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Determinant Influence on Hedging Strategies

A case study of AB Volvo, AB SKF and Getinge AB

Degree Project in Master of Science in Business and Economics, specialization in Industrial and Financial Economics, 30.0 credits

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Abstract

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Background and Problem: Most internationally operating companies are exposed to foreign exchange risk. Companies who hedge their currency exposure strive to minimize the effect of unfavourable foreign exchange rate movements since it can have a negative impact on companies' operational results. However, there is no optimal hedging theory that can guide managers to reduce this company specific risk. Due to a lack of knowledge and an insufficient understanding in companies about ways to prevent this, companies constantly need to update and reform their hedging strategies. Therefore, it is important to recognise which, how and why internal and external determinants affect companies' hedging strategies.

Aim of Study: The aim of this study is to explore which determinants have affected AB Volvo, AB SKF and Getinge AB's currency risk management during the last decade. Furthermore, it should aim to answer how and why the companies' hedging strategies have been influenced by these determinants. Hence, this study strives to clarify the relationship between existing hedging theories and the reality of companies' hedging activities.

Methodology: This is a multiple case study that aims to explore the sample companies' currency risk management by analysing data gathered from interviews and publicly disclosed information. The study is conducted in relation to our research model, which originates from previous theories and studies. Moreover, to support the findings with a more general opinion, interviews were held with representatives from the three banks Deutsche Bank, Nordea and SEB.

Analysis and conclusion: This study finds no general conclusion regarding which, how and why internal and external determinants influence companies' hedging strategies. Due to the fact that there are several company specifics and prevailing market conditions that have to be taken into consideration when assessing companies' currency risk management.

Keywords: Currency risk management, Foreign exchange rate risk, Hedging, Netting, Hedging Strategy, Determinants

Glossary

Derivatives: A derivative is a security sued as an instrument to reduce and hedge certain risks or in a speculative purpose. The price is based on an underlying asset. The underlying asset can be anything from a stock to a commodity or a currency. The most common derivatives used are futures, forwards, options and swaps. They all are different form of contracts between a buyer and a seller.

Hedging: Hedging is an investment conducted to reduce the risk of volatile price movements in an asset. Hedging of foreign exchange rates is performed to decrease the effects of currency fluctuations. It reduces the risk of unfavourable exchange rates movements, through taking an offsetting position. A derivative (see derivatives) is the financial instrument used for hedging purposes.

Hedge Accounting: Hedge Accounting is a method used in accounting to reduce a volatile result from fair value assessment (see fair value) of assets and liabilities. Hedge Accounting is a matching process where gains and losses are offset in the income statement. Reciprocated hedges accounts as one and can therefore be balanced out. Hedge Accounting has efficiency requirement of 80-125%, which is the relationship between the derivative and future transactions that is required.

Fair Value: The fair value regarding financial assets and liabilities in form of derivatives (see derivatives) is the relationship between the future value and the current value. This equilibrium price is the spot price (present price) after the compounded interest is accounted for.

Multibank Platform: An IT based trading solution where intermediate bank offers are shown for the company. Through this system the company can access and compare all available options from the intermediates at the same time.

Natural Hedging: Natural hedging, also known as 'operational' or 'strategic' hedging, refers to activities where companies' structure is reconsidered and revised to reduce its financial exposure. By placing cost and revenue units strategically companies strive to match cash flows that reduce exposure to currency fluctuations.

Netting: A netting system is an IT based solution, which enables a centralised settlement of all intercompany transactions. When netting all in- and outflows between subsidiaries are match, which minimize the net exposure and this enables companies to reduce its financial exposure without using any derivatives.

Proprietary Trading: Proprietary trading is when companies trade financial derivatives in order to earn money instead of using it for risk reduction and hedging purposes. This is a way to try to outperform the market.

"The derivatives genie is now well out of the bottle, and these instruments will almost certainly multiply in variety and number until some event makes their toxicity clear"

Warren Buffett, 2002, Letter to Berkshire Hathaway shareholders

Contents

Abstract

This study finds no general conclusion regarding which, how and why internal and external determinants influence companies' hedging strategies. Hence, there are several company specifics and prevailing market conditions that have to be taken into consideration when assessing companies' currency risk management. The purpose of this study is to explore companies' hedging strategies through a multiple case study based on interviews with representatives from AB Volvo, AB SKF and Getinge AB. This information is combined with publicly disclosed data from the respective companies, which represents the base of the empirical framework and results of this study. Furthermore, interviews performed with banks contribute to this paper in an attempt to achieve a less biased and a more general view.

1. Introduction

This chapter presents a brief overview of currency risk management with a focus on companies' hedging strategies and policies. It gives a background to this study through previous research, which aims to give the reader a better understanding of the subject. Furthermore, it will explain the purpose and questions of this research to give the reader an overview and outlay of this study.

Most companies have a financial strategy that works as a guideline and regulates the mandate regarding risk management. One major financial risk for multinational companies is the foreign exchange rate risk, which occurs when performing international transactions. The risk of currency fluctuations can be reduced and stabilized by hedging (Allayannis & Weston, 2001).

Financial derivatives such as option, forward and swap contracts are the most common financial instruments used for hedging (Black et.al. 2008). Derivatives are not only used for hedging purposes; they can also be used in a speculative purpose in form of proprietary trading. This is a way for companies to earn additional return outside their core business (Merkley & Levin, 2004).

The purpose of this study is to explore which determinants have affected multinational corporations' currency risk management during the last decade. Furthermore, it will try to clarify the relationship between existing hedging theory and the reality of companies' hedging strategies, by answering how and why they are influenced by these determinants.

Our research will focus on currency risk management of transaction exposure in the three case companies: AB Volvo (Volvo), AB SKF (SKF) and Getinge AB (Getinge). All three companies are Swedish multinationals with a great amount of international transactions, which generates foreign exchange rate exposure. Since risk management among multinational companies in Sweden is governed by a limited group of people, there is a lot of cooperation among them. To give a more general and less biased view of the subject, additional interviews are conducted with three banks.

We will contribute to the literature by conducting research that combines a multiple case study with financial theories. The study will give the reader an understanding of how theories and real

life management differ, which is revealed through a comparison of theories with interviews and publicly disclosed data.

A company's hedging strategy and policy are determined in relation to internal and external determinants. Some of the internal factors we will focus on in this study are capital structure, managers, shareholder, business, company structure, financial performance and forecast reliability. The external factors this research focuses on are accounting standards, market volatility in relation to the financial crisis and technological development.

This study reveals that the case companies focus on risk-reducing activities, since the uncertainty of the market has negative effects on their financial performance. The risk of unfavourable currency fluctuation is mainly reduced by hedging with financial derivatives, natural hedging[1] and by netting[2] the currency flows against each other. Denominators such as managers risk aversion, company structure and financial exposure affect how and to what extent companies work with these risk-reducing activities.

Presented below is our research model. It is used to find determinants influence on companies' hedging strategies. It shows the relationship between external and internal determinants and their effect on hedging activities and objectives. This is our research model, which has been developed in accordance with the conceptual framework and the findings we made throughout our research. The model should help to visualise the research questions and findings of this this study. However, the model can be seen as a tentative model and it should leave room for deviation due to the fact that companies' hedging strategies are not static. It interacts extensively with internal and external determinants.

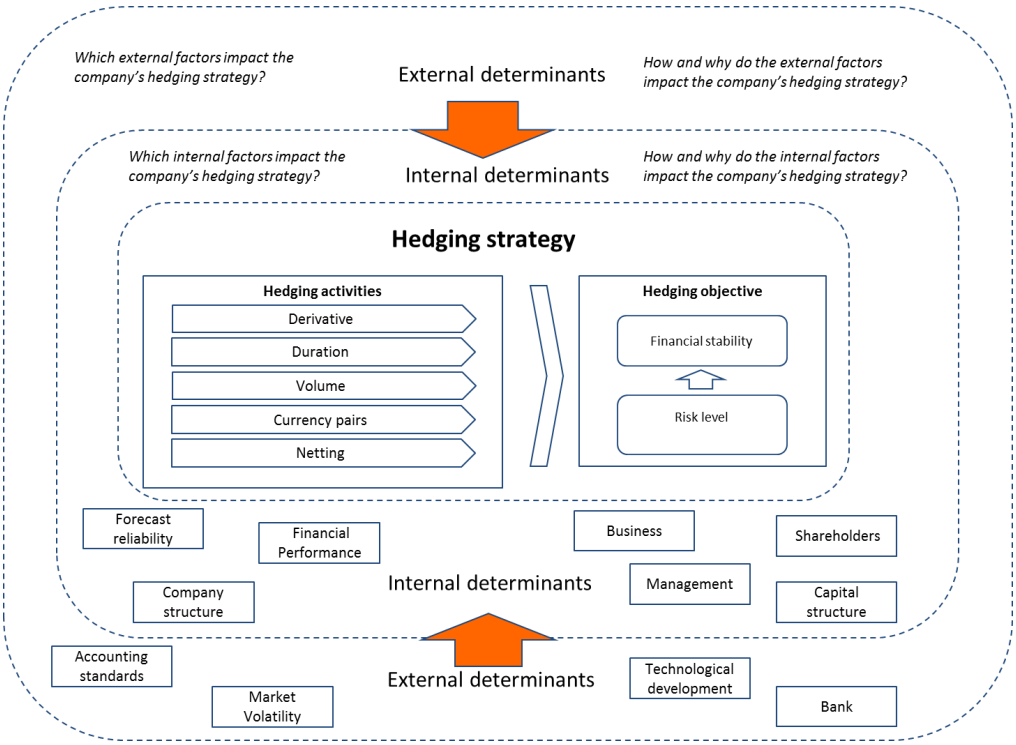

Figure 1. Our research model of companies' hedging strategies.

[1] See Glossary
[2] See Glossary

After analysing the case companies' currency risk management, more specifically their hedging strategies of transaction exposure, in relation to the conceptual framework we find that company specific attributes such as: capital structure, managers, shareholders, business, company structure, forecast reliability and financial performance influences hedging objectives and activities. Moreover, accounting standards, market volatility, bank and technological development are external determinants that affect corporate hedging.

1.1 Background

Most internationally operating companies are exposed to foreign exchange rate risk. It is especially common for companies in smaller countries such as Sweden; hence, a large part of the country's gross domestic product (GDP) comes from international business. Currently, Sweden has a positive trade balance, meaning that the amount of exports is higher in relation to the import levels. This has been the case since the middle of the nineties (Centralbyrån, 2012). Fluctuations in exchange rates can therefore have a significant effect on Swedish firms through their results, competiveness and managerial work. Today there are many different ways for firms to protect themselves, i.e. 'hedge', against this foreign exchange risk. By using financial derivatives and by applying different risk strategies, the overall risk can be reduced (Allayannis & Weston, 2001).

Foreign exchange rate risk is relevant and interesting for multinational companies in Sweden since they have to face this risk on a daily basis. Furthermore, it is interesting from a more general point of view, since the foreign exchange market is the largest of the financial markets with a daily turnover of 3.9 trillion US dollars (USD) in 2010. The USD is the world's largest traded currency with approximately 85% of the entire market. However, there has been an increased use of the EUR, especially in the European Union and surrounding regions, since the introduction of the currency in 2002 (BIS, 2010).

1.2 Previous research

The influence from internal and external determinants on companies' hedging strategies can be found in previous research. However, depending on the research method and focus, different conclusions have been drawn. Early research was focused on hedging's ability to increase firm value. This research states that there are four main determinants that influence companies' policy about hedging decisions, which in turn can be categorized into cost and non-cost determinants: management incentives, behaviour and risk aversion are non-cost factors (Smith & Stulz, 1985; Stulz 1984), while tax scheme, investment decision and financial distress are cost variables (Bereke & Hodrick, 2007; Smith & Stulz, 1985).

More recent research has, for example, focused on which, why and to what extent companies use derivatives for hedging. Black et al. (2008) looked into the issue regarding which derivatives are used and found that most companies mainly use the same type of financial instruments (forwards spot and options) regardless of the size or home country of the company.

Moreover, Brunzell et al. (2011) researched the difference between companies' and countries' use of derivatives, focusing on the Nordic countries. They found that risk management is the most common motive behind hedging activities, followed by companies' attempts to gain extra return by speculations, i.e. proprietary trading.

In addition, hedging does not only reduce risk against foreign currency fluctuations; it has also been proved profitable. Allayannis et al. (2007) conducted an analysis on 35 sample countries where they could see profits through hedging premiums, i.e. gains from a hedge. The main difference of using derivatives for hedging or for speculative purposes is that proprietary trading increases the risk while hedging is supposed to decrease and stabilize the risk (Brunzell et al., 2011).

Country-specific research has been conducted by Alkebäck and Hagelin (1999), and Greenwood and Naylor (2008). Their research argues that multinational companies with exposed foreign exchange use derivatives more actively than others. 52% of Swedish companies (Alkebäck & Hagelin, 1999) and 78% of German companies use derivatives to hedge their currency risk (Bodnar & Gerhardt, 1999). Alkebäck and Hagelin (1999) compare small open economies such as Sweden with larger and more closed economies like the U.S. They found that smaller countries have a higher degree of hedging compared to larger countries. One reason behind this, according to Greenwood and Naylor (2008), is the limited amount of derivate products in the home country currency and as a consequence, companies tend to trade in foreign currencies. Furthermore, companies in smaller countries tend to use more derivatives and devote more resources to foreign exchange (FX) trading rather than proprietary trading.

1.3 Research disposition

The structure of this report is as follows. Part two describes the method and data collection, but it also explains why we have chosen to conduct a multiple case study of Volvo, SKF and Getinge. Part three will go deeper into theories from previous research, to give the reader a better understanding of the subject. The conceptual framework is summarised in our research model that is used to answer which, how and why determinants influence companies' hedging strategies. Part four includes a description of the case companies and interviewees, which are the foundation of this study. Furthermore, it discloses the results of the companies' views of hedging against foreign exchange rate risk. Finally part five contains the analysis of the research. It combines the theory regarding currency risk management with the results from the interviews. Moreover, the final part contains the conclusion together with further research questions.

2. Methodology

This chapter describes the research method and procedure of this study. It contains an explanation of the research approach, design and data collection. This study is primarily exploratory and contemplates the research question through a qualitative case study of the three Swedish multinationals Volvo, SKF and Getinge.

2.1 Research design

The research method shall support the purpose and describe the procedures of this study (Bulmberg et al., 2005). The aim in this study is to increase the understanding of which determinants have affected companies' hedging strategies during the last decade. Furthermore, it strives to reveal how and why these determinants affect companies. The research process of this study is punctuated by an elaborative and simultaneous development of research question, theory and analysis. The research design can be described as a reflexive process through every stage of the study, and this is what signifies a qualitative method (Maxwell, 2012).

This study strives to explore causal relations around companies' currency risk management, through conducting a multiple case study of the three Swedish multinational: AB Volvo, AB SKF and Getinge AB. A case study is defined by Yin (1989, p. 23) as, *"an empirical enquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used"*. This makes it an appropriate technique to answer the questions 'why?' and 'how?' (Bulmberg et al, 2005). In addition, a case study allows investigation from many angles, which makes it easier to get the perspective from those involved on the inside (Gillham, 2000). Due to the nature of a case study, it is hard to draw general conclusions. However, this does not make the findings less important; they only need to be interpreted in the right context.

This is an exploratory study, which aims to contribute to previous research through an increased understanding of which determinants influence corporate hedging. Our study has gradually developed a research model in accordance with conceptual framework, which supports the findings in this study. Research and analysis are completed through an assessment of the data gathered during interviews and from publicly disclosed information by Volvo, SKF and Getinge. Furthermore, the case study has been accompanied by interviews with representatives from SEB, Nordea and Deutsche Bank, in order to give a more general point of view and less biased result.

Most of the previous studies on companies' hedging strategies are conducted with quantitative research methods. However, in this study a qualitative method was better suited since the evidence focuses on human behaviour and the underlying reasons that govern it (Gillham, 2000).

2.2 Method of data collection

The data of this study is primarily gathered through interviews and publicly disclosed data from the sample companies Getinge, SKF and Volvo. But to support the findings with a less biased picture, interviews were held with representatives from the three banks: Deutsche Bank, Nordea and SEB.

The primary data was gathered during semi-structured interviews. A semi-structured interview consists of several key questions that define which areas to explore in the research. Still, it is possible to deviate from the subject, which gives more details and better responses, since the flexibility in semi-structured interview enables an elaboration and discovery of otherwise hidden information. In addition, it enables adaption to the individual interview object, which was important since neither companies nor individuals are homogeneous (Gill et al., 2008).

The results of these interviews have been reinforced with textual analysis of annual reports and other publicly disclosed information. Presently, much information regarding companies' hedging strategies is disclosed in the annual reports and in other publicly disclosed information. Nevertheless, it was hard to interpret the results in a way that would answer the purpose of this study. However, the annual reports and other public information support this study with structured and valid information. This information has helped to give results of changes, but has not solely been able to answer the questions 'how' and 'why'. This makes the combination between data from interviews with company representatives and textual analysis highly valuable in this study. This qualitative research method with semi-structured interviews and textual analysis aims to give a well-weighted data source that can facilitate an enhanced depth and amplitude of this study.

2.2.1 Sample

The nature of a multiple case study restricts the sample size of this report. The three main sample companies Volvo, SKF and Getinge comprise a partly biased selection of companies. However, these companies are of a particular interest to this study since they have a large foreign exchange exposure. Furthermore, they are leading multinational companies within different industries with their headquarters located in a limited geographical area in the southwest of Sweden.

There are also company specific attributes that make the comparison between theses three companies particular interesting to this study. The sample companies were selected in relation to the following: Volvo was partly selected due to its size; Volvo is by far Sweden's largest company, measured by turnover, which makes it a suitable company to study (Largest Companies, 2012). Furthermore, Volvo's risk management has gone through numerous changes during the last decade. This makes it very interesting to study which determinants have influenced their hedging strategy, but also how and why these have had an impact. Interviews were conducted with Peter Karlsson (Head of Foreign Exchange, Volvo Treasury) and Magnus Jarlén (Director, Corporate Finance) to give a comprehensive view of Volvo's hedging strategy and activities.

The second sample company, SKF is a large Swedish multinational that is a market leader within its industry. SKF was selected due to its rather unusual risk management, which is largely impacted by proprietary trading (SKF_1, 2012). Furthermore, SKF's risk management does not seem to have gone through the same number of changes during the last decade, which makes is very interesting to study which determinants have influenced their hedging strategy, but also how and why these have had an impact and differ from the other case companies. An interview was conducted with Stefan Nobel (Chief Dealer, SKF Treasury) and Magnus Ericsson (Assistant Treasurer, SKF Treasury) to give a comprehensive understanding of SKF's hedging strategy and activities.

Getinge has had an expansive growth strategy during closed to two decades and has today become a leading global medical technology company (Getinge$_3$, 2012). Getinge has a stabile management and ownership structure, which makes it an interesting company to sample in this study. Furthermore, Getinge's hedge duration is much more long-term than Volvo and SKF. This makes it very interesting to study which determinants have influenced their hedging strategy, but also how and why these have had an impact. An interview with Peter Hjalmarson (Group Treasurer, Getinge AB) was conducted to give a comprehensive understanding of Getinge's hedging strategy and activities.

In addition to the case companies, supplementary interviews were conducted with one bank representative from Deutsche bank, Nordea and SEB respectively. Nordea and SEB were selected on basis of their expertise within foreign exchange rate risk but also due to their local roots. Deutsche Bank, on the other hand, was selected due to its focus on large listed Swedish companies and its competence within exchange rate risk. The interviews with the Banks strengthened the results of this study with a more general opinion about which determinants have had an impact on companies' hedging strategies during the last decade.

2.3 Evaluation of the methodology

A difficulty with qualitative research is in ensuring validity; hence it does not provide a scope for formal comparison, sampling strategy or error finding. In qualitative research it is important to rule out threats of the reports validity, through recognising them. However, it is impossible to cover them all (Maxwell, 2012).

The combination between interviews and textual analysis supports the validity of this exploratory study. The benefit with this research design lies in the depth of information captured during interviews. The fact that interviews have been conducted solely with mangers with many years' experience from treasury activities and currency risk management strengthens the validity of this study. However, it is important to remember that they still provide a biased picture of the truth. Hence, the information in this study is based on individual thoughts and words.

Finally, it is important to remember that this study does not give any generalizable answers. Still the findings are important and contribute to the research on companies' hedging strategies.

3. Theory – Conceptual Framework

This chapter covers the theory of risk management and companies' hedging strategies with a focus on foreign exchange rate risk. This chapter will provide the reader with important background information, but it will also go further into the determinants that influence companies' hedging activities. The following section covers risk management, hedging strategy, motives behind hedging, market volatility, accounting standards and technological development. Finally, the theory is summarized into a framework.

3.1 Risk management

Companies are exposed to risk from numerous sources such as change in customer demand, commodity price movements, currency fluctuations, interest rate changes and other uncertainties. Taking risks is an important part of doing business and to shareholder and managers it is accept as a cost. However, as any cost, risk can reduce firm value. It is important with risk management, since all profit-driven organisations should strive to maximize firm value in order to increase shareholder value (Smithson, 1990).

Companies' risk management covers a wide spectrum of theories rather than a single accepted framework. Optimal hedging theories have been developed over time. Most of them focus on the ability of hedging to increase firm value, management incentives and what type of derivatives firms should use. Moreover, there is an important trade-off between the cost and gains of risk managements that needs to be considered. There are two important motives that drive companies to optimize their hedging strategies: firm value maximization and managers risk aversion (Froot et al., 1993; Stulz, 1984; DeMarzo & Duffie, 1995). However, the optimal hedging theory works as a guideline rather than a model of estimations. This is because it fails to reveal companies' different risk profiles, which differ by business, products and people (Bereke & Hodrick, 2007). Therefore, this research will focus on currency risk management through exploring which determinants influence the companies' hedging strategies, but also how and why these are important.

3.2 Hedging strategy

A multinational company with transactions in foreign currencies is exposed to foreign exchange rate risk because currency fluctuations could have a negative impact on financial performance. Currency risk management aims to reduce the negative impact of currency fluctuations and is commonly associated with financial hedging of exchange rate exposure. Hedging is an investment activity, conducted to reduce the risk of adverse price movements in an asset. Hedging of foreign exchange rate risk is performed to decrease the effects of currency fluctuations. It reduces the risk of unfavourable exchange rate movements through taking an offsetting position (Bereke & Hodrick, 2007).

Financial derivatives are normally used to create a hedge. A derivate is a financial instrument that gets its value from an underlying asset, such as a currency. It is a contract between two parties, which can be used to buy or sell a currency in the future. There are numerous different alternatives of financial derivatives e.g. forward, future, options and swap contracts (Black et al., 2008).

A multinational is exposed to currency fluctuations through transaction and translation risk. The transaction exposure is an ever-present result of cash flow in foreign currencies, due to the company's international operations. Translation exposure occurs when a foreign subsidiary's financial performance consolidates into the parent company's financial report (Hagelin, 2010). This study focuses on companies' hedging strategies of their transaction exposure.

To hedge or not to hedge is a strategic decision, which should be in line with the company's overall corporate strategy and objectives. A hedging strategy should determine how a company deploys resources in order to achieve its goals. It should also give guidance of how to compete and add value to the company (Kelly, 2009). A company's hedging strategy is defined by its objective and execution, which should include a trade-off between an appropriate level of risk and the opportunity of gain. There are several determinants that affect a company's individual hedging purpose and execution (see below) (Fok et al., 1997).

A company's hedging strategy is normally communicated through its financial policy. A financial policy should give information to stakeholders about a company's financial queries and its overall intended risk level. It should provide a framework for decision-making, which gives risk mandates to employees and facilitates the measurement and reporting of risk (Horcher, 2005). Furthermore, it is a control system, which has been implemented to meet the companies' goals (Kelly, 2009).

If hedging actives are successful or not depends on the company's business, reliability of forecasts and the management's assessment of risk exposure. But it also depends on the company's exposure, since future market rates will affect business differently (Fraser & Simkins, 2010). Furthermore, according to Horcher (2005), it depends on factors such as, resources and knowledge. To set up hedging activities, a company needs to have understanding and acceptance of financial derivatives, and needs to have funds available and a financial manager with skills and time.

3.2.1 Hedging objective

A company's hedging objective is commonly defined in its financial policy, which should aim to support the overall objective of the company. Normally, in accordance with corporate governance and risk management theory, the objective for any profit-driven organisation is to maximize shareholder value (Smithson, 1990). However, the purpose of companies' hedging strategies is company specific and strongly influenced by their risk profile. It is the individual risk profile that leads the company to a preferred risk level, which supports and gives guidance to the company's overall hedging activities (Lewent & Kearney, 1990).

The hedging objective is commonly to minimize the volatility of results, stabilize embedded economic value and to create an optimal trade-off between risks and reward (Joseph & Hewins, 1997). According to a survey by Citygroup in 2011, 65% of large listed companies in the United States hedging of foreign exchange rates aim to reduce the risk of fluctuations in the cash flows over a discrete period. Furthermore, 36% of the companies aim to protect the rate of the currency used in budget setting, and 34% strive to reduce the risk related to earnings over a discrete period (Schoenberger, C., 2011).

3.2.2 Hedging activities

A company's hedging activities are processes, which includes volume, currency pairs, derivatives, duration, netting and natural hedging. Hedging activities should be executed in relation to the company's hedging objective; hence together they represent the hedging strategy (Allayannis et al., 2001).

Volume, currency pairs and derivatives

The financial policy should define what and how much to hedge. Furthermore, it should give guidelines of which derivatives to use for hedging purposes. What and how much a company hedge depends on its business risk exposure, and therefore the volumes, intensity and currency pairs will differ. What derivatives a company should use also depends on its exposure. Forward, future, swaps and option contract have different complexities and are suitable to use for diverse hedging purposes (Bekaert & Hodrick, 2011).

Hedge duration

The hedging duration is another aspect of the hedging activities that should be carefully considered in the financial policy. Companies who hedge benefits from reduced volatility in cash flow and earnings, but they can also benefit from a prolonged time to react to market changes. A company's sensitivity to currency fluctuations depends on its fundamental adaptability to new market conditions. Long hedging horizons will postpone the effects of changed market conditions and entitle a gentler transition of the business (Lidbark & Middleton, 2002).

However, to have long hedging durations can be costly and complicated. Hence they demand high forecast accuracy and there is a risk of opportunity costs. Rising opportunity costs are associated with the risk of market changes, which turn out to be more favourable than the outcome of the hedge. Forecast errors, on the other hand, are a result of a company's inability to predict future cash flows. Companies' ability to provide accurate forecasts are very individual, because it varies with it business (Lidbark & Middleton, 2002). Rime et al. (2010) look at micro and macroeconomic perspectives together with order flow information to increase the understanding of forecasts. They found that order flow can work as a good base for forecasts and that these flows explain more than the macro factors of exchange rate behaviour. Furthermore, companies can gain an understanding of the future through indexes such as ZEW and KIX[3].

Netting and Natural hedge

Netting and natural hedging are two ways in which the company can reduce its financial exposure without using financial derivatives. A netting solution enables a multinational company to reduce the group's intercompany foreign exchange rate exposure. A netting system is an IT solution, which supports a group's subsidiary to settle all intercompany transactions through a clearinghouse (Netting centre). This reduces the number of transactions and allows each participant to make payments and receipts in a single currency (Kelly, 2009).

Natural hedging, also known as 'operational' or 'strategic' hedging, can be seen as a complement to financial hedging. It refers to activities where companies' structure is reconsidered and revised to reduce its financial exposure. By placing production and sales units strategically,

[3] ZWE is made by a research department in Germany, and includes information from more than 400 bank finance experts in Germany (ZEW, 2013). KIX is a Swedish index that shows the strength of the SEK (Munkhammar, 2013).

companies strive to reduce their exposure to currency fluctuations. Natural hedging allows multinationals to use fewer financial derivatives for hedging purpose (Kim et al., 2006).

3.3 Risk profile

Companies' specific hedging purpose will be determined by their individual risk profile. A company's business, products and people decide the nature of its risk profile. It will be revealed through an assessment of the company's risk tolerance, specific financial exposure and operating environment in relation to shareholders and managers' incentives (Fraser & Simkins, 2010).

3.3.1 Risk tolerance

Risk management covers risk-reducing activities, which are conducted with the intention of diminishing the probability of loss. A company's risk reducing activities are affected by its risk tolerance. A company's risk tolerance is defined as the maximum amount of uncertainty that is accepted when making a financial decision. It is determined by a company's shareholders' willingness to experience variability in investment returns (Roszkowsk et al., 1990).

To assess a company's risk tolerance, it is important to understand its business culture. The culture is normally shaped by shareholders' and stakeholders' relationships with the management, as well as the management and board in the company (Fok et al., 1997). Furthermore, it can be seen in relation to agency cost and risk aversion (see below). And the business may reveal a company's risk tolerance, since what is seen as normal exposure differs depending on the nature of the business (Fraser & Simkins, 2010).

3.3.2 Financial exposure

The management and board of directors should oversee a company's financial exposure. It is important that the risk is accurately assessed and understood (Fraser & Simkins, 2010). However, according to a survey by Loderer and Pichler (2000), companies fail to understand their currency risk exposure. There are different model and techniques that can be used to find an acceptable risk exposure. A common view is that a company should protect itself against risks with a low probability of large and dangerous losses. Risks with a high probability of small losses are normally easier to absorb and will not have the same effect (Olson & Wu, 2010).

Impact	Risk Management Actions		
Significant	Considerable management required	Must manage and monitor risks	Extensive management essential
Moderate	Risks may be worth accepting with monitoring	Management effort worthwhile	Management effort required
Minor	Accept risks	Accept, but monitor risks	Manage and monitor risks
	Low	Medium	High
	Likelihood		

Figure 2. Risk matrix (Olson & Wu, 2010).

It is usually the management that develop the financial policy and the board of directors have the responsibility to approve it. According to Fraser and Simkins (2010), it is important that the management truly understand the financial risk taken by the company. Only then are they able to plan and manage financial risk successfully.

3.3.3 Operating environment

A company's operating environment affects its risk profile. Thus, companies' ability to absorb risk of currency fluctuations depends on its competitors, buyers and suppliers.

It is important to consider competitors' risk profiles; depending on competitors' hedging decision, movements of foreign exchange rates can be more or less favourable. This is because in an environment where all competitors are hedging, an unfavourable exchange rate movement will have a larger impact if one is the only one that has not conducted a hedge against that specific market movement (Bekaert & Hodrick, 2007).

A company's sensitivity to currency fluctuations is correlated with its profit margin and price picture. It is, depending on the company's business and its ability to transfer exchange rate risk to customers, suppliers or adaption to its own cost structure, in order to stay competitive. In some cases pricing can be determined to reflect the exchange rate movements in order to offset changes. A fixed-price contract is one way to shift an exchange risk to a supplier. However, it is important to contemplate how this will affect the product pricing. As a result, product prices will be expected to rise in relation to excessive risk taking. Therefore, risk should be located at the counterparty with the best ability to manage it (Horcher, 2005).

3.4 Motives behind currency risk management

Hedging reduces exposure to unfavourable and favourable exchange rate movements, which stabilizes the operational result and makes it easier to allocate organizational resources efficiently (Duffie & DeMarzo, 1995; Smith & Stulz, 1985; Stulz, 1984). It has been proven that hedging can increase firm value, through reducing the cost of market imperfections, such as financial distress, increased costs of external financing and agency costs (Bereke & Hodrick, 2007; Smith & Stulz, 1985; Froot et al., 1993). In addition, researchers argue that hedging motives are associated with poorly diversified managers and owners that endeavour to reduce risk exposure (Duffie & DeMarzo, 1995; Smith & Stulz, 1985; Stulz, 1984). However, most of the previous research on corporate hedging is focused on its ability to increase firm value, which is the overall objective for any profit-driven organisation (Bereke & Hodrick, 2007).

3.4.1 Financial distress

Hedging can be a way to increase firm value and reduce the probability of bankruptcy in a situation of financial distress (Smith & Stulz, 1985). Financial distress occurs when a firm has problems or cannot meet its debt obligations (e.g. pay the debt or make principal payments), which can lead to bankruptcy for the firm (Berk & DeMarzo, 2011). According to Smith and Stulz (1985), financial distress can also be seen as a loss in firm value due to the costs that arise from bankruptcy. The reasons behind this can be high fixed costs, revenues that are sensitive during recessions or illiquid assets.

A study from Smith and Stulz (1985) shows that when the market volatility and bankruptcy risk increases, hedging activities can help to stabilize the result and avoid negative outcomes. Because of this hedging can reduce the probability of bankruptcy for the company.

Another positive aspect of hedging is its ability to reduce underinvestment situations. According to Mayers (1977), an investment opportunity can reduce shareholders' wealth while improving debt holders' wealth. In situations of financial distress, potential firm value-enhancing investments might be rejected, since managers act purely in the interest of the shareholders by stopping undertaking investments that would increase the overall value of the firm. Through reducing the risk of financial distress, hedging activities benefit companies facing underinvestment issues.

3.4.2 Capital structure

According to Frooth et al. (1993), companies have incentives to hedge if externally generated funds are more costly than internally generated funds. They argue that hedging becomes value creating, since it supports the availability of funding, through reducing the volatility of internal cash flows. As a result, a company with volatile internal cash flow needs to compensate by raising money externally or changing investment decisions.

According to Bekaret and Hodrick (2007), companies that rely heavily on external financing and that are facing growth options should consider incorporating a hedging strategy. A survey analysis of Nance et al. (1993) presents that high R&D dependent firms are more likely to hedge. This could be seen in relation to the fact that R&D firms have a harder time raising external financing, due to the fact that intangible assets are hard to use as collateral in a financing situation.

3.4.3 Management theory

There are several implications associated with corporate governance of foreign exchange rate risk. Due to the fact that it is related to agency cost for both managers and shareholders risk aversion.

Agency costs occur when shareholders and managers have different incentives for value maximization. The managers should act to improve the firm value, which is not always the case. Companies' financial risk policy is there for managers and employees to follow in order to maximize shareholder value, achieved by reducing the volatility and uncertainty of the firms' cash flows (Duffie & DeMarzo, 1995; Smith & Stulz, 1985). When a company writes a financial policy, they have to match it with the company structure, goals and the shareholders' risk aversion. This is to be able to create a policy that goes best in line with their optimal hedging structure where they can reach the highest utility (Stulz, 1984).

According to Stulz (1984), one motive behind the need for financial policies is due to the fact that all managers cannot make rational decisions. Risk and expected return in a company are associated and affect managers' incentives, since a higher operational return will favour the managers. Managers' utility function can therefore lead to unnecessarily high risk taking. In most investments, a higher payoff is often associated with a higher risk. Furthermore, Smith and Stulz (1985) argue that managers tend to take more reckless decisions than necessary in order to improve the financial results. Incentive programs can be one of the triggers for managers not to take rational decisions in order to maximize their own utility function instead of the companies. As a result managers will focus on their own utility function and not primarily the company's.

Managers will require a higher compensation if they take on more non-diversifiable risk with claims connected (Smith & Stulz, 1985; DeMarzo & Duffie, 1995). An incentives programme is then necessary, but it needs the right kind of metrics and to be in line with the company's objectives to work properly. Hence, this incentive programme is needed to motivate managers to focus on maximizing firm and shareholder value (Smith & Stulz, 1985).

Modigliani and Miller (1958) discuss in their study that shareholders themselves can diversify away the risk. Hence, when it comes to debt holders that do not have any risk correlated to the stock price, they cannot diversify away the risk in the same way, instead it can be done by hedging. Modigliani-Miller's theory, that managers should not hedge, have been questioned by Smith and Stulz (1985). This since they believe that managers cannot diversify away the risk. Most managers are unwilling to experience a volatile operational result due to currency movements, since the manager wants to reach maximum pay-off, which can explain managers' hedging behaviour (DeMarzo & Duffie, 1995).

DeMarzo and Duffie (1995) also talk about the informational effect that hedging can increase the information content of financial data that is sent to investors about how the insiders in the company look at the business risk. This informational effect is one reason why companies choose either a decentralized or centralized risk management structure.

3.5 Market analysis

3.5.1 External impacts on company risk level

A company exposed to fluctuations in foreign exchange rates risks a potential gain or loss due to changes in market conditions. These market changes will impact a company's expected cash flow and earnings. The effects of exchange rate movements can be direct or indirect. The can have a direct effect on cash flow or indirect through the impact on sales form competitive price changes. Companies' different risk exposure depends on their ability to absorb potential losses through their profit margin (Fraser & Simkins, 2010).

The financial market is used as a risk indicator since it reveals price changes caused by foreign exchange rate movements, which in turn impact a company's risk exposure. The stock market is a leading market indicator (Schwert, 2011). Another indicator is publicly traded forward and future contracts, since they give the price for financial instruments in the future (Fraser & Simkins, 2010). An example of this is when the Swedish central bank changes the interest levels, which signals what future expectations the market and society can have.

Previous theory states that the foreign exchange market moves according to UIP (uncovered interest parity), meaning that a low interest currency should appreciate against other currencies (Bereke & Hodrick, 2007). This has been argued not to be the case according to Fama (1984) and the Forward Premium Puzzle (Tambakis & Tarashev, 2012). According to these theories, a high interest currency should, in contrast to UIP, appreciate against other currencies. This has been the case during recent years regarding SEK against USD, EUR and GBP (Munkhammar, 2013).

3.5.2 Market volatility

Volatility is an important risk measurement associated with financial instrument (Menkhoff et al., 2010). According to Saunders and Cornett (2009), interest rate, foreign exchange rate and inflation are three factors that correlate with volatility. The managers' aim is to minimize volatility in order to maximize firm value and/or reduce the uncertainty and fluctuations in their

operational results (Duffie & DeMarzo, 1995; Smith& Stulz, 1985). Actions to minimize the uncertainty can be found in companies' financial policy and strategy (Smith & Stulz, 1985).

Market volatility has been, and is going to be, a problem for managers to lever since it is hard to predict. There are different ways to assess the volatility. There are two approaches most commonly used, according to Berk and DeMarzo (2011). The easiest method to use is historical data, where one assumes that history will repeat itself. The second approach is when one looks at present traded option data and solves the expected volatility using, for example, the Black-Scholes Option Pricing Formula. This second alternative is known as 'implied volatility'.

A company can also use case scenarios and sensitivity analysis to see possible outcomes of changed market volatility. Hedging against this kind of movement can stabilize the company's results (Smith & Stulz, 1985).

Another model that calculates volatility is GARCH (generalized autoregressive conditional heteroscedasticity), which is used to characterize and model observed time series where there is reason to believe it contains variation (Bollerslev, 1986). Below a GARCH graph over the volatility between USD, GBP, EUR and SEK the last five years is presented. It shows the increased risk in the market 2008-2009. Today's levels are; GBP 6.7118; EUR 7.9775; SEK 9.6758.

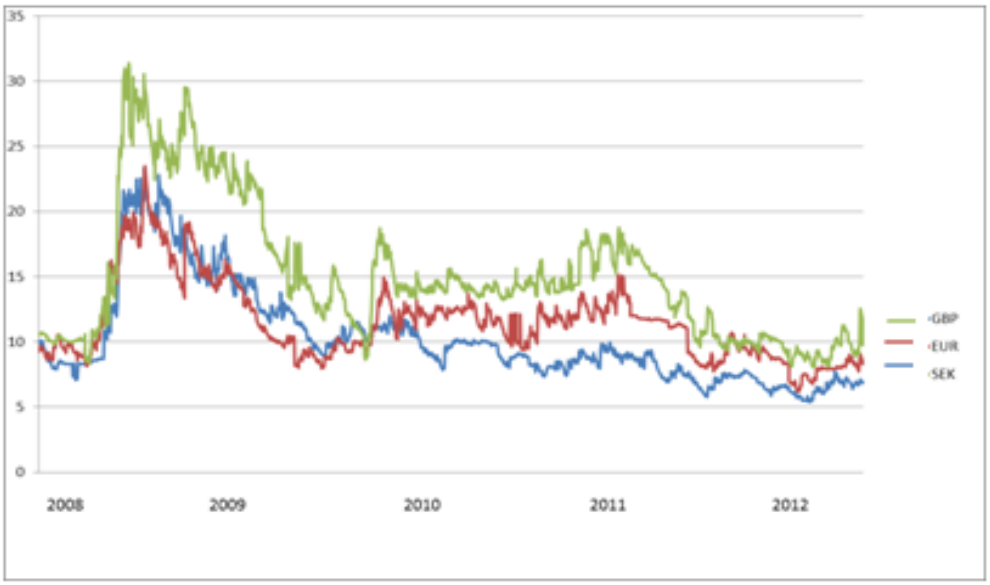

Figure 3. GARCH graph discloses volatility between USD, GBP, EUR and SEK (Bloomberg, 2013).

The volatility in the global financial market normally increases during recession; hence a higher degree of uncertainty prevails among investors, managers and the market in general. This uncertainty correlates with increased financial distress, which can lead to bankruptcy, changes in managerial decisions and a slowdown in production and sales (Smith & Stulz, 1985; DeMarzo & Duffie, 1995; Berk & DeMarzo, 2011, Schwert, 2011, Lustig et al., 2011).

3.5.3 Financial crisis

At the beginning of the latest financial crisis in 2008 increased levels of volatility could be seen in the market which goes in line with theories (Schwert, 2011, Lustig et al., 2011). Schwert has been looking at the return of US stock market during the last century in order to see trends and patterns connected to volatility. During 2008-2009 the volatility reached the highest levels since the oil crisis in 1973, except for the stock market crash in October 1987.

Schwert (2011) shows that stock volatility can be seen as one of the foremost signs of market volatility. Schwert states that the reason behind this connection is due to the fact that the effects of volatility can be seen more easily in real time through financial information i.e. indices such as the VIX index (Chicago Board Options Exchange Market Volatility Index), also known as the "fear index", showing implied volatility. High levels in VIX show that investors are uncertain about the future direction of price changes. Presented below is the VIX index for 2008-2012 where one can see an increase in volatility in the beginning of the last financial crisis.

Figure 4. VIX index- the stock volatility during 2008-2012 (Bloomberg, 2013).

3.5.4 Swedish Krona (SEK)

In the beginning of the latest financial crisis in 2008, the SEK depreciated against several bigger currencies according to Munkhammar (2013). It changed direction in the second half of 2009 when the SEK started to appreciate and has today reached one of the strongest levels since Sweden had a fixed rate in 1992. This can be seen in the KIX and TCW[4] indices. Both indexes have 1992 as starting point, where the index equals 100.

[4] The KIX-index measures how strong the SEK is against the most important trading currencies i.e. USD and EUR (Munkhammar, 2013). The TCW-index is the total competitiveness weighted index, which compares the SEK against 21 other currencies. It measures the average aggregated flow of processed goods.

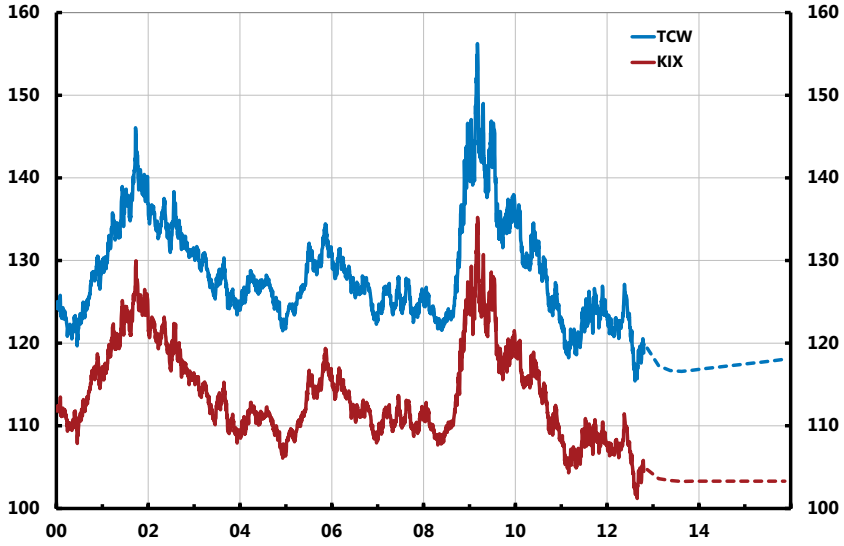

Figure 5. KIX index- represents the strength of the Swedish krona, which is strong below 100 (Riksbanken, 2012).

A stronger SEK benefits the import companies and has a setback effect on export companies. Hence, export companies' products will be more expensive in real terms. This affects Swedish companies largely due to a positive trade balance. In other words, Sweden has become less competitive in the export market (Centralbyrån, 2012). The result can be seen in statistics from Kommerskollegium (2012) in the form of a decreased trade balance from 2009 and forward.

3.5.5 Trends in the foreign exchange market

Trends of hedging foreign exchange and FX trading are explained with short term and long term factors in Galati and Melvin's study (2004), which can still be seen as relevant. Between 1998 and 2001 the market turnover decreased due to the implementation of the EUR, increased development of electronic trading systems, consolidation in the bank sector and mergers of corporations. After the increase in market turnover in 2001, the IT systems development and consolidation remained and can be seen as the long term factors that still have an impact on companies' work with hedging. Another trend is increased volatility in the FX market, which has resulted in enlarged speculative trading in currencies that tend to appreciate (Galati & Melvin, 2004). This can be seen when looking at the SEK during 2010 until today (Munkhammar, 2013).

The lack of trends is arguably one of the reasons behind the decline of trading FX derivatives. Another factor that enhances this decline is the development of electronic trading systems, which enable corporations to lower the cost and increase the efficiency (Galati & Melvin, 2004).

3.6 IT development and bank relation

Electronic trading systems have changed the old market architecture and removed geographical restraints, which has allowed companies to have multilateral interaction with their intermediates through multibank platforms. The outcome from a developed trading system is lower costs, increased information transparency and volume capacity. Reduction of costs is caused by implicit costs; lower bid-ask spread and explicit costs, e.g. lower operational and set up costs (Allen et al., 2000).

According to Allen et al. (2000), price volatility can be seen as less or around same level as when trading was executed over the telephone. However, the increased information transparency has

enabled faster assessments of market price movements. This has increased the disclosure of trends and a better overview of the correct market price.

The development of electronic trading platforms, both single and multibank platforms can be seen as an emerging trend in the financial market (Chouinard & Lalani, 2002). According to Chouinard and Lalani (2002), these systems can, depending on how fast the market accepts them, alter the market's liquidity. That is also something Allen et al. (2000) describe as an important factor to be able to cut costs, for overall effectiveness and to reduce the effects from crisis. The authors further state that electronic trading systems are built to attract liquidity, since this increases the market size. However, the trend of increased use of electronic trading systems has resulted in a less liquid market, because more accurate trading and information are available in the system, which can result in more accurate and efficient trading.

Increased use of electronic trading systems can be seen between years 1995-1998, where the usage increased from 20-30% to 50% (BIS, 2010). The FX market has become more centralized due to the increase of electronic trade compared to the more fragmented telephone system.

According to a survey made by TNS Sifo (2013), price of derivatives is today the most important criteria's when Swedish companies assess their bank relationship in relation to foreign exchange activities. Back office functionality, personal contact and clients' familiarity were also seen as important criteria.

3.7 Proprietary trading

Proprietary trading is when companies trade financial derivatives in order to earn money instead of using it for risk reduction and hedging purposes. Hence, this is for the company's own account when it tries to gain from the market. To do this, companies need to have a competitive advantage that can result in an excess return (Merkley & Levin, 2004).

In the beginning of 2000 a clear trend of increased proprietary trading could be seen (Galati & Melvin, 2004). Reasons behind this trend were interest differentials and an increased trend of speculations, as well as increased hedging activity. In 2004 the trend turned direction due to traders' experienced losses.

Proprietary trading is explained to be one factor that aggravated the latest financial crisis, which has resulted in new bank regulations, e.g. the Dodd-Franc Act in the United States. The largest banks came to rely on the increase share of revenue from proprietary trading[5]. This exposure made the banks more vulnerable during the financial crisis and several banks lost a lot in the last quarter of 2007. The same goes for companies that were involved in proprietary trading. The changes in the amount of proprietary trading have affected the market behaviour and risk willingness (Merkley & Levin, 2004).

3.8 Accounting standards

Accounting standards govern companies' financial reporting and their disclosure of information to the market (Gonedes, 1973). Since, 2005 Swedish listed companies have to follow the IFRS (International financial reporting standard) accounting standards, which are mandatory for all

[5] Dodd-Franc Act increased profit in 2004 of 15% of net operating revenues up to almost 30% in the beginning of 2007.

listed companies within the European Union. IFRS is developed by the IASB (International accounting standard board) and was implemented as a step towards a harmonization of international accounting standards (IFRS, 2013).

The new accounting practise in IFRS contains a stricter framework around disclosure and recognition of financial instruments than previous practices. The strict framework in IFRS is partly a consequence of the US regulatory framework of Sarbanes-Oxley Act (SOX) in 2002. The SOX was the US governments' reaction towards the significant failure of large corporations such as Enron, WorldCom and Global Crossing, which incorporated financial reporting fraud and other accounting conflicts (Saunders & Cornett, 2009).

Before 2005, Swedish listed companies accounted in accordance with Swedish GAAP. Then it was hard to get an overview of the accounting standards regarding financial instruments. Hence, it was the starting point for general standards, but different instruments had special regulations (Marton et al., 2008). Most derivatives were accounted as an off-balance sheet item, which reduced their effect on the financial reporting. A derivate was only recognised on the balance sheet at the point of sale or at a closure of the position. No impact of unrealised gains and losses occurred on the income statement (KPMG, 2003).

3.8.1 Implementation of IFRS

Today financial instruments are regulated by three different IFRS standards: IFRS 7 (Financial Instruments; Disclosures), IAS 32 (Financial Instruments; Presentation) and the most important IAS 39 (Financial Instruments; Recognition and Measurement). Since their implementation in 2005, the standards have been subject to changes. IAS 39 especially has been targeted for excessive criticism and extensive work to revise and formulate a new IFRS standard has been on-going for a number of years. However, the new IFRS 9 that should replace IAS 39 has still not been accepted and the work continues (Marton et al., 2008).

The accounting of financial instruments and primarily derivatives is very complex, due to the fact that it covers a valuation of both current and future transactions. The main objective and constraint of this regulation is to give a clear definition and to support a fair valuation of financial instruments. IAS 32 defines when to apply the regulation of financial instruments and it gives definitions of important objects. A financial instrument is any sort of agreement, which creates a financial asset in one company and a liability in another (Marton et al., 2008).

Three questions need to be answered when evaluating a financial instrument. How it should be valued initially? How valuation is conducted after acquisition? And how is a possible value change going to be recognised in the financial reporting? The fundamental idea of IAS 39 is that all financial instruments should be valued at fairly in the balance sheet and that a possible conversion in value will be noted in the income statement (PWC, 2005).

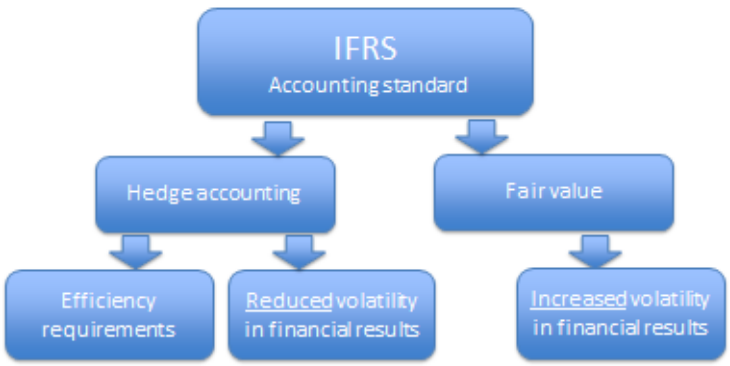

Figure 6. IFRS- accounting standards, with and without hedge accounting.

IAS 39 and the fair value technique are creating volatility in companies' financial result; because it requires marked-to-market (fair valuation) for all financial instruments. Since mainly derivatives are used in hedging activities, fluctuations in the underlying currency will affect both the income statement and the balance sheet (PWC, 2005). To reduce this negative impact of fair value, hedge accounting can be conducted. Hedge accounting consists of matching concepts, which allows hedging derivatives gains and losses to be offset in the income statement. This requires a formal and effective relationship between the derivative and a future transaction. It aims to reflect the result of hedging activities by reporting the effects of derivatives in relation to the transaction risk it is hedged against. Documentation of this relationship is essential and demands an extensive monitoring system. If the relationship is not properly documented, hedging activities are accounted as a derivative held for trading and its value change should be reported as a profit or loss. Moreover, longer hedging durations increase the complexity of the documentation (Marton et al., 2008).

3.9 Theory conclusion

This chapter can be summarized with a model. It displays the core of the hedging strategy through visualising the different factors that have an impact on companies' individual hedging strategy. The hedging activities and the objectives impact the outcome of the hedging strategy. As described, companies have individual objectives, which are related to their risk level and strive to reach financial stability. The hedging activities facilitate the objectives through an active management of the net exposure. The hedging strategy will be influenced by internal and external determinants by different casuals and correlated relationships.

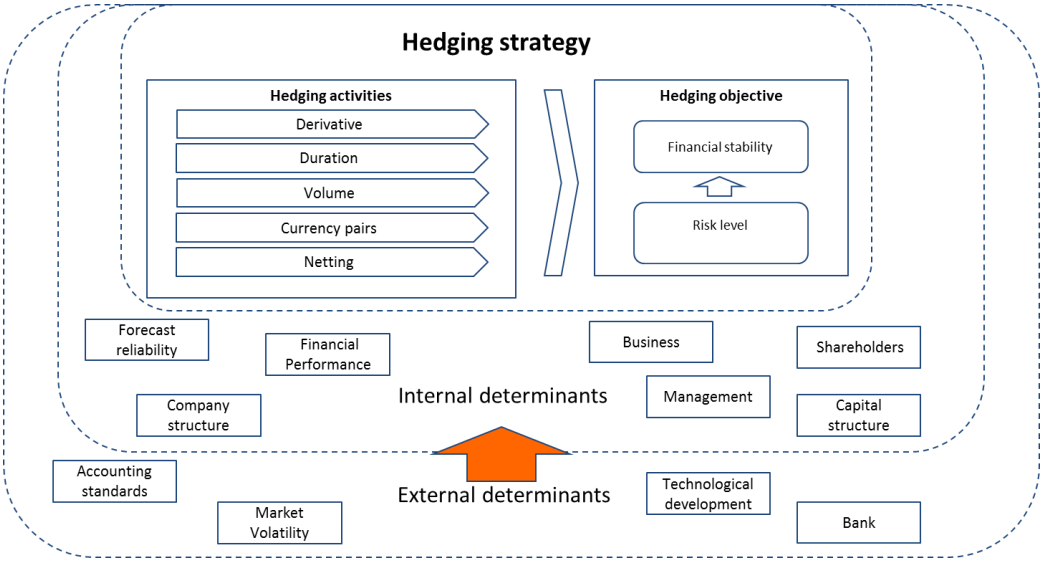

Figure 7. The theoretical framework discloses which determinants influence companies' hedging strategies.

4. Empirical Evidence – Case Study

This chapter will describe the three companies, Volvo, Getinge and SKF, and their way of working with hedging against exchange rate risk and their financial risk policies. Furthermore, a general view from the banks' perspective will be presented to broaden the subject and to give another point of view of changes in the FX market. The data is collected from publicly disclosed information but also during interviews with relevant representatives from Volvo, Getinge, SKF, Deutsche Bank, Nordea Markets and SEB Merchant Banking.

As multinational companies, Volvo, Getinge and SKF are exposed to foreign exchange rate risk, which affects the operational results. The companies in this case study have SEK as their home currency. The SEK is a relatively small currency, which results in the need for the case companies to be active and participate in the volatile foreign exchange market.

4.1 AB Volvo

Volvo was founded in 1915 as a subsidiary to SKF. In 1924 the two founders, Assar Gabrielsson and Gustaf Larsson, started to construct cars and AB Volvo was officially founded in 1927. Today Olof Persson is the president and CEO after replacing Leif Johansson (1997-2011) in the Group (Volvo Group$_2$, 2013). AB Volvo has been listed on Nasdaq OMX since 1935.

AB Volvo Group is one of the leading manufacturers in the world regarding buses, trucks, construction equipment, and marine and industrial engines. The Group employs around 115,000 people, has facilities in 20 countries and is present in over 190 markets all over the world. Europe is their biggest market with 37% of the Group's net sale. The sales for Volvo Group amounted SEK 304 billion in 2012 (Volvo Group$_1$, 2012). The Volvo Group has eight different divisions and has brands such as Volvo, Renault, UD and Mack in the organization (Volvo Group$_3$, 2013). After forming a strategic alliance with the Chinese company Dongfeng Motor Group in 20xx, Volvo Group became the world's largest manufacturer in the heavy-duty truck market (Volvo Group$_2$, 2013).

4.1.1 Interview material – AB Volvo

Volvo Group has a large exposure to foreign exchange rate risk since over 90% of all sales are performed outside Sweden. During the last five years the Group has had an average operating margin of 6.8% and the international operations affect the Groups' financial performance. In order to secure their cash flow they work with hedging through financial derivatives such as forward and option contracts. They also apply natural hedging and netting to reduce the negative impact of currency fluctuations. Volvo explains that the purpose of their currency risk management is to secure cash flow through currency hedges and to minimize the exposure to financial items in Volvo Group's balance sheet. This means that they work actively to smooth out and minimize the effects of currency fluctuations on their operational result (Volvo Group$_1$, 2012).

Over the years there have been some significant events that have affected the way Volvo works with exchange rate risk and as a result, they changed their financial policy. Managers' risk awareness, mergers and acquisitions, market volatility, structural changes and new regulations are some of the reasons behind the changes in hedging activities (Jarlén & Karlsson, 2013).

Volvo's risk management and financial policy have changed over time where the management has had a large impact. Earlier managers had larger mandates, more flexibility and the right to execute proprietary trades. This is no longer the case: at present one can see a much more conservative financial policy at Volvo (Jarlén, 2013). One explanation of this more conservative approach is the structure of Volvo's ownership combined with the CEO and managers in charge. Managers' risk awareness and competence have affected the content of Volvo's financial policy. As a result, the risk management and policy should be designed in line with Volvo's and the CEO's risk profile. The objective during the last years with Olof Persson as CEO has been to coordinate all business units to become a more centralized organisation with risk management in line with the corporate strategy (Karlsson, 2013).

At the start of 2000 Volvo struggled to determine its foreign exchange rate exposure, which was a result of several mergers and acquisitions (Jarlén, 2013). Karlsson (2013) emphasises that in recent years the Group focus more on how to utilize natural hedging[6] opportunities when developing its business operations. Natural hedging is an efficient complement to financial hedging because it reduces the Group's net exposure.

Furthermore, during the last decade, Volvo's Treasury Unit has gone from a decentralised structure, where each business unit controls its own hedging activities, to a centralised structure. The previous decentralised structure caused obstacles for Volvo to get a schematic view of the company's actual currency risk exposure. Moreover, it was hard to ensure that the entire group interpreted the financial policy uniformly and that resources and knowledge among all entities were equally as good. However, it took until the financial crisis in 2008 for Volvo to realise the need for change. In 2011, accompanied by the new CEO, Volvo started large structural changes and centralised all its hedging activities. Today all units report to the Treasury Unit in Gothenburg, which hedges the entire group's transactions (Jarlén, 2013).

> *"Due to this more centralized structure the Treasury Unit gets a better overview of the Group's total firm flows in each currency and its net exposure. This change has allowed the Group to reduce the number of currency pairs from 62 down to just a few, which correspondingly decrease the hedging volumes" (Jarlén, 2013, translated by the authors).*

Volvo's hedging activities during the last decade have been impacted by changes in accounting standards and the financial crisis. In 2005 when IFRS was implemented, Volvo introduced Hedge Accounting[7]. The introduction of hedge accounting entailed uncertainty of which financial instrument could be used and increased the use of human resources due to a more excessive administration. Moreover, the efficiency requirements limited the group's flexibility to adjust its hedges. The obstacles that came from the financial crisis were increased volatility and uncertainty (Karlsson & Jarlén, 2013).

Today, accounting standards come with a stricter framework and frequent changes takes place. Volvo believes that the entire accounting process is of greater importance; hence, today's uncertainty demands more resources and active work. As a result Volvo has shifted focus

[6] This is conducted by placing production where they have a market, which will result in both in and outflows to the Group being done in the same currency. Hence, no currency exchange rate risk will occur.
[7] Matching derivatives with firm flows.

towards hedging rather than actively searching for risk through proprietary trading or similar activities (Jarlén, 2013).

When Volvo was severely hit by the economic slowdown in 2008, they went from sales records in the first quarter, to order cancellations and shutdowns of plants at the end of the year. This can be seen in the graph below. Hence, Volvo hedged its forecasted transactions with an average of six months when the sudden collapse of sales led to large forecast errors and failure to comply with the efficiency requirements (Volvo$_1$, 2012). Accurate forecasting is hard for Volvo to conduct due to the industry sensitivity for market changes because, order volatility is what makes forecast difficult. Since, the Group was over hedge, they had to buy back contracts, which was costly and contributed to the large financial losses. Due to inflexibility and an inability to diminish the impact of the financial crisis, Volvo stopped using hedge accounting in 2009. Another result of the financial crisis is a larger focus on risk management, which became the starting point for structural changes and a new financial policy. The structural changes have been gradually implemented and the new financial policy was introduced in the fourth quarter of 2009 (Jarlén, 2013).

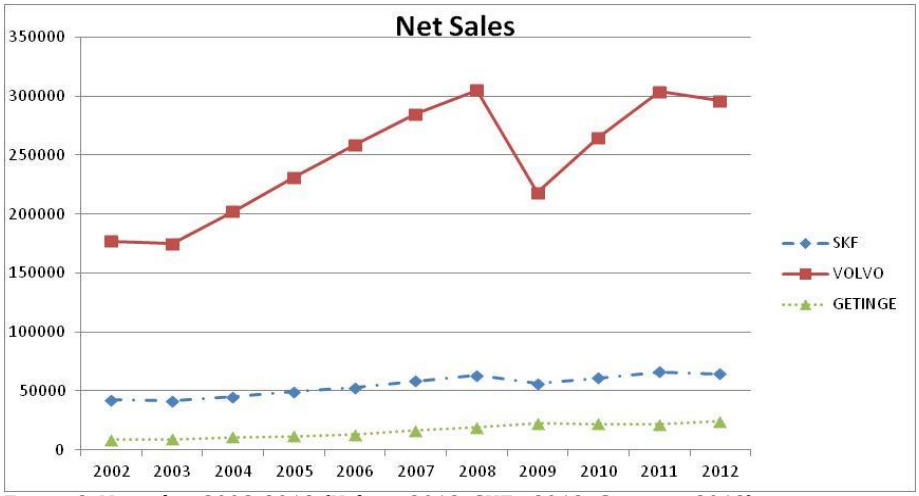

Figure 8. Net sales, 2002-2012 (Volvo$_1$, 2012; SKF$_1$, 2012; Getinge$_1$, 2012).

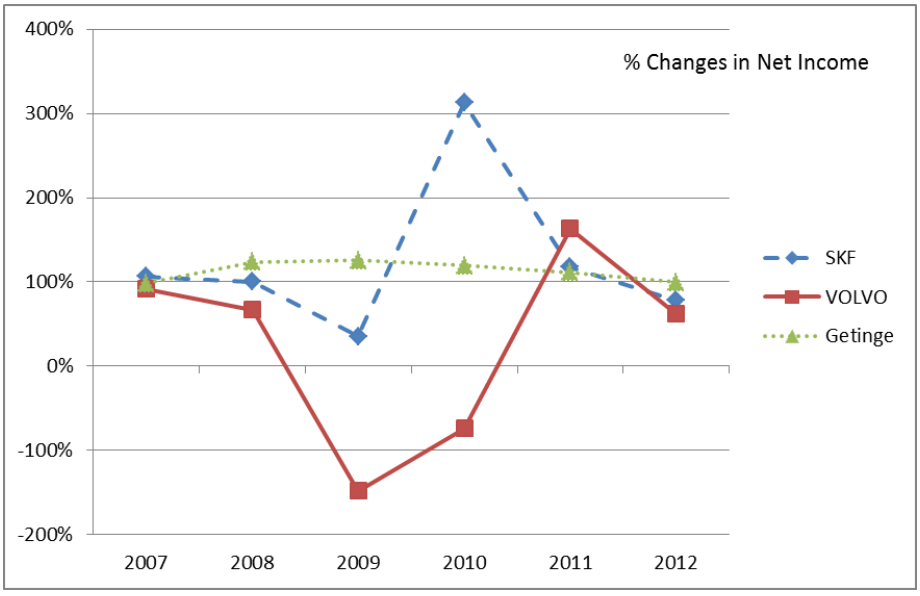

Figure 9. Percentage change in net income, 2007- 2012 (Volvo$_1$, 2012; SKF$_1$, 2012; Getinge$_1$, 2012).

According to Karlsson (2013), technological development has changed the way they work and their view of trading derivatives. The introduction of multibank platforms has reduced the time necessary to execute trades. It has also increased the pressure and competition between the banks, which has led to lower prices. Today, Volvo has less contact with banks. The Treasury Unit mostly contacts the bank when they have specific questions or regarding other areas than FX trading.

4.2 AB SKF

AB SKF was founded in Gothenburg, Sweden in 1907 by the inventor of the ball bearing Sven Wingquist together with Alex Carlander. SKF's organization is divided into three different business areas: Strategic Industries, Regional Sales and Services and Automotive. They sell ball bearings in over 40 different sectors all around the world and employ over 46,000 people. SKF is present in over 130 countries (SKF_3, 2013). SKF's sales during 2012 amounted 64.575 billion SEK (SKF_1, 2012).

Tom Johnstone is the current president and CEO for SKF and has been since 2003. Before Johnstone, Sune Carlsson had that position between 1998 and 2003 (SKF_2, 2013). SKF has been listed on Nasdaq OMX since 1998.

4.2.1 Interview material – AB SKF

SKF has a large exposure towards foreign currencies due to a strong international presence. SKF has a financial policy that works as a guideline for the entire company in order to reduce the overall risk exposure. SKF's policy states that the objective is to eliminate or minimize risk and to contribute to a better return through the active management of risks. They use hedging, netting and hedge accounting to reduce their exposure and to create value (SKF_1, 2012).

SKF has a centralized structure where the Treasury Centre in Gothenburg has the main responsibility of the group's risk management. SKF works actively with financial hedging, natural hedging and netting to reduce their risk exposure. SKF was early to develop a netting system, implemented in 1974. The Treasury Unit conduct an activity similar to the factoring of all intercompany flows in the 17 different currencies; this enables them to conduct a more efficient netting process. It is the Treasury Unit that makes the forecasts of all future transactions that determine all hedging activates (Nobel, 2013).

> *"SKF's forecast is quite easy to estimate since the historical orders repeat themselves. To secure accuracy of the forecast, we compare it with market projections made by banks, but normally we only have to adjust the forecast for two or three currencies, due to special events" (Nobel, 2013, translated by the author).*

SKF's hedging activities and financial policy communicate that the group should perform an active risk management that will contribute to a better return. It has not changed that much over the years (SKF_1, 2012). One of the alterations that have been is an increased flexibility regarding managers' hedging mandates, in order to be able to work with the market changes in a more efficient way (Nobel, 2013). Furthermore, SKF conduct a relatively large amount of proprietary trading and this is something they are quiet unique with in Sweden today. Of the Treasury Centre's trading volume, 75% is proprietary and the rest is hedging activities.

> *"SKF's view of risk taking comes from the policy structure, old tradition, good results with no real draw backs and risk willing managers and board. Furthermore, proprietary trading gives a feeling about how the market is moving" (Nobel, 2013, translated by the author).*

The management impact several areas in a company, since they have a lot of control over the financial policy and the company's risk taking. There has been a clear direction of SKF's risk management over the year (consistent hedge duration, intensity and volume). Even though the CEO, managers and board members have changed over the years, there has been little impact on policy and company structure (SKF_1, 2012). This can be explained by the fact that the managers are partly measured by their performance, for example, SKF have incentive programmes to reward a well-conducted proprietary trade, where a result above the budgeted amount will benefit the managers (Nobel, 2013).

Changes in the accounting standards have impacted SKF's hedging activities through restricting the use of derivatives. Until 2009 they used forwards, swaps and options as hedging derivatives (SKF_1, 2012). But due to hedge accounting, options became too complex and affected the net of financial items negatively and as a result SKF, stopped using option as one of their derivatives (Nobel, 2013). When IFRS was implemented in 2005, SKF started applying hedge accounting for their main currency, USD, since they could gain from the matching procedure (SKF_1, 2012).

The increased volatility during the financial crisis created a more complex environment in which it became harder for SKF to accomplish accurate forecasts. The crisis slightly affected SKF hedging activities, because decreasing sales results in over hedging. This occurred due to optimistic forecasts together with higher levels of hedging activities. Accurate forecasts are of great importance to the hedging activities and it is important to consider the behavioural patterns of companies' order flows. Before the crisis an order was almost the same as a guaranteed flow. This is no longer the case; because increased market volatility and expansion to new markets with a different business culture have decreased the dignity of an order. As a result of the crisis SKF decided to shorten the time horizon on its hedging activities; because they needed to be able to react faster to changes in the market. However, to avoid unnecessary losses during the crisis extended their hedges through swap contracts. Furthermore, today all hedging activities longer than six months should be considered as speculation, in order to avoid long-term consequences (Nobel, 2013).

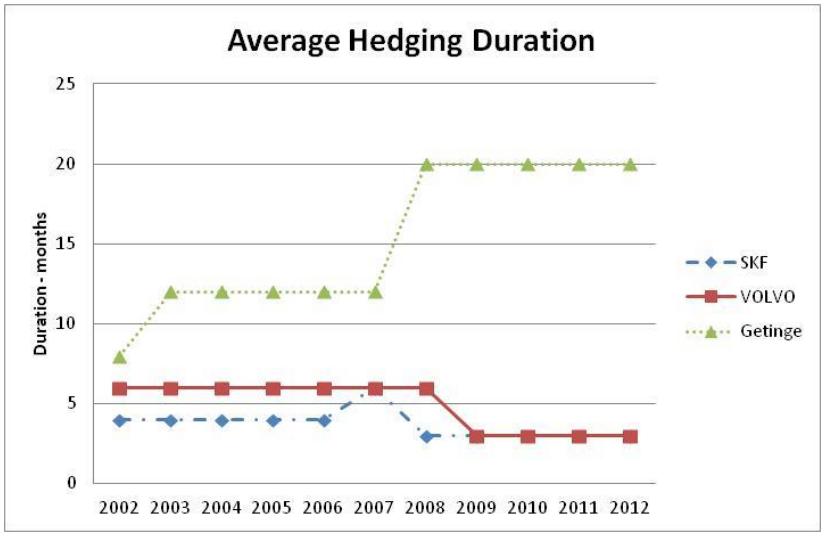

Figure10. Companies average hedging duration, 2002-2012 (Volvo[1], 2012; SKF[1], 2012; Getinge[1], 2012).

Another effect of the financial crisis is that SKF have noticed the increased uncertainty of derivatives pricing, due to the increased volatility in the market. Furthermore, the multibank platforms have changed the hedging activities, and together with the different pricing, it has changed the way the Treasury Unit operates (Eriksson, 2013). For instance, this has made SKF's trading and hedging more efficient and has reduced the contact with the banks regarding FX trading up to 75%. SKF use single bank platforms, from City Bank and Deutsche Bank, to better control and compare the prices offered in the multibank platform. They emphasise that the importance of a good bank relationship still remains. This is because SKF has other agreements with the banks than FX trading, such as the ability to take advantage of the banks' knowledge and expertise (Eriksson & Nobel, 2013).

4.3 Getinge AB

Getinge Group is a medical-technology company that provides equipment, systems and integrated solutions within the healthcare and life science industry. Getinge manage operations in three business areas: Medical Systems, Extended Care and Infection Control. Their target customers are primarily governmental institutions within the healthcare sector, such as hospitals and medical centres. Olander Larsson founded Getinge in 1904, but it was not until 1990 that Getinge started its strong growth trend. Getinge AB has been listed on the OMX stock exchange since 1993 (Getinge[4], 2013)

Since 2000 Getinge has gone from net sales of SEK 5.253 billion to reported net sales of SEK 24.248 billion in 2012 (Getinge[1], 2013). Getinge's overall strategy is primarily focused on strong growth through mergers and acquisitions. Their aim is to become twice as large as the current company and to do so an offensive strategy is needed. Today the group employs around 14,900 people at 135 sales offices and 26 production facilities in 40 countries around the world (Getinge[2], 2013).

4.3.1 Interview material – Getinge AB

Getinge is a fast growing company with internationally dispersed operations that give them a substantial foreign exchange rate exposure. It is the group's Treasury Unit that is responsible for and works actively to reduce risk exposure through hedging and netting activities. It is important for Getinge to reduce the volatility of the group's financial performance. Because of Getinge's capital structure, they have a dependency on external financing, which makes it important to communicate stability and to send clear signals to the financial market and possible investors (Hjalmarson, 2013). Therefore, the objective is to cut as many risk factors as possible in order to establish predictability of its financial statements.

Presently, Getinge use forward, swap and option contracts to hedge their forecasted transactions (Getinge[1], 2012). It is the subsidiaries that produce the forecast of net flows on which the Treasury Unit places hedges. They adjust their hedges quarterly in relation to new forecast.

The main part of the group's exposure is a result of intercompany trade between production facilities and sales offices. Getinge aims to isolate the exposure to the production facilities by invoicing the sales offices in their local currency; this normally makes foreign exchange rate exposure much smaller or non-existent. Intercompany transactions are settled at a yearly fixed rate. Since ten years back Getinge's netting system has settled all intercompany transactions.

The introduction of netting simplified the intercompany trade process noticeably and allows a more effective hedging due to a decreased net exposure (Hjalmarson, 2013).

The management and the board have a clear ambition to reduce uncertainty of the group's risk exposure. This has been determined in relation to the Group's ownership structure and the managements risk aversion. For over two decades, Carl Bennet has had a large influence on company's strategy and development. He is the single most important shareholder and holds 49% of the group's voting mandates.

Getinge's financial policy has over the years been rather flexible concerning the group's currency risk management. There has been room for active hedging, where knowledgeable interpretations of forecast reliability and markets future development have been important:

> *"This is important since Getinge strives to have a business culture that rewards employees' competence. Therefore the financial policy gives a large mandate to employee's long-term strategic thinking and active decision-making." (Hjalmarson, 2013, translated by the author)*

Getinge is currently working on a new financial policy. The aim is to create a policy more suitable for an organisation of Getinge's size. This is because the company has grown rapidly over the last few years and needs to adjust the policy towards new requirements (Hjalmarson, 2013).

Getinge operates with a decentralised business structure. The treasury unit is one of few centralized activities at Getinge where they benefit from economies of scale. When the treasury unit started its operations in 1997, Getinge's subsidiaries hedged their operations individually. Gradually, the treasury unit took over the responsibility and centralised all hedging activities (Hjalmarson, 2013).

Some changes and activities have affected Getinge's hedging activities over the years, including new accounting standards. As a result of the implementation of IFRS in 2005, Getinge decided to apply hedge accounting. Getinge's decision to apply hedge accounting supports their efforts to reduce volatility in financial reporting, which is an important part of the company's risk management. The top management do not want to spend time explaining volatility in financial performance that is a result of currency fluctuation (Hjalmarson, 2013).

Getinge has been able to continue its growth trend throughout the financial crisis. Due to the fact that Getinge's customers are mostly governmental institutions such as hospitals and medical centres. The industry in which Getinge operates does not follow the same cyclic behaviour as many other industries (Getinge$_1$, 2012).

> *"When the dollar and euro reached significantly beneficial levels at the end of 2008 and first half of 2009 Getinge's management decided to take this opportunity to hedge for longer durations. The treasury unit was given further mandates from the board to sell USD and EUR with a value date three years away. These hedges turned out to be very beneficial and have supported the group until today" (Hjalmarson, 2013, translated by the author).*

Getinge believes that a good relationship with banks is essential since they are their most important creditor. Getinge do not use multibank platforms; instead they use a single bank

platform or make transactions over the phone. Still one can see that contact with the bank has decreased due to Getinge's tendency to execute its own transactions through other technology development such as straight through processing solutions; the manual work has diminished and is more efficient (Hjalmarson, 2013).

4.4 Empirical data

4.4.1 General information

Below one can find general information from SKF, Volvo and Getinge's regarding hedging and their work related to foreign currency. The information covers the amount of currency pairs they are hedging against, amount of banks they use in their multibank platforms as well as the amount they hedged in 2012 and their current main hedged currencies.

Company	Currency Pairs	Relation Banks	Hedged Amount (2012)	Hedge Currencies	Adjusted Beta
SKF	17	9-10	*102 MSEK	USD	1.266
VOLVO	2	20-23	146 MSEK	USD; Korean Won	1.450
Getinge	62	10	270 MSEK	USD; EUR; GBP; JPY; Polish Zloty	0.874
**174 MSEK is held for speculative purposes*					

Figure 11. A statement of general information about the companies (Volvo1, 2012; SKF1, 2012; Getinge1, 2012; Bloomberg, 2013).

Beta can be use as a measurement of a companies' sensitivity of market volatility. The adjusted betas of the stocks presented above show the correlation with S&P 500. Volvo and SKF have a beta above 1, which represents a higher systematic risk and movement in the same direction as the index. Getinge has a beta between 0 and 1 this indicates a stable stock, which should move less in relation to the index.

4.4.2 Hedge duration

Below a table over the average hedging duration over the last ten years for respective company are presented together with the maximum duration according to their policy and their hedging intensity of forecasted flows.

Duration	**Months**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
average	**SKF**	4	4	4	4	4	6	3	3	3	3	3
	VOLVO	*6*	*6*	*6*	*6*	*6*	*6*	*6*	3	3	3	3
	Getinge	8	12	12	12	12	12	20	20	20	20	20
Volvo: 6 = objective from annual reports												

Duration	**Months**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Maximum	**SKF**	6	6	6	12	12	12	12	12	12	12	12
	VOLVO	36	36	36	36	36	36	36	6	6	6	6
	Getinge	12	18	18	18	18	18	48	48	48	48	48

Hedging intensity		**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Forecasted flows	**SKF**	N/A	N/A	N/A	75%	75%	100%	75%	75%	75%	75%	75%
	VOLVO	80%	80%	80%	80%	80%	80%	N/A	40%	40%	40%	40%
	Getinge	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
All numbers are gathered from the companies annual report or recieved during the interviews.												

Figure 12. Hedging duration and intensity ((Volvo1, 2012); (SKF1, 2012); (Getinge1, 2012)).

4.4.3 Ownership structure

Below, charts over the biggest owners regarding percentages of votes in respective company are presented. The similarity between the three companies ownership structure is that banks,

investment companies and pensions funds are the main owners. However, Getinge has one private main owner, Carl Bennet, compared to AB Volvo and SKF.

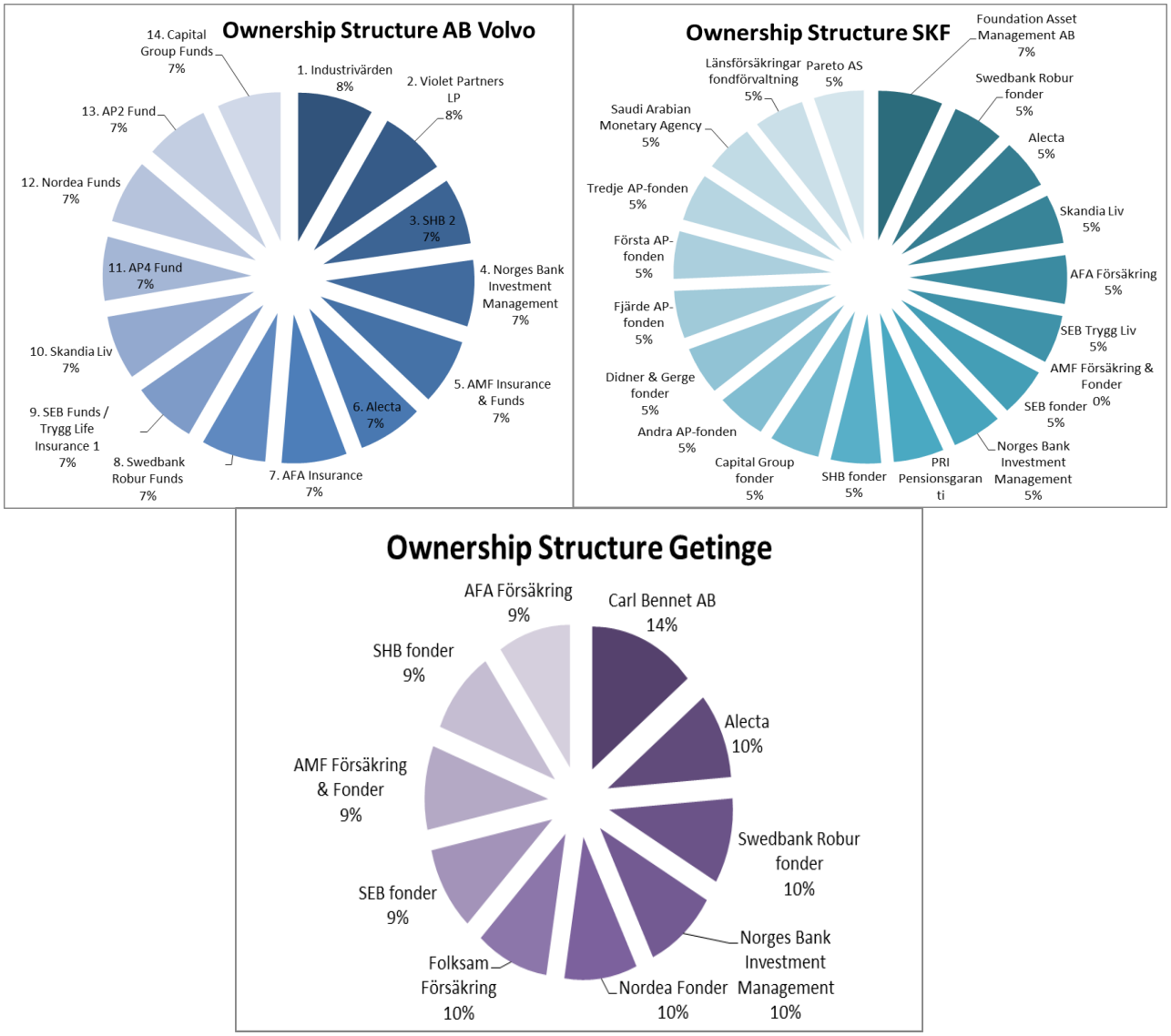

Figure 13. Ownership structure (Volvo$_1$, 2012; SKF$_1$, 2012; Getinge$_1$, 2012).

4.5 Interviews with bank representatives from Deutsche Bank, Nordea and SEB

According to the bank representatives companies' hedging activities have been affected by new accounting standards, increased market volatility, managers risk willingness and technology development. The visible trends in companies' hedging strategies are decreasing hedging volumes and duration, less speculation, less usage of complex option and a diminishing personal relationship with the bank.

The interviewee from Deutsche Bank (2013) believes that since year 2000 companies have started to put more focus on their hedging strategy. Thus, the need for change became obvious after the large Enron scandal and stricter regulations of the financial market put pressure on both companies and financial institutions.

> *"Companies have started to put more focus on their business structure and processes, to minimize their risk exposure. For example, today companies are trying to decrease its risk exposure through natural hedges" (*Interviewee Deutsche Bank, 2013, translated by the author).

In addition, increase knowledge and improved netting processes are another important factor, which has reduced a majority of companies' foreign exchange exposure. However, the complexity of many organizations is so large that it is hard to find and understand its actual risk exposure (Interviewee SEB, 2013). Furthermore, they argue that companies reaction is related, because managers and board members in Swedish multinationals consist of a small group of people that allow them self to be influenced by each other (Interviewee SEB & Deutsche Bank, 2013).

4.5.1 Accounting standards

The implementation of IFRS had limited impacted companies' hedging strategies; as a result it reduced companies' usage of complex option solutions. Thus, when IFRS was implemented in 2005 the insecurity and absence of knowledge about its actual effect were large both among companies and accountants (Interviewee Deutsche Bank, 2013). Especially, the regulations regarding hedge accounting and options created uncertainty among the participants. Hence, IFRS demands market valuation of options, which are not a zero cost solution. The complexity of the regulation and risk of increased volatility in the financial reporting reduced the incentives to use options and decreased the hedging duration among listed companies. However, in the last years the knowledge about IFRS and its effects has increased and so has usage of options solutions. Today SEB and Nordea can see an increase usage of option among all companies with foreign exchange exposure (Interviewee Nordea & SEB, 2013).

4.5.1 Market volatility

The interviewees from Deutsche Bank, Nordea and SEB (2013) have a similar view of what effect market volatility have had on companies' hedging strategies. They argue that there are trends of decreasing hedging volumes, shorter hedging duration and less speculation.

The interviewee from Nordea (2013) describes how the financial market has had an impact on companies trading patterns during the last five years. Hence, during the financial crisis the financial market was signified by increased volatility. The uncertainty in the financial market made managers more risk averse and reduced their risk willingness. This reduction in companies speculative trading decreased their hedging volumes and changed trading patterns. In addition, fewer active speculators are one of the reasons the foreign exchange market has decreased and why the market is less liquid today.

The effects of the financial crisis on companies' hedging strategy are strongly aligned with their financial performance during this time period. If you are to look into some of the companies' order books its result clearly reflects the changes, which were forced on the companies. As a result, companies who made large losses had to react. Most companies moved in the same direction, towards a shorter hedging duration, reduced flexibility and removed ability for the companies' traders to perform any sort of speculations (Interviewee Deutsche Bank, 2013).

4.5.2 Bank and IT

Banks role as an executing part of financial trading has changed over the years. Today banks have a more advisory role where they act as an intermediate between the bigger companies and

the financial market, instead of executing trades. This is a result of less complex products, better electronic systems and increased knowledge about hedging and derivatives within companies (Interviewee SEB, 2013).

Today a lot of trading is conducted on single and multibank platforms, which allow companies to execute trades on their own. This has led to the price press and focus on cost savings can be seen among companies. The development of electronic trading systems has made it harder for actors in the foreign exchange market to see trends and to get a feeling about the movements in the market. Another factor that makes it harder is the faster speed of movements in the financial market (Interviewee Nordea, 2013).

4.5.3 Financial policy

A possible trend in companies hedging strategy is stricter framework of financial policies. This trend is driven by stakeholders risk aversion and it is changing the business culture and behaviour (Interviewee SEB, 2013).

> *"One explanation is associate with the fact today's business environment is to large extent driven by people who strive to follow rules and regulations. It is no longer the best entrepreneur, sales man or trader that becomes manager; it is the financial controller that keeps track of the numbers and policies"* (Interviewee Deutsche Bank, 2013, translated by the author).

5. Analysis

The analysis presents the findings from the empirical study in relation to our research model, which was presented throughout the theory. The following section will go through the results from the data collection of Volvo, SKF and Getinge, to give a further understanding of how and why these determinants have influenced their hedging strategy.

The data discloses patterns of determinants that have influenced the companies' hedging strategies during the last decade. Our research model below summarizes relevant information from the theoretical framework and pictures the topics found in the case studies.

The following section will explain how and why the following internal determinants capital structure, ownership, management, company structure, financial performance, forecast reliability and business will influence companies' hedging strategies. It will also present these in relation to external factors such as accounting standards, market volatility, technological development and bank relationship.

The results disclose differences in how and why the sample companies were influenced by the relevant determinants. The difference between the companies could be explained by the fact that corporate hedging is largely determined by company specific attributes and prevailing market conditions.

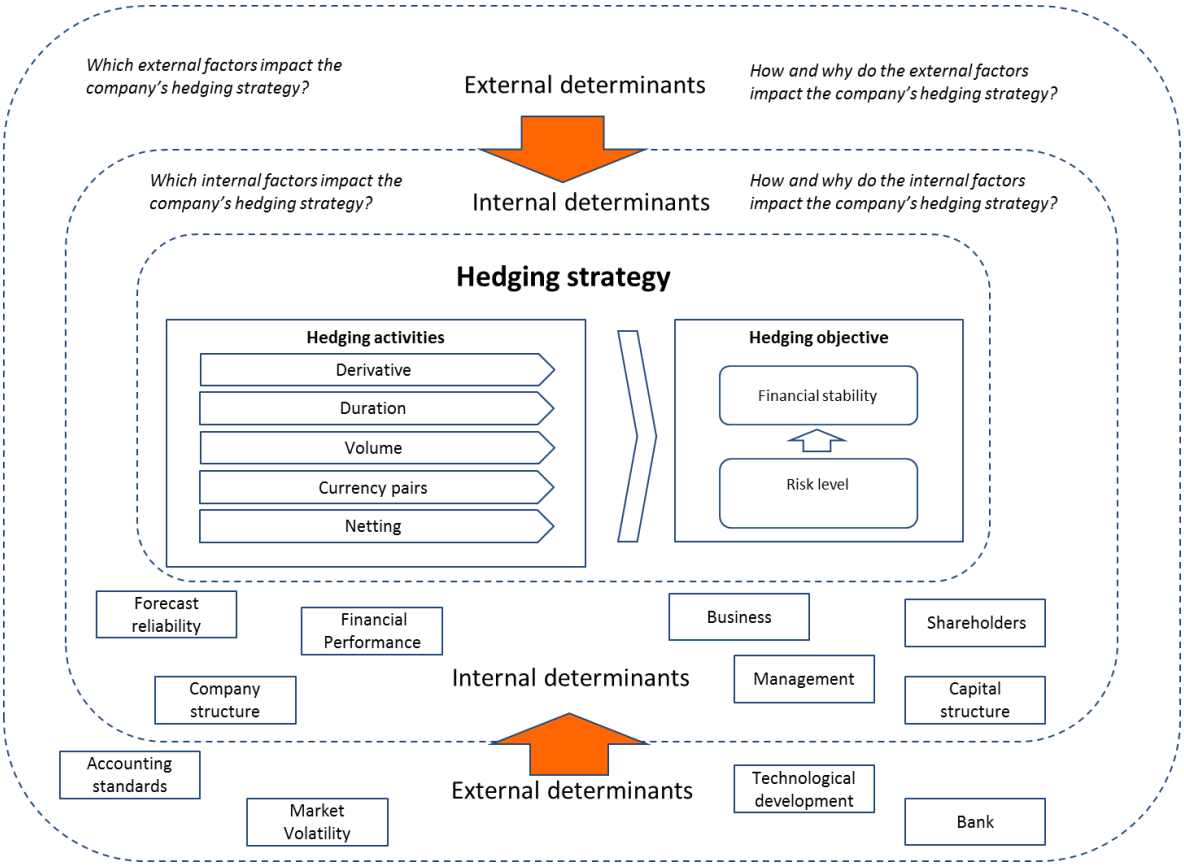

Figure 14. Our research model.

The results show that the determinants have different influence on the three companies. This individuality is clearly recognised through an assessment of Volvo, SKF and Getinge's hedging objectives. Volvo describes that the purpose of its currency risk management is to secure its cash flow through currency hedges and minimizing the exposure to financial items in Volvo Group's balance sheet. SKF's policy states that its currency risk management should strive to reduce risk, while contributing to a better return through active risk management. Getinge's currency risk management should strive to reduce risk factors, in order to increase the predictability of the group's financial result. Throughout this analysis it is important to bear in mind that companies' hedging strategies should be determined in relation to their individual risk profile and their overall corporate strategy (Kelly, 2009). Moreover, it is evident that there is no earlier determined framework of an optimal hedging strategy (Bereke &Hodrick, 2007; Smith & Stulz, 1985; Froot et al., 1993).

5.1 Capital structure

Analysis displays a possible relationship between companies' capital structure and hedging activities. Volvo and Getinge both have a large demand of external financing, due to their growth strategies. It seems realistic that hedging activities in their case can have a positive effect on firm value. Volvo strives to secure its cash flow, while Getinge aims to increase predictability through currency hedges since it can be related to the company's funding ability. Thus, according to Frooth et al. (1993), hedging activities become value creating when externally generated funds are more costly than internally generated funds. Furthermore, hedging reduces the risk of financial distress in situations when market volatility and bankruptcy risk increase (Smith & Stulz, 1985). In addition, there is an informational effect of hedging, since it supports investors with information about how insiders assess a company's business risk (DeMarzo & Duffie, 1995*)*. This could be a further explanation of why Getinge strives to increase predictability of the group's financial results. SKF is in a different situation than Volvo and Getinge since they have a much more stable position in the market and have less need of external financing.

5.2 Management and shareholders

Management and shareholders are important because they influence the companies' risk level. Fraser and Simkins (2010) argue that a company's risk profile is unique and that its business, products and people influence it. The three companies in this study all have different management and ownership structure, which makes variations among them more noticeable.

It is important for a company to consider the design of the policy and the amount of risk taking. Volvo is a large company with many small shareholders and therefore needs to consider its image, in terms of risk taking. They believe it is important to communicate stability and the purpose of their core business to their shareholders. In the last few years Volvo has moved towards a stricter and less flexible risk management, with shorter hedge durations and decreased hedging volumes. This can partly be explained by a change of management. Olof Persson has been driving large structural changes to the entire group since he became Volvo's CEO in 2011. He has impacted the risk management through moving focus to a more efficient assessment of the group's financial exposure and increased the focus on risk reduction actions.

Getinge's attempt to increase predictability and to reduce as much risk as possible could be associated with their ownership structure. According to Smith and Stulz (1985) companies have

motives to hedge due to shareholders inability to diversify away their risk. As described earlier Getinge has one strong shareholder in Carl Bennet. He's risk aversion could be a possible explanation to Getinge's excessive hedging activities with large hedge intensity and hedge duration. However, it is hard to determine to what extent this impact Getinge's hedging strategy, the only presented facts are that there is difference in Getinge's ownership structure and hedging strategy compared to Volvo and SKF.

Even though it has been argued that a competitive advantage is needed to outperform the market (Merkley & Levin, 2004), SKF strives to add value through an active risk management. According to Smith and Stulz (1985) risk and expected return in a company are associated with managers' incentives because often higher operational return will gain the managers as well as the company. SKFs old tradition on excessive risk taking seems to be an important part of their business culture. Since SKF's proprietary trading is believed to contribute to the return it has been easier to justify for the management. Furthermore, Nobel (2013) argues that proprietary trading is important since it gives a better feeling of future market movements. However, SKF must still believe in their competitive advantage and ability to outperform the market since 75% of their trades are speculative.

Volvo and Getinge do not have the same aim to actively manage its risk as SKF. Volvo has earlier allowed a more active risk management with room for proprietary trading, which no longer is the case. Thus, the negative results from trading became too large in relation to value added. Today, Volvo only hedge firm flows, which is more or less equal to actual transactions. This has been a way to remove uncertainty of forecast errors. This move, away from speculation, is connected to the image and risk profile they want to communicate to their shareholders. Hence, Volvo should be superior at producing trucks and other machinery, not at proprietary trading. Getinge on the other hand has a very active and long-term hedging strategy, which is a different approach. Since long-term hedge duration includes a higher uncertainty level of companies' actual transactions, but due to Getinge's high forecast accuracy this has not been the case. Still, what is interesting to bear in mind is that SKF for example argues that all hedges longer than six month are to be assessed as speculation. This disclosed a difference in the companies' individual assessment of its risk management.

5.3 Company structure

It is important that the company have control and understands its actual currency risk exposure to be able to reduce the risk associated (Joseph & Hewins, 1997). Through analysing Volvo, SKF and Getinge's hedging strategy it is possible to determine that corporate structure has a large impact on companies understanding and ability to control its financial exposure. In addition, a company can reduce its currency exposure through strategically plan its operations and the corporate structure.

All three companies in this study have agreed that a centralisation of hedging activities is more efficient. Thus, it enables a group to take advantage of economies of scale, while capturing knowledge and resources centrally. Today, Volvo, SKF and Getinge manage its hedging activities with a centralised structure where the Treasury Unit is in charge of all hedging activities. It is noticeable that Getinge's has a decentralized structure where the Treasury Unit is one of few centralized activities. Volvo had a decentralised structure for many years, but in 2011 they started an excessive structural change. Through centralising its hedging activities, Volvo

managed to get a better understanding of its actual currency exposure. It allowed Volvo for example to reduce the number of hedged currency pairs from 62 down to just a few. However, it is important to remember that it can be sensitive to withdraw and centralise hedging activities. Hence, risk management is associated with a sense of control, which is hard to withdraw from managers at different subsidiaries (Jarlén, Volvo interview, 2013).

Companies have the ability to plan its operation in such a way that it reduces currency exposure, so called natural hedges. According to Kim et al. (2006) natural hedging is a complement to financial hedging, which reduces the need to use financial derivatives for hedging purpose. At Volvo they have in the last few years put more attention towards this subject and their aim is to reduce exposure to financial items. SKF and Getinge does not communicate that natural hedging is important objective. This could possibly be explained by the fact that Getinge is a growing company with limited resources and that SKF already have found their optimal structure, which reduces its financial exposure.

5.4 Accounting

Accounting standards has an impact on companies' hedging strategies through its ability to govern companies' financial performance. When IFRS was implemented in 2005, it increased the requirement for disclosure financial instruments of publicly listed companies in Sweden. Volvo, SKF and Getinge complied with new requirement through applying hedge accounting. The motive behind the use of hedge accounting was its ability to reduce volatility in financial reporting, through removing the need for fair value adjustments for all hedging derivatives. However, hedge accounting restricted the companies' usage of complex derivatives and the efficiency requirements restricted the hedging volume.

The litterateur covering IFRS describes parts of the complexity associated with the requirements in IAS 39 (Marton et al., 2008). The implementation was associated with a high degree of uncertainty among companies and accountants. This forced companies to limit their usage of complex option solutions. Volvo, SKF and Getinge have all decreased their usage of options after the implementation of IAS 39. As a result, companies were no longer inclined to be a net receiver of the option premium without a fair valuation of the contract. The deficient of knowledge was a large reason behind this reaction. Today it is clear that there are ways to avoid these requirements, since the option usage has started to increase again, mainly by small and medium sized enterprises (SEB).

When exploring companies' relationship to accounting it becomes obvious that the benefit of hedge accounting depends on the duration and volume of hedging contracts. Hence, hedge accounting restricts companies' flexibility of hedging activities since it forces them to follow the efficiency requirements. Getinge believes that it is necessary for the group to apply hedge accounting, since a fair valuation of all contracts would create too much volatility in the financial reporting. Moreover, Getinge has not had any difficulties to comply with the efficiency requirements. Volvo on the other hand stopped applying hedge accounting 2009 due to Volvo's difficulties to comply with the efficiency requirements during the financial crisis. They believed that the loss of flexibility and the costs outweighed the benefits. Today, Volvo's hedging activities have a much shorter duration and smaller volumes. This makes it less important to apply hedge accounting since a fair valuation of contracts cannot be as volatile. SKF have decides to apply

hedge accounting only for contracts in USD, this since it is the only currency where hedge accounting creates benefits.

The importance for companies to evaluate and understand the impact of accounting standards is clearly disclosed after assessing how Volvo, SKF and Getinge were affected during the financial crisis. Hence, new accounting standards will continue to come and it is a relevant topic for the companies to consider in relation to their hedging strategies. The process to harmonize financial reporting have only started and new regulations are to be expected. Currently IASB are working on IFRS 9 that will replace IAS 39 (Marton et al., 2008).

5.6 Market volatility

During the last decade, market volatility has influenced the companies' hedging strategies through its connection with companies' financial performance and exchange rate movements (Smith and Stulz, 1985). The outcome of companies hedging strategies are more clearly visualised during increased market volatility. Thus, when market volatility increased during the financial crisis in 2008 some companies' operations went through a period of extremes. Market volatility affected companies forecast accuracy, financial performance and business. However, it also became a trigger of several other company specific factors such as, management flexibility and risk awareness that had an impact companies hedging decisions (Smith and Stulz 1985; DeMarzo and Duffie 1995; Berk and DeMarzo, 2011).

Figure 15. Market volatility affects companies' forecast accuracy, financial performance and business.

5.6.1 Financial performance

Market volatility has the ability to influence companies' financial result, which can give managers incentives to change corporations hedging strategy. This since it is important for managers to reduce negative results and to react when negative results occur. Even though hedging aims to reduce currency fluctuations impact on companies' cash flow and earnings, it can have the opposite effect and increase volatility. All three banks (Deutsche Bank, Nordea & SEB, 2013) describe how negative financial results during the financial crisis; have had an impact companies hedging activities. As a result, they can see trend with shorter hedging duration, decrease volume and removed flexibility and speculations. This result was also noticed when comparing Volvo, SKF and Getinge reaction in relation to the financial crisis, since all three companies made some changes during this period.

As describe earlier, Volvo suffered from large losses during 2008-2009. In 2008 net income fell by over 100%, sales by 20% and outstanding contracts had a negative fair value of 2 938 MSEK. This required the management to take action and it resulted in shorter hedge duration and a

stricter financial policy without speculation. Moreover SKF, decreased its hedge duration as a result of negative financial result during the financial crisis, but they took advantage of its active risk management and made swaps to prevented large losses. While Volvo and SKF net income have gone up and down, Getinge has been able to keep a stabile positive net income during last five years. This stability gave them confidence and allowed them to extend its hedge duration. This gave them the opportunity to take advantage of beneficial exchange rate levels of the USD and EUR.

5.6.2 Forecast accuracy

Forecast accuracy is an important variable that affects the outcome of companies hedging activities. Hence, it allows the company to extend its hedge duration and still be able to match it with future transactions. However, this forecast accuracy needs to be sustained even during times with high market volatility, which due to its uncertainty makes it harder to predict future transactions (Rime et al., 2010). Volvo had difficulties making accurate forecast during the financial crisis, since they experience a large amount of order cancelation. The forecast errors entailed Volvo to be over-hedged, which had a negative impact on Volvo's financial result. According to Horcher (2005) company's forecast accuracy is very individual, however the nature of each company's business affects its sensitivity of market changes. Both SKF and Getinge have had high forecast accuracy, SKF due to the fact that they have a diversified customer base around the world and Getinge because they have hospital and other governmental institutions as their main customer. This makes it easier for Getinge and SKF to forecast since the periods almost looks the same from year to year. Volvo's business is signified by vulnerability to the cyclicality of the market and it is clearly disclosed during the financial crisis. These forecast errors make it hard for Volvo to have long hedge duration.

5.6.3 Business

When discovering the negative impacts of hedging in relation to market volatility, it is important to remember that if the companies were to stop hedging, they would have to rely on the business ability to compensate for exchange rate movements through profit margin and price adjustments (Duffie & DeMarzo, 1995). For example, during the last five years Volvo have had an average operating margin of 6,8%, which is vulnerable to unfavourable currency movements. Even though hedging does not remove all exposure towards foreign exchange rate movements it gives companies the ability to smooth out volatile conditions. A shorter hedge duration like SKF's demands faster adaption to withstanding exchange rate movements, while a longer duration like Getinge's give the company more time to adjust its operations to new market conditions. Hence, SKF has shortened their hedge duration since they want the ability to change their hedges faster and in line with the market movements.

5.7 IT development and bank relation

During the last decade development of electronic trading systems has changed the way companies conduct trading activities (Allen et al., 2000). This development has transformed the market from a fragmented phone based relation with banks towards a more centralized computer based trading system with multibank platforms (Chouinard & Lalani, 2002; Allen et al., 2000; BIS, 2010). This has been seen in all companies but foremost in Volvo and SKF. SKF has gone from conducting 20% of all trading on computers in the beginning of the century up to 90 % today regarding FX derivatives.

Other outcomes that can be seen from a developed trading system are lower cost, increased information transparency and volume capacity (Allen et al, 2000). Karlsson at AB Volvo argues together with Nobel at SKF that the changes in the system has put more focus on the price of derivatives and has created a price press where the companies through multibank platforms faster get banks prices and can conduct a more efficient trades. Price has been seen as one of the foremost criteria when Swedish companies asses their bank relation regarding hedging and trading (TNS Sifo, 2013). This IT development has also reduced the contact with the banks. All three companies can see this trend but still argues that it is necessary to keep a good and continuously relation with the bank representatives since FX derivatives is not the only business they have with the banks.

One has to remember that all decisions and changes in focus are depending on the company structure, size, culture and resources. For example how dependent the company is on banks (Karlsson, Volvo, 2013). Volvo's capital structure for example, with a net debt, means that they need external financing through the banks. Volvo's position as a big company with many bank relations enables them to put pressure on the banks prices. Bank relation is a cost and for AB Volvo and SKF it has been more important to cut cost in the overall structure than to keep the old way of communication with their banks. Getinge on the contrary do not focus as much on price as AB Volvo or SKF, Getinge focus more on the relationship with the bank since they is dependent on external financing to a greater extent.

The increased information transparency in the system leads to that one can see trends faster, increases the ability to make corrections faster and gives a better overview of the correct market price (Allen et al, 2000). This creates winners and losers were corporations are the foremost winner and the intermediates are the one risk losing the most. Hence, the middlemen role is less important when trading through an electronic system and the personal contact disappears. This is something that all three banks have felt.

The development of electronic trading system has changed the way Volvo, SKF and Getinge works and to some extent their relation with their banks. Any big changes in their financial policy regarding exchange rate risk cannot be seen though. The results are simplified and more efficient executions, which make it easier to faster assess prices offered through the bank platforms. This has enabled a shift from relationship to price.

6. Conclusion

6.1 Summary

In relation to our research model this study reveals that capital structure, management, shareholders, company structure, forecast reliability and financial performance are important internal determinants that have influence companies' hedging strategies. Furthermore, external determinants that have influenced the companies hedging activities are accounting standards, market volatility and technological development. Conclusively, this study describes how and why the case companies' hedging strategies has been influence by these determinants.

The results of this study disclose differences in how and why the sample companies were influenced by the relevant determinants. The difference between the companies could be explained by the fact that corporate hedging is largely determined by company specific attributes and prevailing market conditions. However, it is hard to draw any general conclusion of the findings in this study; due to the sample size is small and diverse.

During the last decade Volvo has made several changes of their hedging strategy, compared to SKF and Getinge. The need for change is strongly associated with the negative result and forecast errors that Volvo experienced during the start of the financial crisis. As a result of Volvo's sensitivity to market volatility the management decided to take action. Volvo has decreased their range of hedging activities through structural changes, which has given them a better understanding of the group's net exposure.

The analysis of SKF's hedging strategy communicates an image of a stabile organisation with a clear purpose of its currency risk management. More noticeable are SKF's active risk taking and the managers believed in its value adding ability. Furthermore, SKF's sees, as well as Volvo, the opportunities with the technological development, which allows them to execute trades more efficiently.

During the last decade Getinge has increased their hedge duration, which is the opposite direction of what Volvo and SKF have done and for what the banks believes to be the general trend. Getinge's management rely on high forecast accuracy and the knowledge among their employees. In addition, Getinge is reliant on hedge accounting, which discloses the importance of understanding accounting principles. Furthermore, there is an association between Getinge's strive to increase predictability of financial results and their need of external financing, the same relationship can be found at Volvo.

6.2 Further research

A possible further research approach regarding companies hedging strategy is to look at the determinants influence on a larger sample of companies since this would give a more general view and a possibility to see actual trends. Where is the hedging going? Other possible research questions are how to evaluate the hedging activities and if there are any behavioural effects and how much companies in small countries like Sweden actual influence each other. Are there differences between industries, company size and geographical localisations? A focus area could also be to see the relationship between corporate strategy and hedging.

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Appendix

Sensitivity analysis

Below one can find a table over the case companies' sensitivity analysis retrieved from their annual reports. The analysis is towards changes of exchange rates with SEK as base currency.

SKF MSEK	2006	2007	2008	2009	2010	2011	2012
SEK appriciate w. 5%	250	300	350	250	400	400	400
SEK depricaiate w. 5%	-250	-300	-350	-250	-400	-400	-400
**Translation effect towards all currencies*							

VOLVO MSEK	2006	2007	2008	2009	2010	2011	2012
SEK appriciate w. 10%	3 252	4975	373	1145	454	1919	2184
SEK depricaiate w. 10%	-1 724	-4443	-6245	-773	-218	N/A	N/A
**Effect on financial flows*							

Getinge	2006	2007	2008	2009	2010	2011	2012
SEK appriciate w. 5%	19	21	37	57	55	70	55
SEK depricaiate w. 5%	-19	-21	-37	-57	-55	-70	-55
**Earning effect towards USD*							
** = All infomation retrieved from respective company's annual reports*							

Financial data

Below one can find data from the annual reports from 2002 to 2012. Displayed is the change in percentage for net income and earnings before interest, taxes, depreciation and amortization (EBITDA). In each chart Getinge, AB Volvo and SKF are compared to each other. One can see that AB Volvo has had the greatest fluctuations and Getinge is the most stable company of the three compared companies. A graph over their maximum hedging duration according to their financial policy stated in their respectively annual reports is presented.