial terms. The offer can be an operational lease, financial lease (mentioned earlier in the theoretical framework) or some other financial alternatives. It is worth mentioning that Sandvik currently uses 90 % financial lease to their customers. Furthermore, it is necessary to decide the payment period, usually 6-60 months, the earlier the better for Sandvik due to lower risk. Guarantees and necessary documentations need to be in the contract as well.

If a new customer can be categorized as creditworthy, a credit limit is assigned. The credit limit reflects the credit risk, customer's current credit exposure, the volume of planned sales and the modes and terms of payment. The credit limit is the maximal outstanding balance allowed by the deciding department on each customer at any point in time. There are three levels of amounts when a higher authority needs to approve the decision. The maximum credit limit for a specific customer represents the aggregated value of the following: outstanding accounts receivables, drafts discounted with resource, existing order backlog and new request from customer.

A customer with an approved credit application and credit assessment will get a credit for the investment. This will appear in an offer release sent to the customer. In the offer release credit, lessor and price will be written down. It is also important that the rentals credited, amount financed and down payment are in the offer release. The maybe most important tasks in the offer release are value after lease period, lease period, repayment schedule, tax owner, lease documentation, expenses and validity of offer. If the customer accepts the offer, credit will be granted.

5.1.4 Credit monitoring and review
The vital parts in a credit portfolio are to monitor and review the credits outstanding, it is also vital important to follow-up the customers and update their risk category if any change is necessary. Sandvik's credit department reviews all accounts at least once a year. Furthermore, a customer's creditworthiness is reviewed individually whenever adverse changes in a customer's payment behavior or credit risk are recorded or can be anticipated. The sales department should forward information, considered important in judging creditworthiness of the customer, to the credit department. There are some factors that should be considered when monitoring customers' accounts. First of all, the payment behavior of the customer should be monitored and it is also important to look at current credit exposure versus current credit limits, external information regarding credit risk, sales history and planned sales, profitability of the customer and the entity's budget commitment for accounts receivables turnover. Changes in some of these factors should affect the risk category in some extent and it is therefore important to monitor the factors due to potential credit losses. Nowadays, due to financial crisis and economic recession, Sandvik looks at the customers' cash flows even more.

A credit limit review of existing customers should be made within the course of one year or for particular reasons. The review should be made by the credit committee (one board member from the finance company and two representatives from Sandvik Credit). A change of the credit limit for the customer, in both directions, can be motivated for reasons like deteriorated or improved payment behavior, negative or positive information about payment ability of the customer, negative or positive information about the customer's financial strength or a business related change (e.g. fluctuations in one or the other direction for business volume).

5.1.5 Payment issues

Sandvik does not accept any late payments, however, if a customer does not pay due date specified on the invoice a collection process will start. As a rule of thumb, a payment is late if it is not available on the designated bank account by the due date specified on the invoice.

For larger invoices, contact should be made with the customer by the credit department well in advance of the due date to ensure that the payment will be carried out in accordance with the existing sales agreement. This will hopefully work as an early warning and if the customer states any reason for not paying in time and the necessary action to secure the payment can be taken.

If Sandvik has not received the payment within seven days a phone call and a reminder letter will be sent to the customer to check why the invoice is not paid. After two weeks from due date a second phone call and a reminder letter will be sent to the customer. Sandvik will also give the customer a warning of credit hold if payment has not been received by due date plus 30 days. Thirty days after due date a third phone call and a reminder letter will be sent and the credit will be hold, a warning of delivery stop will also be in place if payment is not received by due date plus 45 days. After due date plus 45 days a phone call and a reminder letter will be sent together with the information that the delivery has stopped. Legal actions will be taken after 60 days after due date. The invoices will then be handed over to the local credit collection agency.

Moreover, in difficult times it might be necessary to rearrange lease contracts. Sandvik is open for this type of solutions and in some cases they can even offer a period of exemption from amortization. It is better to rearrange a loan than see the customer files for bankruptcy. Sandvik would with high probability loose more if a customer filed for bankruptcy compared to a rearranging of a credit.

5.1.6 Follow-up and control

If a company has an existing credit portfolio perhaps the most important thing then is the follow-up and control of the credit portfolio. Sandvik Credit uses key performance indicators (KPI) for this matter. They look at days sales outstanding (this is the main KPI for account receivables and measures the average number of days that elapse between invoice date and the receipt of payment), overdue receivables as a percentage of total accounts receivables, actual bad debt expense including write-down for suspected bad debt in relation to sales and last but not least the proportion of high risk receivables in relation to total receivables.

The credit department and senior management should together establish new goals for the coming year. This should be done every year. These goals are based upon many factors, including the company's credit policy, sales and financial requirements, competition and their endeavor to move into new markets. Control and internal reporting is vital factors for managing the credit portfolio. It is stated that an overdue report with aging analysis should be distributed to all relevant sales people on regular basis, preferable every two weeks. A comparison should be made of the accounts receivables outstanding and the approved credit limits. Decisions to increase or decrease existing limits should be taken after an enquiry with

the sales division about expected sales and terms of payment. The credit exposure for high-risk accounts (risk category four or five) should be followed and analyzed regularly. The situation should be reported to the managing director on a monthly basis. The managing director will then get information about actual bad debt expense including write-down for suspected bad debt in relation to sales and the proportion of high-risk receivables in relation to total receivables.

Payment precision of existing important customers should be monitored and reported to the account managers. Customers with quite limited credits that delay payments repeatedly should be identified and reported. An annual review of the credit structure is to be made jointly by the credit manager and the business unit manager in connection with the budget work. The review should analyze the structure of the terms of payment, review the credit exposure situation by analyzing sales on high-risk account and review the bad debts, which have occurred since the last review and finally the review should reconcile the control figures agreed upon with the targets set (when the credit management and the senior management establish new goals, as mentioned above).

5.1.7 Credit portfolio improvements
The credit portfolio mainly consists of small high-risk companies. This can be explained with the fact that most of the companies that need funding for their investments are not bankable. It is harder to manage a credit portfolio with high risk (low diversification) compared to a credit portfolio from a bank's perspective (higher diversification and therefore lower risk).

Sandvik Credit was created in order to increase sales, move the stock and monitor risk. The department mainly works as sale support to SMC. However, the department is not fully developed when it comes to credit portfolio management. The credit portfolio is approximately $150 million and continuously increasing. With an increasing credit portfolio it becomes more important to manage the credit portfolio on an aggregated level. In present times of recession and financial crisis, it also becomes more important to forecast bankruptcy and potential credit losses. According to scientific surveys bankruptcy can be predicted with an accuracy of 90 %. Hence, a continuous credit monitoring and follow-up is vital for the entire company.

5.1.8 Summary
It can be said that the main task for Sandvik Credit is to find the best financing solutions for the customers in all customer segments. A salesperson from Sandvik contacts a potential customer with an offer, if the customer is interested but do not have the possibility to raise money on his own the salesperson will provide the customer with a credit application to fill in. The credit department is thereafter responsible for the credit assessment, in other words it can be said that the credit department is responsible for assessing the creditworthiness of the customer.

To their help they have access to information from internal sources and external sources. Internal sources are information obtained from the sales representative, payment history and

information gathered by the financial department through direct contact with the customer. External sources are credit reports from credit agencies, bank references, trade references and financial statements. Furthermore, a customer's creditworthiness is reviewed individually whenever adverse changes in a customer's payment behavior or credit risk are recorded or can be anticipated. The sales department should forward information, considered important in judging creditworthiness of the customer, to the credit department. There are some factors that should be considered when monitoring customers' accounts. First of all, the payment behavior of the customer should be monitored and it is also important to look at current credit exposure versus current credit limits, external information regarding credit risk, sales history and planned sales, key performance indicators (KPI), profitability of the customer and the entity's budget commitment for accounts receivables turnover.

5.2 Analysis & components

Hopefully, at this moment in the thesis the differences between the companies described are clear. Sandvik AB is a different company compared to Scania AB, Volvo CE and Swedbank AB. Therefore, we had to be careful in our analysis of the components. Some components for the credit assessment process are not applicable on every company. In our theory, we mentioned over 60 components that a company can use when credit assessing their customers. From the cases we also collected information about many similar, but also other components. However, the process of applying those components on Sandvik was not easy. We had in mind that Sandvik AB is a company that operates in different markets than the companies in our cases and that their credit department functions as sales support. Thus, in difference to Scania Financial Services, Sandvik does not have a profitability goal.

Furthermore, Sandvik cannot do anything about their exposures to certain industries. Scania has more scope in diversifying their credit portfolio. Their customers are spread in many industries. Sandvik, as mentioned, function as sales support for SMC. For that reason, they do not have the natural diversification among several industries because SMC operates towards the mining and construction industry. The same is true for Volvo CE. Their trucks are suited for one or few certain industries. Thus, the natural diversification is for those companies hard to attain. However, even though Sandvik does not have the same opportunity for diversification as Scania, they are more similar to Scania than to Volvo CE. The reason for that is that both Sandvik and Scania are working with leasing. The connection of leasing is much stronger than the connection between industry exposures. Yet, we could find one similarity between Sandvik and Volvo CE. It is that both companies have the same goal to work as sales support.

Sandvik operates in completely different markets than Swedbank and does not have the same operations. However, because banks are considered to be experts at credit portfolio management we tried to get influences and corroboration from Swedbank. We also tried to elucidate the differences between a bank and an industrial corporation. Another difference was that Swedbank (region Gävleborg) only operates in the local market. It means that they are not exposed to country risk in the same way as Sandvik, Scania and Volvo CE. For these

reasons, we put most weight on analyzing Scania. Volvo CE and Swedbank though worked only as guidance in our analysis.

When comparing the credit assessment components from the theory and cases we found out that there were differences between those two. The theory was not fully correspondent with the cases. The reason for that is probably that the theory is not only aimed for the leasing industry; rather it is aimed at corporate credit analysis in general. Therefore, it was necessary to find similar or same components between the theory and the cases. We tried to complete and gather all those components that were similar or the same. However, it does not necessarily imply that those consistent components are applicable on Sandvik.

5.2.1 Country assessment

Starting with country assessment which is the more overall analysis, we can say that we found similarities between the theory, Scania and Volvo CE. The similar components from the theory and the cases are country risk rating and country risk assessment. Within the country assessment in theory the industry overview is mentioned. Scania has a similar assessment of macroeconomic data. They check the industry overview by looking at e.g. GDP, oil price, local PD (probability of default) and company PD. These parameters are of course adjusted to Scania's industry. Oil price is important to follow because it affects gasoline prices which in turn affect their customers who have their vehicles. For Sandvik, the oil price can as well be an important parameter because their customers use machines that need fuel. We also thought that other raw material prices are important to assess for Sandvik because it affects their customers. It can be copper, ore, zinc or other raw materials.

In the countries that Sandvik operates in they can make an assessment of GDP, local PD and company PD in the same way as Scania does. Volvo CE on the other hand mentioned that they sometimes have to make a country assessment because their companies sometimes do not even have annual accounts or other documents that shows their financial situation. However, as we understood, Sandvik is not dealing with that kind of companies. However, we believe that neither we nor Sandvik do know the whole truth. Customers could after all show the tax authorities one kind of financial statement and Sandvik another. The big difference between these two companies is that Volvo CE does not bear the risk on their own while Sandvik does. The principle of country assessment is the same though.

It is also possible to get an overview of insolvency trends, payment incidents index, means of payment and collection methods as well as other indicators when making a country risk assessment. Our opinion is that Sandvik should use these indicators when making a country risk assessment because they can get a better overview of the macroeconomic data. Macroeconomic data is often a good hint to how the situation in a specific country is. There are several different rating institutions like Standard & Poor, Coface, and Dun & Bradstreet and so on. We think that it could be a good idea for Sandvik to compare the ratings between different agencies and make a contexture between the rating institutions and their own country risk assessment. In present, Sandvik is assessing the country risk but they can also get additional guidance from this thesis.

5.2.2 Customer's customer

Another important component is customer's customers. The theory is fully consistent with the cases Scania and Swedbank. We had the impression that customer's customers play a vital part in the credit assessment process. Both Scania and Swedbank put a lot of focus on this component and we think that they are doing the right thing. If their customers are exposed to individual customers it can cause trouble for them. Imagine a scenario where Scania's or Swedbank's customers get in trouble due to contract cancellations with their customers. This will have a negative impact on Scania and Swedbank. Let us now imagine that Sandvik's customers are overexposed to individual customers. If these customers run into trouble, it will affect Sandvik's customers. Sandvik's customers could eventually run into bankruptcy, causing them to default on their payment obligations to Sandvik. This could have dramatic financial consequences for Sandvik who could lose money. How could this then be avoided?

Our opinion is that customer's customers should carefully be assessed by Sandvik. However, the choice of Sandvik's customers depends on their risk aversion. If Sandvik is prepared to take on much risk, it is then not necessary a bad thing to have overexposed customers. They are probably careful when assessing their customers and they do not want to take on overexposed customers. By choosing customers that are well diversified in their customer basis, Sandvik could also indirect be diversified implying a lower risk on the customer. Our conclusion tells us that Sandvik should, even in their selling-process, make an assessment of customer's customers. Thus, we believe that it is important to assess this in an early stage because it could be important not to discover in a late stage that their customer is overexposed. Sandvik should demand a list of customers' customer stock.

5.2.3 Payment history & payment behavior

We found that two components that all four companies have in common are the payment history (also called payment remarks by Swedbank) and payment behavior. The payment history shows if the customer has managed to fulfill its payment obligations to the company or if the company has any payment remarks. This information can be collected from several credit reports provided by credit agencies. A similar parameter to this is the status of the customer. Why is this an important component? We think that it is important because it will show how the customer's payment history has been i.e. what has happened in the past. It can for example be how much leasing they have had in the past or how big these leases were and if they were fulfilled on time and in amount. Thus, payment history can generate an indication of what kind of customer Sandvik is dealing with, i.e. if the customer has not fulfilled his payment obligations to other lessor's, he can be classified as a high risk customer.

Payment behavior provides information about how the debtor has fulfilled his role as a debtor. Did the last creditor have problems with the debtor or not? We have the impression that if these questions can be answered, the credit assessment process is facilitated. The status of the customer tells whether the customer already is a customer to the company or not. The payment history is also included in this parameter because it tells if the customer has done well i.e. if the customer has managed to fulfill its payment obligations. It also provides information about the relationship with the customer. For Scania this is an important

parameter because they guard their relationships with their customers. Sandvik however, already uses this parameter in their credit assessment process. It means that they get corroboration both from Scania and the theory to continue using the parameter. However, we don't know how much weight Sandvik puts on this component but in our final conclusions we have ranked all components. Sandvik could then follow or ranking and by themselves rank this component higher or lower than present.

5.2.4 Assessment of customer's management

The theory is consistent with our cases when it comes to assessing customer's management. The theory says that a company should evaluate the performance of their customer's management. The following questions could answer that: What education and experience does the management have? How long has the management been in control? Will the management change i.e. will a new CEO be hired? These are a few questions that need to be answered. This is an important part in Scania's credit assessment. They point out that it is a very subjective judgement and what is a skilled management depends upon who is evaluating their performance. Volvo CE is also consistent with the theory. They also evaluate the performance of their customer's management similar to Scania. Swedbank also evaluates the performance of their customer's management. We believe that this is an important part of the credit assessment process because changes in the board or CEO replacement can have a big impact on the relationships with customers. If a customer hires a new CEO, the new CEO can chose a completely different path than the CEO before did. In worst case this could have a negative effect on the business relations between Sandvik and the customer. According to us, this is not often a problem but it can happen.

However, Swedbank operates on a local market in difference from Sandvik, Scania and Volvo CE. Thus, they have the opportunity to visit their customers. We believe that Sandvik does not have the opportunity to visit their customers as Swedbank because they operate on a global market. For that reason, Sandvik could apply Scania's model. By that we mean that Sandvik could start finance companies in their main leasing markets. Then the finance companies could help the central credit risk management division with this component.

Sandvik should, as we said, try to get access to information about the management of their customers. In addition, Scania wants their customers' management to make statements about a few issues. Their customers' management should be able to give comments upon the reasons for leasing, the explanation of their profitability, forecasts and other relevant comments. Our opinion is that Sandvik could also do that. They can start to require this kind of information from the management of their customers. We recommend Sandvik to assess their customer's management with the questions we provided in the theory and from our cases.

5.2.5 Utterances from the management

We believe that utterances from the management can be an important part of credit risk assessment process. The reason is that the management often can provide important information that is not possible to receive from just different financial statements. By having a

dialog with the management, Sandvik could in best case receive a lot of important information about the status of the company. In worst case, the management cannot provide Sandvik with information. We though believe that is not usual that the management will not provide their suppliers with any kind of information.

The management should be able to explain why their profitability has increased/decreased and how they think that the profitability will be next year. If these questions are answered properly, we think that the probability of getting financing is much larger. According to us, Sandvik could apply this type of assessment in their credit approval process. We argue that this is important because it gives Sandvik a hint about the future development and status of their customers. However, it is important to be critical in these situations. Volvo CE pointed out that the management in some cases can have different balance accounts for different agencies. Therefore, Sandvik has to be critical to what the management of their customers say. Nevertheless, if Sandvik's customers are planning to expand their operations, then Sandvik can be prepared to hopefully increase their sales to that customer. It could facilitate the credit approval process. For that reason, we believe that this quality assessment component is relevant.

5.2.6 Profitability

Leasing equipment to a non-profitable company is not always a profitable deal. We believe that several question about the profitability of the customer need to be answered. How has the historical profitability been? Companies might be profitable in good times but how will their profitability be in difficult times? Leasing equipment to a company with only one year profit might be a risk (assuming a history of one-three years). If the company makes a loss it needs to take on more debt or similar. This can change the risk profile for the company. An assessment of the profitability can help to prevent this scenario and hopefully give a hint on what is to come.

In order to make an assessment of a company's profitability there are four ratios that can be used: return on assets, return on capital employed, profit/sales ratio and asset turnover. It is hard to tell which one is the best. Therefore, the company can use the most suitable ratio from their perspective. Profitability can be calculated from the balance sheet and we consider it very useful. We consider profitability to be a very important component because it has connections with cash flow. A profitable company will many times have a strong fund, unless the company does not decide to pay it all out in dividends. For that reason we recommend this to be a separate component.

5.2.7 Cash flow analysis

In the financial world of business there is an expression that says "cash is king". It is well known that a cash flow analysis is important when assessing a company's financial situation. We found this evident both in the theory and in the cases. All companies in our cases state that a cash flow analysis is very important. Scania pointed out that cash flow analysis is an important part of their credit assessment. If their customers have a lot of cash they can make a down payment (cash contribution) which reduces the risk in the financing. Many companies

usually default due to liquidity shortage. Much cash in the company is an indication of lower company risk. Low company risk on the other hand implies that the company most likely can fulfill its payment obligations. For that reason, Sandvik could make a cash flow analysis when assessing their customers. It can also be said that cash can increase investments or the growth of the company. Sometimes, large companies with a high market share tend to have much cash. Sandvik could and should try to find companies with high market share because it can be a good indication of their financial status and their cash flow.

If they make a credit assessment of the cash flow they can better monitor their risks. A risk classification of a customer will then be more comprehensive i.e. it will provide a more justified picture. Our thoughts tell us that cash maybe is the most important component of all. Because "cash is king", a company should always make a credit assessment of the cash flow. However, if Sandvik's customers are growth industry, Sandvik should be careful. It is known that growth industry can have a tremendous growth in short time. Usually, when a company is growing so fast, they face liquidity shortage. We believe that a cash flow assessment on growth industries is even more important than companies that are within the ripening stage.

5.2.8 Stable earnings

The theory says that a creditor can make an assessment of debtor's earnings. They can check what the earnings have been but also make forecasts about the future. If the debtor has many years of stable earnings behind them, it indicates that it probably is not a company that is sensitive to economic fluctuations. Stable earnings indicate that the company has lower risk than companies with volatile earnings. It can also imply that the company is very profitable. A company that is profitable usually has a strong fund. We think that the reason for Sandvik to use this component is that it can give them a good indication how the company is performing. Stable earnings can also say a lot about the management of the company. If the company had the same management through recessions and booms but still had stable earnings, it can indicate that the management has done a proficient job. It could also be a coincidence but many times, management has done a proficient job. Thus, if Sandvik manage to check both stable earnings and management, they will have a good overview over these important parameters.

We find this relatively interesting though but we think that we should be critical to some extent to this component. As known from previous scandals, it is possible to manipulate earnings. The most famous example of that is Enron, who managed to manipulate their earnings because their accounting was on a mark-to-market basis. For that reason, we provide Sandvik with this component, but at the same time we recommend them to be careful when evaluating stable earnings. A more thorough analysis of which accounting standards their customers use might be necessary. It might also be a problem to compare different accounting standards because they do not follow the same laws. For example, companies listed on a stock exchange in Europe follow the IFRS while the American companies follow US GAAP.

5.2.9 Investment plans

Many companies want to know how their customers make forecasts about the future. Are they going to make new investments? What kind of investments will it be? Are they going to enter new markets or expand their product park? These are some questions that need to be answered by the customers. In present time, Sandvik does not evaluate the investment plans of their customers.

We believe that Sandvik could benefit if their customers are planning new investments. If their customers are planning new investment, it could perhaps mean that Sandvik could increase their sales to that customer and increase their revenues. We find that the theory is also here consistent with our cases. Scania evaluate their customers' market share plans i.e. if they are going to make new investments and expand their operations. If their customers do that, Scania could sell more vehicles to those customers. It can seem far-fetched but imagine that a firm or haulage contractors want to expand their business. They will be in need of more trucks which will benefit Scania through increased sales. We believe that the same is true for Sandvik but in their industry.

The theory says that Sandvik could evaluate the projects of their customers. It means that Sandvik should review whether the planned investments are feasible or not. We think that new investment plans can also indicate that the customer has excess cash which in turn implies a strong fund. All this can benefit Sandvik on the condition that their customers are planning profitable investments. We should know that are made investments are not profitable and for that reason they should be careful. Bad investments can mean a sunk cost for Sandvik's customers. However, if they don't realize that it is a sunk cost, they could continue to invest in bad projects. Eventually, it could hurt their fund. Our view is that Sandvik should assess their customer's planned investments very carefully. If it is not done by Sandvik Credit, then it should be done by the sell-staff. A successful analysis of customer's expansion plans can give Sandvik opportunities for more leasing.

5.2.10 Balance sheet

The balance sheet of customers can provide the creditors with a lot of information. Many key financial ratios can be checked by scrutinizing the balance sheet. The most common key financial ratio that is checked is the solvency. The solvency tells how much equity a company has compared to the balance sheet total. Solvency is measured by; equity / debt + equity. The solvency measures the financial status of the company in a good way. Too much debt is a sign that the company eventually could run into trouble if they do not manage to pay off their debt. High solvency equals more equity. We believe that the solvency also tells us how solid the company is financed. What we mean by that is that the solvency is a measure of the company's strength to survive during temporary losses or during several years of losses. If the losses are severe the equity in the company can be used up. If there is not much left of the equity, lenders could require the firm to file for bankruptcy so that they can get look after their claims in the company. For that reason, we believe that Sandvik should check the solvency. It would not be an optimal situation for Sandvik if their customers would run a lack of equity. It is important that they have strong and solid finances.

In addition to solvency, we believe that Sandvik also should asses the fixed charge coverage ratio. The fixed charge coverage ratio is measured by: EBIT + fixed charge (before tax) / fixed charge (before tax) + interest. The fixed charge coverage ratio indicates a firm's ability to satisfy fixed financing expenses. Fixed financing expenses can consist of interest and leasing. Because leasing is included we believe it to be a useful ratio. For example, since leases are a fixed charge, the calculation determining a company's ability leases would be (EBIT + Lease Expenses) / (Lease Expenses + Interest). The higher the fixed charge coverage the better it is. A fixed charge coverage below 1 will indicate that the company will make losses. A company should at least have a ratio of 4-5 or higher. Our opinion is that this ratio should be used as a complement to solvency because solvency is an on-the-spot account at the day of closing the books.

However, different industries have different average solvency. Depending on what industry the company operates in, the average leverage ratio is different. In Sweden, banks normally have low solvency. The same is true for real estate companies. However, Sandvik does not have that kind of customers. Thus, Sandvik needs to put their customers leverage in relation to industry average. Solvency is an important parameter for Sandvik because low solvency can indicate higher risk and vice versa. Too much debt also increases cost of capital for the customers. That could in turn give them difficulties with repayments.

5.2.11 Key performance indicators

Furthermore, there is a possibility to access other key performance indicators for Sandvik. These are for example; debt-to-equity ratio, return on equity, average interest on debt, the extent of interest cover, current ratio, liquidity ratio, profitability margin, return on assets and many others. Which of these Sandvik should choose to use is dependent upon what companies Sandvik does business with. Considering for example interest on debt, we could probably see that it differs a lot between industries and between companies. Profitable companies with stable earnings and strong fund that has managed to pay all its interests on time will probably have lower average interest on debt. Banks are more reluctant to lend to high risk companies and therefore they demand higher interest for those.

Some key performance indicators have better effect on some markets than on other. We provide Sandvik with these key performance indicators (KPI) so that they can choose which to use. Because we are not familiar with Sandvik's business to a full extent, we cannot know what Sandvik considers to be the most important KPI. However, these indicators can provide Sandvik with useful information and for that reason they should be considered. Even though we are not familiar with Sandvik's business to a full extent we still consider some of these KPI to be more important than others. According to us, a company should look more at the return on equity, profitability margin, liquidity ratio and return on assets. We believe that these KPI can give the best overview of the companies that is being assessed.

5.2.12 Securities

Industrial corporations sell physical products (e.g. trucks, drills, machines). A customer who needs funding is usually obligated to name acceptable securities. Banks sell non-physical products (e.g. loan). In the credit application both parts need to consider the security requirements. A bank might demand a house or a building as a security. Industrial corporations can secure the physical product they lease. In some cases, it is also necessary with additional securities. Scania mentioned that they always secure their products but that it is necessary to require additional securities in some cases. A study by Schmit (2004) showed that physical securities play a major role in reducing the credit risk associated with lease portfolios. We believe that because Sandvik lease physical products they should therefore view this as an important component. In scenarios where the customer is near default they might thank themselves if they required additional securities. Therefore, it is necessary to carefully assess the security requirements before granting a credit.

5.2.13 Legal situation

The theory and Scania are consistent in one additional matter. It is the legal situation of customers. Is the customer a parent company or is it an affiliate? If it is a parent company, how big is the corporate group? If it is an affiliate, which company is the parent company? Is the customer listed on a stock exchange? These are the types of questions that tell the legal status of the company.

This is an important issue for Scania and we believe that it should be for Sandvik as well. They want their customers to answer these questions in a credit formula. Usually, both Scania and Sandvik deal with small or midsized companies. It is therefore necessary to review the structure of the corporate group. If they are dealing with an affiliate, they would want to know if the corporate group is a conglomerate or not. A conglomerate is maybe not specialized on a certain industry which can mean that they don't have the same business expertise. Business expertise is according to the theory an important component. It is much easier to deal with customers that have business expertise. We think that they also might want to know who the parent company is. A solid parent company with strong fund can mean a lot because they can invest or help the affiliate if they are running into trouble. For that reason, we believe that the legal situation is important.

If Sandvik has customers in the mining and construction industry and those customers do not have the business expertise, then it can be stiff to deal with that kind of customers. If they do not know how to handle Sandvik's machines, unexpected costs for Sandvik can arise. If Sandvik's customers possess business expertise they can seize market shares, especially during recessions. We believe that it could benefit both Sandvik and their customers if they have business expertise. For that reason, Sandvik should assess the legal situation and the business expertise of their customers.

5.2.14 Metaphor

To elucidate the difficulties we can make a metaphor of our analysis. The components provided in the analysis can be compared to a soccer team (or any team). Within a soccer

team, there are 11 players on the pitch (and some substitutes). For a team, it would not be appropriate to just play with 11 forwards or 11 midfielders because that would not be an optimal line up. It is for the manager to decide what the best formation for the team is. He can choose to use different players depending on how he wants to play. The same is true for credit risk management. The credit risk manager is trying to toggle different components into a model so that the model would be optimal. Depending on the portfolio situation, some components for the risk manager are more important than others, just like some soccer players are more important than others. The model shown below illustrates the constant process of optimizing the credit portfolio and putting in different components depending on the formation of the portfolio.

Figure 5

Formation of the portfolio ⟶ Components ⟲ Optimal credit model
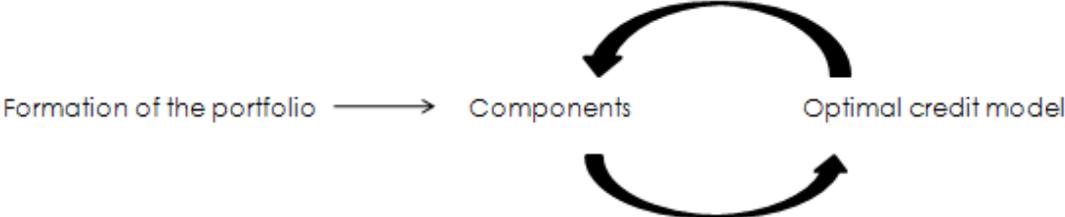
(*Our own model to illustrate the metaphor*)

5.2.15 Final words
We have collected tens of components and there are with certainly even more in the theory. It has been difficult to come up with components applicable on Sandvik's credit portfolio when we are not fully familiar with their management to a full extent. However, we have been able to reduce the difficulties by discussing the issues with Sandvik. Thereby we got a better insight in Sandvik's credit management. We think that those components above will provide Sandvik with the necessary information about their customers. Hopefully they will be able to determine whether their customers are creditworthy with the help from the components that we provided.

6. Conclusions

This section will provide the reader with the results from our thesis as well as proposals for future research.

6.1 Results

Credit assessment is very individual. Every creditor uses different components in their credit assessment process. We brought out several components that we thought could be useful for Sandvik's credit portfolio management. In the theory we mentioned over 60 components that could be used in the credit assessment process. However, many of these components were not applicable on Sandvik. For that reason, we chose only to use the components that were applicable according to us. Furthermore, the cases provided us with additional components that we considered to be useful in the credit assessment process. Because the mentioned companies in our cases differentiated from Sandvik, we could not use all of their components.

Sandvik has high risk companies in their credit portfolio. According to us it is then even more important to consider several components compared to a well diversified portfolio. To elucidate what we consider as the most important components for Sandvik, we have ranked the components. When ranking the components, we considered how important the different components would be for Sandvik. We also looked at how important our cases considered the components compared to how important the theory considered them.

The ranking begins with the most important. We brought out the following components:

- Cash flow analysis
- Payment history and payment behavior
- Balance sheet analysis
- Profitability
- Parameters within country assessment
- Customer's customer
- Judgement of customer's management
- Key performance indicators
- Business expertise
- Legal situation
- Investment plans
- Future forecasts
- Utterances from the management
- Stable earnings
- Securities

Sandvik is an industrial corporation and they have specialized equipment leasing within their area of mining and construction. Their credit portfolio consists of many small companies which indicate high risk. We considered these components necessary because Sandvik deals with high risk customers. To better monitor and control the risks, we believed that the components we brought can be viewed as useful when creating Sandvik's credit portfolio model.

6.2 Proposals for future research

Future research could be to create a real credit portfolio model for Sandvik. The model could take our parameters into account and make them measurable. Banks are usually experts at making components measurable. However, multinational corporations like Sandvik could get influences from banks and thereby try to develop their own credit portfolio models.

Furthermore, a thesis like ours could be developed in an international setting. By that we mean that it is possible to describe how some of the world's largest corporations deal with this kind of issues and thereby get influences from them as well. Influences could e.g. be picked-up from General Electric's money bank (GE money bank) or other large multinational corporations. Future research could also make a study in an international setting and then compare it with our results. Do Swedish corporations work the same way as for example American or Asian corporations with credit risk management?

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7.3 List of figures

Appendix

I. What companies the cases include
- Scania Financial Services
- Volvo Construction & Equipment International
- Swedbank

II. Our respondents
- Anders Herlitz, Credit risk manager at Scania Financial Services
- Tomas Gillström, Area manager finance, Region International at Volvo Construction & Equipment AB
- Pär Bäck, Credit manager at Swedbank AB

III. Our opening questions
- How do you overview the aggregated credit portfolio? How do you monitor the risk profiles for the specific credit portfolios? How do you update the risk profiles?
- How do you collect information?
- Do you have a specific model for monitoring the credit portfolio? Explain the pillars.