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Validating the contextual framework for strategic investment decision making practices: quantitative evidence from the Nordic countries

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ABSTRACT
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VALIDATING THE CONTEXTUAL FRAMEWORK FOR STRATEGIC INVESTMENT DECISION MAKING PRACTICES: Quantitative Evidence from the Nordic Countries

Objectives

The objective of this research was to quantitatively test the contextual framework for strategic investment decision making practices. The purpose was to evaluate the validity of the model by analysing financial, strategic and overall approaches to strategic investments decisions in the Nordic countries. The theoretical foundation of the study was based on a qualitative research conducted by Carr *et al.* (2010).

Data

The empirical part of the study was based on a survey directed to the chief financial officers of publicly listed companies in Finland, Sweden, Norway and Denmark. A total of 54 responses were returned in time for this study, corresponding to a response rate of around 6%.

Methodology

The data collected for this research was analyzed according to the contextual framework, by first positioning the companies to one of the four contextual categories of *market creators, refocusers, restructurers* and *value creators*. The strategic investment decision making practices of the different categories were then analyzed in the light of the results of the original study. Also practices supplementing the initial research were analyzed. The statistical methods used in this research include correlation analysis, mean comparison using t-test and regression analysis.

Results

The overall validity of the contextual framework for strategic investment decision making practices proved to be good. The explanatory power of the initial study is strongest in the sense how companies weight financial and strategic aspect to these investments. Furthermore, the model implies that target required rate of return decreases and flexibility to meet financial targets increase, as moving from restructurers to market creators. The model does not provide knowledge on the utilization of financial appraisal techniques, whereas size affect to this matter significantly. Supplementary findings indicate that risk analysis methods and innovativeness in used techniques increases, when moving towards higher market orientation and context.

Keywords

Investments, strategic investment decisions, strategic management accounting, contextual framework

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KONTEKSTUAALISEN VIITEKEHYKSEN VAHVISTAMINEN STRATEGISISSA INVESTOINTIPÄÄTÖSKÄYTÄNTEISSÄ: Kvantitatiivinen tutkimus Pohjoismaissa

Tutkimuksen tavoitteet

Tutkielman tavoitteena oli testata kontekstuaalista viitekehystä strategisissa investointipäätöksissä kvantitatiivisesti. Tarkoituksena oli arvioida mallin validiteettia analysoimalla taloudellista, strategista ja yleistä suhtautumista strategisiin investointipäätöksiin Pohjoismaissa. Tutkielman teoreettisena lähtökohtana oli Carr ym. (2010) tekemä kvalitatiivinen tutkimus.

Lähdeaineisto

Tutkielman empiirinen osuus perustui kyselyyn, joka lähetettiin suomalaisille, ruotsalaisille, norjalaisille ja tanskalaisille julkisesti noteerattujen yritysten talousjohtajille. Kyselyyn vastasi 54 talousjohtajaa. Vastausprosentti oli noin 6%.

Metodologia

Lähdeaineisto analysoitiin kontekstuaalisen viitekehyksen mukaisesti sijoittamalla yritykset ensin neljään kontekstuaaliseen kategoriaan. Eri kategorioiden strategiset investointipäätöskäytänteet analysoitiin alkuperäisen mallin mukaisesti. Lisäksi tarkasteltiin mallia täydentäviä näkökulmia. Tutkielman tilastollisina metodeina käytettiin korrelaatioanalyysia, keskiarvojen t-testausta sekä regressioanalyysia.

Tulokset

Kontekstuaalisen mallin validiteetti strategisten investointipäätöskäytänteiden erojen selittämiseksi osoittautui tässä tutkielmassa hyväksi. Alkuperäinen malli selittää yritysten taloudellisten ja strategisten asioiden painotuseroja strategisissa investointipäätöksissä. Lisäksi viitekehys selittää eroja investointien tuottotavoiteissa sekä taloudellisiin tavoitteisiin liittyvässä joustavuudessa. Malli ei kyennyt selittämään eroja taloudellisten arviointimenetelmien käytössä, mutta aikaisempien tutkimusten löydökset yrityksen koon vaikutuksesta asiaan todettiin merkittäviksi. Lisäksi havaittiin, että riskianalyysimetodien käyttö ja käytettyjen menetelmien sofistikoituneisuus kasvavat, kun liikutaan mallin pystyaksellilla kohti korkeampaa markkinaorientaatiota ja -kontekstia.

Avainsanat

Investoinnit, strategiset investointipäätökset, strateginen johdon laskentatoimi, kontekstuualinen viitekehys

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1 INTRODUCTION

1.1. Background and Motivation

"Capital Budgeting and Investment Analysis is concerned with the most important problem facing management – finding or creating investment projects that are worth more than they cost." (Shapiro, 2005, xiii). These opening words of Shapiro disclose the importance of investment decisions in contemporary organisations. Capital budgeting is a daily operational task for many business controllers and CFO's in competitive, global markets. Investment decisions are interesting also from the organisational point of view. There are not many other operations in a company, where all different units, from marketing and communications to sales and finance, take part in to a common decision that affects the organisation as a whole.

The importance of investment decisions has lately even increased. There is a short of available funds in the current recessed world economy, and thus all the investments and capital allocations must be directed to profitable projects. In times of uncertainty, companies also seek ways to expand their operations to new areas of business, whether the expansion is geographical or operational. In these types of situations, strategic and long-term aspects become more important than short-term profit. On the other hand, the pressure to comply with the financial targets set to the management is playing key role in some organisations' strategic investment decisions (SID's).

Investment decisions, and also strategic investment decisions, have been studied in the light of utilized capital budgeting techniques quite thoroughly in the current literature (e.g. Alkaraan and Northcott, 2006; Arnold and Hatzapoulos, 2000; Farragher et al., 1999; Graham and Harvey, 2001; Pike, 1996; Sandahl and Sjögren, 2003; Liljeblom and Vaihekoski, 2004). These studies have concentrated on the techniques that are used and not that much on how they are used and what contextual setting affect to the use of appropriate techniques. Research evidence also indicates that organisations weight strategic and financial aspects quite differently (e.g. Carr and Tomkins, 1996, 1998). Also differences between different countries (compare e.g. Graham and Harvey, 2001; Sandahl and Sjögren, 2003; Brounen, De Jong & Koedijk, 2004) and small versus large corporations (Graham and Harvey, 2001; Pike, 1996) have been observed. The caveat, however, has been that no studies have sought to create

systematic approach to explain the above mentioned differences in applied capital budgeting techniques of organizations.

To answer to the deficiencies of the current literature, a contextual framework to strategic investment decisions have been created (Carr, Kolehmainen and Mitchell, 2010). This framework takes in to consideration contingencies that have been derived from broader strategic management and strategic management accounting theories. Contextual framework explains strategic investment decisions in terms of company's market context and orientation and its performance in relation to shareholder expectations. Developed framework encompasses four categories of market creators, value creators, refocusers and restructurers. (Carr *et al.*, 2010). This model is based on qualitative data gathered from several countries in slightly different years. This approach has been good to create the theoretical framework but a quantitative test is currently needed to validate the model.

1.2. Objectives and Limitations

The objective of this research is to provide a quantitative test of the contextual model of Carr *et al.* (2010) and to validate whether the model created with qualitative research is applicable with larger sample and quantitative approach. The model of Carr *et al.* (2010) has been made with a sample of 14 multi-national companies in United Kingdom, USA and Japan. This thesis is analyzing the applicability of the framework in a Nordic context. Further analysis on explaining power of the model is given as a result of the study. A number of contextual variables are derived from current literature to further explain the two aspects, market context and orientation as well as performance in relations to shareholder expectations, in a thorough manner.

Hence this quantitative study is striving to answer to a question, which can be summarized in to this main objective:

Is the model of Carr et al. (2010) valid to explain differences in strategic investment decision making practices in the contextual categories?

Furthermore, sub-objectives can be summarized to the following three questions:

1. *Does the contextual framework explain differences in financial analysis?*
2. *Does the contextual framework explain differences in strategic analysis?*
3. *What are the overall SID approaches of the individual categories?*

This research is concentrating only on strategic investment decisions. It is also focusing to explain Finnish, Swedish, Norwegian and Danish approaches to SID's instead of wider cross-national context. The purpose of this thesis is primarily to validate the model and seek for logical explanations on potential differences to the original framework. Furthermore, this thesis is seeking to provide new information to the model via wider scope of dependent variables that are included in this research.

1.3. Research Method and Data

The research method is to generate an internet questionnaire to the CFO's of publicly listed companies in the Helsinki, Stockholm, Oslo and Copenhaged stock exchanges [1]. The questionnaire is sent to almost a 1000 respondents in three countries. Received answer are then analysed from two perspectives:

1. Positioning of the companies in to the four contextual categories
2. Analysing the differences in strategic investment decision making practices among the groups

Besides the questionnaire, additional information is acquired from Thomson and Orbis databases. By this, the definitions of size and country are acquired, as well as the control variables. This also improves the validity of the research, as the total conclusions are not based only on subjective answers of respondents, but also on quantitative financial data.

[1] The sample companies include all publicly listed companies from Helsinki, Stockholm, Oslo and Copenhagen stock exchange. Icelandic companies are left out of the scope of this research due to high economic turmoil in the past year. Researcher believes that this distorts the results too much.

1.4. Definitions of Key Concepts

The definitions of key concepts are mainly derived from previous literature. Most of the concepts are discussed in more detail in later chapters of this study. Appendix 1 includes all the definitions presented in the questionnaire.

Strategic investment decisions (SID's): In this study, strategic investment decision refers to substantial investment that has a significant effect on long-term performance and the organisation as a whole. Examples of these are company acquisitions and mergers, introduction of new major product lines, installation of new manufacturing processes, introduction of advanced manufacturing and business technologies and substantial shifts in production capability.

Contextual approach: Contextual approach is a key concept in the main theoretical framework of this thesis; Carr *et al.* (2010). Contextual approach refers to a method to analyze and predict decisions, which can be explained through demographical and situational aspects of a single organisation.

Sophisticated and un-sophisticated capital budgeting methods: Sophisticated capital budgeting methods are techniques that are highly suggested to be utilized by the contemporary academic literature. These methods take time value of the money in to consideration, as well as cash flow to the company. Examples of these methods are for example net present value (NPV) and internal rate of return (IRR). Un-sophisticated methods refer to simple techniques that usually either neglect the time value of money or stress the accounting aspect of the investment. Examples of these are payback period and accounting rate of return.

1.5. Structure of the Study

The theoretical part of the thesis is covered in chapters 2 and 3. Former is focusing on investments as a concept and the distinction between financial and real investments, as well as between operative and strategic investments. The latter, chapter 3, is highlighting the strategic investment decision making practices from the current literature perspective. Financial

techniques used, as well as broader approaches to SID's are presented. After these foundations have been covered, the contextual approach to strategic investment decisions, the framework of Carr *et al.* (2010), is explained thoroughly. Theoretical part of the study is concluding in a summary of the current SID literature and their relation to this study.

Empirical part of the research is covered in chapters 4, 5 and 6. Chapter 4 presents the research methodology and design in detail. Chapter 5 presents the results and key findings of the study. Chapter 6 is including a summary and concluding remarks from this thesis, as well as suggestions for further research around the topic.

2 INVESTMENTS

Investments usually refer to the utilization of long-term benefits through short-term costs. It is highly common that cash-flows are skewed so that the initial cost is high and the benefits are realizing later. (Etelälahti *et al.*, 1992). Honko, Prihti & Virtanen (1982) views capital investments as a significant outlay of money in order to receive future benefits. They also highlight that capital investments are important not only to the enterprise in question, but to the society as a whole. In addition, the future direction and survival of a company is mainly determined by the capability to direct its funds towards productive and profitable purposes. If companies do not evaluate projects correctly, and steer the available financial resources to right targets which give out returns more than the cost of capital, it will result to deteriorating value of the corporation. (Arnold *et al.,* 2000; Klammer, Koch & Wilner, 1991).

These definitions of investments give insight on the importance of them in the competitive business climate of today. Simply, organizations must be successful in their investment decisions in order to survive and better yet to win the competitors. Thus investments can be considered as one of the most important functions of organization. As much as there are success stories of investments, there are also many examples of bad investment decisions. One catastrophic investment has been the one of Sonera's, which is a Finnish teleoperator. They bought next generation license rights from Germany, which were based on UMTS technology. That project resulted in billions of losses to the organization, due to prolongations in the utilization of the UMTS technology. This particular investment received a lot of notice in Finnish economical and daily press. This is an example where investment decision was not properly evaluated. However, many companies do nowadays steer the investment decisions carefully. It is also common that corporations have clear hierarchical procedures, where all major investment decisions are analysed and approved by the top management.

Investments are commonly categorized in to two based on their purpose to the investor: financial and real investments. Another way of categorizing investments is to think them through their ultimate driver. Investment can be operative or strategic depending on the reasoning behind the decision. These two levels of investments; financial versus real investments and operative versus strategic investments are summarized in the figure 1, and are discussed next.

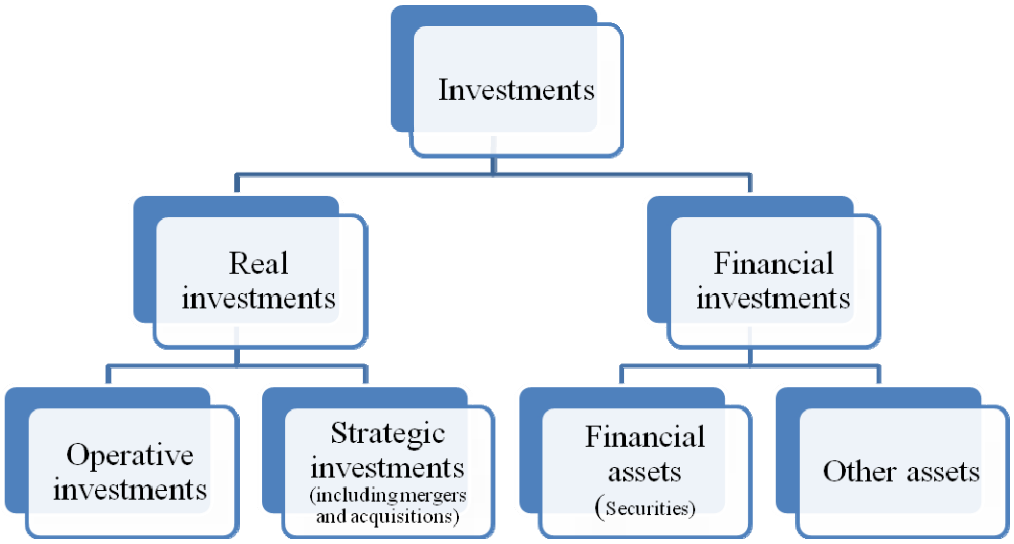

Figure 1. Categorization of Investments.

2.1. Financial Versus Real Investments

Financial investments are related to the financial markets, where the purpose of the investment is usually purely to receive capital gains and dividends, and not concentrating on the underlying fundamentals behind the received surplus. On the other hand, the purpose of real investment is to improve the corporate performance by investing to profitable projects that accumulate positive cash flows and drives the business to a desired direction.

2.1.1. Financial Investments

The nature of financial investments is much different from real investments. They are commonly targeted for the profit-seeking purposes. Financial investors choose their investment target merely on the belief on where to obtain largest profits with lowest risks. Financial investments are not concerned with future survival of corporations or for example the efficiency of a certain production line. Hence the definitions, targets and goals of investments are by large very different in real and financial investments. Financial investments can be divided in to two categories: financial assets and other assets. (Bodie, Kane & Marcus, 2005).

Financial assets include securities which provide some right or obligation to a commodity. Common share is probably the most known security, which includes a right to a certain part of a company's equity. If you own a share, you have the right to make decisions for the company's future, with respect to your share of the total common shares. On the other hand, common shares' value is tied to the performance of an organisation, which is driven by successful strategy and investments to profitable projects. This reflects the relation between financial investments and real investments. (Bodie, Kane & Marcus, 2005)

Other financial assets mainly include investments in real assets such as land, buildings, knowledge and machines that produce goods and services. Real assets are the foundation of an economy; they result to the entire spectrum of outputs produced and consumed by the society as a whole. Nevertheless, real assets can be whether proxies or direct targets of an investment. An individual or organisation can for example invest directly in to land or buildings. Another possibility is to invest in to a company that produces and maintains real assets. (Bodie, Kane, Marcus, 2005).

2.1.2. Real Investments

Real investments can be characterized as investments where the project is targeted either in to physical elements, such as equipment or premises, or product and service capacity expansions. Although the definition of real investment is rather vague *per se*, it can be easily distinguished from financial investments. Shapiro (2005) classifies real investments, or capital-budgeting, as an allocation of funds over several years among various opportunities. Real investments' ultimate goal is to maximize the wealth of the owners. This is why all acceptable projects should exceed the cost of capital of and organisation[2].

Shapiro (2005) sub-categorizes real investments in to four investment categories:

[2] Cost of capital is usually calculated with capital asset pricing model (CAPM), which defines the relative cost of equity to the company. More knowledge on practices that companies utilize to define the cost of equity, see for example Graham and Harvey (2001), as well as results from this research.

1. Equipment replacement
2. Expansion to meet growth in existing products
3. Expansion generated by new products
4. Projects mandated by law

Equipment replacement investments relate to the need to replace current equipment, usually in production environment. It might be that costs of maintaining the equipment become too expensive, there is a change in inputs or there is simply a need to improve the efficiency of the product line via new equipment. A good example of equipment replacement is a paper machine. If a product line's bottle neck is the quantity of paper a machine can produce, the production line manager has the option to either increase the number of current machines or replace current equipment with a device that can increase for example produced meters of paper per hour.

Another type of real investment is the expansion to meet growth in existing products. These investments are usually mandatory ones in order to stipulate changes in demand of current products. It might be that the increased demand is due to current markets, or based on a decision to widen the business in to new geographical areas. These types of investments are very crucial to industries where demand and supply are volatile and business needs to adjust based on the cyclicality. An example of these industries are for example oil, coal, copper and other raw material businesses, where there is a constant need to find new sources of raw materials to balance the demand and supply. (Shapiro, 2005).

Third type of real investment is expansion generated by new products. Many companies who have operated in same geographical area for longer period, and believe that the markets have saturated, tend to seek other ways to expand their sales. One common way is to introduce new products in order to keep the current customer base and create new customer relations. Very good examples of these types of business areas are mobile phone and other home electronic industries. People have a propensity to use these devices for a few years and then buy new ones. If the delivering companies are not able to introduce new products with this cycle, business evaporates quickly. Naturally this requires high level of investments in R&D and marketing.

Shapiro's fourth real investment category is the projects mandated by law. These investments are mandatory to corporations, who are affected by the changes in legislation. Good and contemporary example of this is the initiative to reduce industry pollutions. Many companies have to align according to the new laws trying to slow the global climate change.

Similar categorisation as Shapiro's, is also given by Klammer, Koch and Wilner (1991). They separate investments in to seven classes:

1. Replacement investments
2. Operative expansions (including both existing and new products)
3. Foreign operations
4. Abandon investments
5. Administrative investments
6. Social investments
7. High-tech investments

Klammer *et al.* (1991) categorization is more based on the fundamental purpose of the investment. It also sub-categorizes investment types in more detail than Shapiro. Nevertheless, the grouping of real investments is more a matter of the detail level than the concept, which is generally agreed in the literature.

2.1.3. Main Distinctions between Financial and Real investments

Largest differences between financial and real investments are the very nature of the two. Financial investments for example can be accessed by any individual, company, foundation or even countries. Real investments are *usually* undertaken by companies who seek for better profits for their line of business. Of course an individual can also allocate funds to real investments, but as has been explained earlier, real investments are usually defined as for example production equipment replacements. (Shapiro, 2005; Klammer *et al.,* 1991) It is self-evident that individual persons do not seek more efficient household equipment in order to improve their total income. One must not mix real investments to real assets, which are part of financial investments. Individuals do invest in to land and property, which is defined as real assets.

Second difference between real and financial investment is related to the regulatory aspect. Real investments are basically not regulated or monitored while financial investments are probably the most carefully steered and overseen industries in the world. A company can invest to any project they see profitable without being closely supervised[3]. After the financial crisis, financial investments are monitored even more closely and so called financial innovations are more restricted in the future.

Third main difference is the fundamental idea of an investment. Financial investments seek merely profits without major strategic thinking behind it. Financial investor is only interested in increasing their own wealth, sometimes without the concern of how the investment does affect the organisation and the surroundings. Real investments, and especially strategic investments, do commonly have "the big picture" behind the project. As will be discussed later, strategic investments are sometimes undertaken without financial justification due to the belief in the long-term benefits that can be obtained.

As a sum, the difference in financial and real assets is that while real assets produce goods and services, financials assets distributes and allocates income and wealth among investors. Individuals can also decide whether to consume today, for example to real assets, or invest in to financial assets for future gains.

2.2. Operative Versus Strategic Investments

Operative investments are best explained through the general classification of equipment replacements by Shapiro (2005), which was presented in the earlier chapter. Operative investments are the ones which are undertaken to improve the internal processes, practices and operations of an organisation. Operative investments can be a prerequisite to continue for example the production of a certain product. A company might face a situation where its operations cannot proceed without an investment to meet, for example new requirements for a

[3] Naturally this is not always the case. For example some governmental barriers are in place when companies expand to another country or region. Labour effects and other economical factors might affect to the real investment decision of an organisation.

product. This might mean that the production machinery must be renewed completely, or adjustments to the current ones should be undertaken. Another example of operative investment is an organisational restructuring to meet for example new competitive environment. In this case as well, company faces difficulties if not adapting to the change in the surroundings. As a sum, operative investments are more reactive responses of a company to changes.

On the other hand, strategic investments are more proactive and innovative actions that will determine the future of an organisation. Strategic investments are special type of investments, usually in which the planning and execution is hard to predict and align with standard methods. Strategic investment decisions (SID) usually involve process of identifying, evaluating and selecting from projects that are significant for the future of an organization. Strategic investment decisions define the future of the whole company, or for example business unit. These decisions might affect for instance product or service range, geographical presence or the actual processes or practices that the company uses. (Adler 2000, 15). Thus it is justified to say that SID's are framing, steering and deploying the organization's strategic direction.

Strategic investments decisions can also be seen to combine financial aspects of a project with the strategic and qualitative decisions that has already been made. For example if a company decides that is strategically sound to widen the product portfolio with a totally new line of business, next step is usually to quantify the decision with financial analysis. However, it is not always true that companies make the quantitative analysis of these projects, but weights more the qualitative issues that are in favour of undertaking the strategic project.

In this research, strategic investment decisions (SID's) are defined similarly as in the recent research by Carr, Kolehmainen and Mitchell (2010):

"Strategic investment decision (SID) refers to substantial investments that have a significant effect on long-term performance and the organisation as a whole (Carr and Tomking, 1996, 1998). Capital budgeting literature has not always distinguished more strategic types of investment (e.g. Graham and Harvey, 2001; King, 1975; Klammer, 1972, 1984; Pike, 1983; Sihler, 1964); but a substantial body of research now attest the importance of this distinction (Alkaraan and Northcott, 2006; Butler et al. 1993; Marsh et al., 1988; Oldcorn and Parker,

1996).” (Carr, Kolehmainen and Mitchell, 2010, 4). From practical point of view, strategic investments are more dynamic than operative investments. Companies that face more ambiguous and significant projects, which steers the organisations future performance are strategic investments. Equipment replacements, for example, are usually generic, and at the same time good example of non-strategic investment. The purpose of this research is to study strategic investment decision making practices instead of concentrating on operative investments. These investments have not been studied widely enough in the current literature, and are thus the scope of this research.

3 STRATEGIC INVESTMENT DECISION MAKING PRACTICES

3.1. Literature on Operative and Strategic Investments

Strategic investments, as described earlier, include unpredictable elements, which are hard to evaluate and plan in advance. Many organizations utilize the traditional financial appraisal methods, such as net present value and internal rate of return, to determine the true profitability of a strategic investment. On the other hand, problems in the use of financial techniques and rational analysis in investment as well as in other decisions are constantly highlighted by the academia (e.g. Adler, 2000; Mintzberg and Westley, 2001; Wikman, 1997; Haka, 1987). Large criticism is presented against the use of only financial techniques in SID's. This has also resulted in to a wider discussion on the best practices of strategic versus financial valuation of a SID. In contrast to simple financial techniques used, also broader approaches to SID's have been introduced and investigated. One of the most recent approaches to strategic investment decisions is to analyze the contextual settings that affect the utilization of different appraisals of SID's. Carr, Kolehmainen and Mitchell (2010) have developed a contextual framework, which is one of the key theoretical bases for this research, and thus presented closely in chapter 3.3.

Capital budgeting techniques are a topic that has been studied thoroughly. However, distinction between strategic investment decisions and operative investments is rarely done when evaluating the financial techniques used in investment decisions. Current literature has concentrated to investigate investment decision techniques as such (for example Graham & Harvey, 2001; Liljeblom & Vaihekoski, 2004; Sandahl & Sjögren, 2003; Haka, 1987). Alkaraan and Northcott (2006) made the separation of strategic and operative investment decisions but did not find significant differences in used financial techniques, whether the investment was operative or strategic. This is why utilization of financial techniques presented in current academic literature is overviewed next.

3.2. Financial Techniques in Investments

Rather vast research has been done to identify how companies with different demographic features utilize techniques proposed by academic literature (Alkaraan & Northcott, 2006;

Haka, 1987; Carr & Tomkins, 1996; Graham & Harvey, 2001; Liljeblom & Vaihekoski, 2004; Sandahl & Sjögren, 2003). One key aspect that has risen in these studies has been the utilization of sophisticated versus un-sophisticated methods. Sophisticated methods have been discussed widely in the literature. Haka, Gordon & Pinches (1985) define sophisticated methods as the projects that account risk and consider the accumulated net cash flows. Mainly this means that sophisticated capital budgeting techniques are based on discounted cash flow approach (DCF). These include net present value (NPV), adjusted present value (APV) and internal rate of return (IRR). Un-sophisticated methods usually refer to more simple methods such as payback period or accounting rate of return.

Current literature provides large evidence on the use of the financial techniques in investment decisions (Alkaraan & Northcott, 2006; Graham & Harvey, 2001; Liljeblom & Vaihekoski, 2004; Sandahl & Sjögren, 2003). These studies provide good knowledge base on the utilization of *sophisticated* versus more simple method in corporate world. The studies also provide good basis for the contexts, for example geographical settings, in which the theoretically better methods tend to be used. The literature provides clear implication that Anglo-Saxon companies have better utilized the sophisticated methods when comparing to for example Scandinavian enterprises. This might be due to many factors. One could be that Anglo-Saxon companies have more financially orientated ownership structure than in Scandinavia. The concept of "maximizing shareholder value" has originated from the US, and the discounted cash flow (DCF) models are mainly structured around that thought.

The contextual interest has mainly concentrated on the country-specific differences (for comparisons between UK, Continental Europe, Scandinavia, North America and Japan, see e.g. Pike, 1996; Brounen, De Jong & Koedijk, 2004; Liljeblom & Vaihekoski, 2004; Sandahl & Sjögren, 2003; Graham & Harvey, 2001 and Shields *et al*, 2005) without concentrating too much on the other variables which might explain the differences in corporate practice. Result has been that the Anglo-Saxon companies use the sophisticated methods more frequently than others countries. On the other hand, findings indicate that although use of sophisticated appraisal methods is growing in Scandinavian and Japanese companies, the un-sophisticated methods such as payback period and accounting return is still widely used by Swedish, Finnish and Japanese companies when evaluating the investment project of their organizations. Although the primary financial technique used for investment decisions in Scandinavia is the payback period, the utilization of for example NPV is also quite large.

Japan instead is utilizing NPV much more rarely. In Sweden, 78,1% of companies use payback period and 52,3% use net present value. In Finland 75% of companies use payback period and 56,4% utilize NPV., In Japan payback period was used in 69% of the cases while NPV was not used at all.[4] (Liljeblom & Vaihekoski, 2004; Sandahl & Sjögren, 2003; Carr, 2005). General conclusion is that Anglo-Saxon companies use NPV as the most frequent technique of choice, while Scandinavian companies utilize payback period the most (see e.g. Graham & Harvey, 2001 and Sandahl & Sjögren, 2003.)

Besides national context, there has not been as ample evidence on the contextual variables that do in fact affect to the selection, utilization and deployment of different methods and practices of evaluating strategic investment decisions. One of the contextual variables that have provided at least some evidence of effect is size of the company. Graham and Harvey (2001) showed that size had one of the biggest factors, which drive the investment decisions of organizations. Although Graham and Harvey (2001) did not investigate strategic investment decisions, one could see risky projects in the light of SID's.

Large firms are much more frequent to use sophisticated methods in the project analysis than small firms (e.g. Graham & Harvey, 2001). Fundamentals of why smaller firms do in fact use less sophisticated methods are still quite ambiguous. Graham and Harvey suggest that whatever the reason is, it might explain for example asset pricing anomalies that do exist in financial markets. This might reflect the fact that small firms are analyzed more on non-financial basis, as many small firms might be for example family owned. For an investment project to be approved, the owners and executive management of large firms might require much more in-depth analysis on the potential projects. It might be suspected that if the owners are venture capitalists, the requirement on the usage of sophisticated methods is much higher. Another point on the utilization of sophisticated methods by large firms might reflect to the more complex organizational hierarchy. If an investment project is proposed in the lowest level of the organization, it might be that it has to be approved by the management team of the company. As the upper management is usually drifted away from the grass-root level of

[4] Studies of Carr (2005), Sandahl and Sjögren (2003) and Liljeblom and Vaihekoski (2004) are not completely comparable because Carr studied this in the case of strategic investment decisions with qualitative research method. The research by Sandahl and Sjögren and Liljeblom and Vaihekoski concentrated on investment decisions in general with rather similar research approach.

operations, they require much more ample evidence for the projects – usually in form of more sophisticated analysis. Pike (1996) also found a relation with size and the popularity of sophisticated methods. His longnitudal study of 17-years indicates that the firm size is associated with the utilization of DCF methods. He also found that this is not the case when observing the relation of size and payback period. However, Pike underlines that the firm size is not necessarily the direct causal factor steering the usage of DCF methods, but in his study it also might be distorted with other fundamentals, such as computer based capital budgeting process, which in 1996 might have affected the utilization more than the size *per se.* Farragher *et al.* (1999) found in their research, that there is a significant difference between the use of sophisticated techniques of large and small firms. They found that only 16% of the small firms[5] used net present value (NPV) as the technique in capital budgeting decision. This can be seen rather low due to the fact that 80% of the large firms were using NPV as the technique of choice. Also the use of internal rate of return was much higher in large corporations than in small organisations, while the results on the popularity of payback period were found to be vice versa: small companies favour the technique more than large ones.

Graham and Harvey (2001) have also examined many other variables that affect to the use of sophisticated methods. They used 14 variables (presented in table 1) with a specific measure, to evaluate contextual settings that might have a reflection on the utilization of sophisticated techniques.

The findings based on these contextual variables are highly interesting. Size was found to be extremely significant when determining the level of NPV usage within U.S. based companies. They found that there is not much of a difference in the utilization of DCF techniques amongst growth and non-growth firms. Highly levered firms are using DCF techniques much more than the companies with low debt-to-equity ratio. Graham and Harvey (2001) highlights, that the effect of leverage is not entirely related to the size of a firm. It seems that high-levered firms, whether they are small or large, do tend to use the sophisticated evaluation methods more than low-leverage firms. In addition to using more DCF techniques, high-leverage firms do use more sensitivity and simulation analysis. They also find that the CEOs

[5] Small firms were referred to as firms with less than 5 000 000 $ of sales and less than 1 000 employees, other being large organisations. This definition was used in the study of Farragher *et al, (1999) but originally* introduced categorization of Block (1997).

with Master of Business Administration (MBA) degrees are using the DCF methods more than the non-MBA CEO's, although the difference was not significant. Dividend paying firms are more likely to use NPV or IRR than the non-dividend paying firms. Graham and Harvey (2001) do also find that public companies are much more likely to use the sophisticated methods than private organizations. One must note however, that there was a correlation in Graham and Harvey's (2001) study, where private companies are also more often small companies. Thus based on this it is hard to present unambiguous conclusions on the utilization of DCF methods among public and private organizations. All the contextual variables, used measures and findings of the study of Graham and Harvey (2001) are summarized in the table 1.

Contextual variable	Measure used	Who use NPV & IRR more often?
Size	Sales (million $)	Large corporations
Growth firms	P/E-ratio	*No difference*
Leverage	Long-term debt ratio	High-levered firms
Investment grade	S&P credit rating	*No difference*
Dividend policy	Paying / not paying	Dividend paying
Industry	Industry group	Manufacturing companies
Management owned	% owned by executives	Low management ownership
CEO age	Years	*No difference*
CEO tenure	Years	*No difference*
CEO education	University degree level	MBA's more than non-MBA
Regulated	Regulated / not regulated	Regulated
Debt ratio target policy	Level of strictness	With targets
Public corporation	Publicly listed / Private	Private
Foreign sales	% of total sales	More foreign sales

Table 1. Graham & Harvey (2001): contextual variables, measures and use of sophisticated methods

As a sum, there seem to be number of different contextual variable that do in fact affect to the utilization of the sophisticated capital budgeting techniques. Due to high concentration on certain variables, such as country and size, the results are generally informing readers about the theory-practice gap that exists, but due to unformulated set of contextual variables, it is difficult to examine the true reasons for the dissimilar use of sophisticated capital budgeting practices.

Another problematic part of the current academic literature is that there is no significant discussion on the capital budgeting techniques around strategic investment decisions. The nature of these investments is highly different from for example replacement investments or other "static" and operational capital budgeting projects. This is why it is extremely important

to examine the research in the field of strategic investment decisions with broader view on the topic.

3.3 Broader Approaches to Strategic Investment Decisions

3.3.1. Caveats of Financial Appraisal in Investments

The concept of broader approach to strategic investment decisions can be viewed for instance via the discussion of strategic versus financial considerations in the project valuation. It is self-evident that in each investment project the companies do, or try to, take in to account strategic, qualitative and financial aspects. Although main course of academic literature has stressed the importance of the DCF methods in investments, companies sometimes accept also projects that aren't *financially* sound. It might be for example that a corporation faces a situation where it must undertake a project, which has negative net present value, due to strategic reasons. For instance a corporation, who wants to broaden their geographical presence to, say Continental Europe, may accept an investment project which initiates operations in Germany. Although it might be estimated that the German market *per se* is not profitable in financial terms, the organization might want make that decision due to strategic foundations. The company might for example believe that Germany will be the gateway to other parts of Europe, or they have good expectations for the future due to competitive reasons. This example highlights the problems in some investment decisions; companies want to undertake projects that aren't estimated to be profitable in financial calculus.

3.3.1.1. Traditional Investment Appraisals Methods

There is a wide criticism in the current research on the use of traditional practices in strategic investment decisions. Adler (2000) has summarized these problems in to six main points, which describe the fundamental issues well:

1. *Narrow perspective:* investment proposals are usually done by investing department and do not take all other parts of organizations in to account. This results to a bad end

result from the company's point of view because all related parts are not considered thoroughly.

2. *Exclusion of nonfinancial benefits:* strategic investments usually include vast amount of nonfinancial benefits, and hence it should also be a major part of the investment appraisal. Also the parts of the investment project that are hard to quantify in financial calculus are sometimes left away from the whole valuation. One example of this is the terminal value of a project, which is often valued at zero.

3. *Short-term focus:* majority of traditional appraisal techniques have higher short-term emphasis. This is supported by for example the valuation of DCF methods, where largest impact of the total value is affected by the first few years[6]. Strategic investment decisions are generally long-term projects that affect the organization for several years. SID's are also the kind of projects that takes years to plan and implement, which distorts the value pattern when traditional methods are used.

4. *Static alternatives against SID:* it is usually assumed that strategic investment projects are comparable to the current situation of the organization. This means that if an organization rejects a SID project, it is assumed that future development of the company will be static and can be foreseen. This is weak assumption as competitive position and general markets are hardly static over years. This assumption holds if principles of costs, quality, flexibility and innovation remain unchanged over the SID evaluation period.

5. *Inconsistent inflation treatment:* companies tend to make irrational inflation allowances in financing and opportunity cost of capital. If only financial calculation is guiding the strategic investment decision, inflation treatment mind turn the project to be viewed as "too risky".

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[6] Clear fact is that the time-value of money is affecting this aspect of DCF methods. It is in no point argued that this would be wrong approach to investment valuation, but it still supports the short-terminism that label the traditional methods, and should therefore be taken in to account with other methods.

6. *Biased proposals:* when managers are presenting the SID's, the calculations are sometimes backed by fancy calculations which actually are bended to promise high returns. This tempts upper management to approve projects which have highest promised returns. Hence the real choice is based on the presenter's ability to bend assumptions and not on the profitability of an investment itself.

The above six points of Adler (2000) are extremely explanatory to the problems if strategic investment decisions are viewed too narrowly and are strictly based on financial appraisal methods. Although all problems cannot be solved simply by "considering more strategically", the wider analysis on the topic provides good starting point for better decision making.

3.3.1.2. Rational Decision Making Approach

Besides Adler (2000) and other literature in management accounting, the problems of decision making have been noticed widely in the academia. Due to the fundamental nature of investment decision there is also debate on-going about the applicability of rational decision making in contemporary business life. It is quite common that companies favour rational decision making, which leans tightly to financial analysis and profitability of a project.

Mintzberg and Westley (2001) are introducing three aspects in the way decisions are made: *thinking first, seeing first* and *doing first.* They claim that thinking first is based on a rational decision making which views the complexities of the surrounding world too superficially. The approach highlights the importance of planning all decisions thoroughly before executing. Problem is that the rational cause-effect relationships are hard to implement in ambiguous situations, for example in many strategic investment decisions. Despite this, organisations strive to weight rational decision process in their investment decisions, where technical calculations and thorough analysis are in fashion. *Seeing first* suggests that one should see the "big picture" while making decisions. This sounds rather appealing as everything cannot be thought in advance, as the rational decision making process suggests. This applies also to the earlier example about corporation's expansion plans to Germany. The company sees the strategic point of view on going to that particular market – something you cannot think through. *Doing first* on the other hand starts with the pre-requisite that the future is unknown and suggests just to go forward with a certain action. This theory is rather aggressive and

straight-forward. It suggests that some decisions cannot be thought through and the big picture cannot be foreseen. In these cases companies should just go onwards with a project in which they believe in. These thoughts of Mintzberg and Westley are appropriate also in the light of strategic investment decisions. Their discussion summarizes the fundamental difficulties that companies face in the daily business life. Companies cannot over-analyze or quantify the results in all projects. Mintzberg and Westely think that in order to make the best decision, organisations must use all three aspects simultaneously. Mainly this means that in decisions, companies need to plan some parts in advance, some parts must be perceived by observing the development and the rest by executing without major planning.

In addition to Mintzberg and Westley, also other scholars in management accounting and strategy literature see that the decision making process should be thought with a wider scope. Especially in the field of management accounting, the traditional approach has claimed that rational and formalized techniques are to be used in investment decisions. Contemporary research on the other hand is guiding discussions to a similar opinion as Mintzberg and Westley have. In the field of investment decisions, Wikman (1997) has argumented against the unequivocal use of formal and numerical analysis in investment decisions. He sees that many good, even vital, investment projects can be disregarded if companies use only quantitative data to support the decisions. Wikman sees that qualitative analysis is important, if not vital, in investment decisions. He also argues that also individualistic and humane characteristics must be accounted due to the fact that humans are not entirely rational but always acting with sentiment.

Also Haka (1987) views that the personal benefits and agendas are affecting to the investment decision choices management. She also arguments that environmental factors must be taken into account when evaluating the total profitability of an investment. These points indicate that rational thinking does not function totally in investment decisions, especially if talking about strategic investment decisions, because surrounding environment is far more complex than many quantitative evaluation techniques assume. As the traditional financial appraisal and rational decision making process are not seen always to be adequate, strategic aspects and intuitive decision making might be even more important in SIDs.

3.3.2 Financial versus Strategic Approach

Traditional management accounting literature speaks highly for the use of sophisticated calculation techniques in investment decisions. It is true that DCF methods are more applicable than for example payback period or accounting rate of return, but the scope is too narrow due to one reason: uncertainty. When evaluating investments strictly through the discounted cash flow analysis, there is high level of uncertainty involved in the estimated cash flows. To tackle the problems of the current techniques, many other methods have been introduced. These include for instance sensitivity analysis, increases in costs of capitals, game theories and different kinds of simulations. (Klammer, Koch & Wilner, 1991). Klammer *et al.* speak for the usage of different methods in investment projects. They find that companies also utilize this thinking; several methods are in use when evaluating the profitability of an investment project. They also find that corporations use the discounted cash flow methods more in real or operative investments, than they do in projects that have more ambiguous foundations, for example in high-tech investments.

Another practical problem in the use of DCF methods is the power play that is surrounding the investment decision. Although projects might be favourable for the company as a whole, it may not be that for all business units. For example by undertaking a certain project, it might highlight the importance of one manager and downgrade the significance of another one. This might create a clear problem to get the best result: whether the outcome of a project is positive or negative is a highly subjective estimation.

Partly due to the above mentioned problems in using strictly financial methods in investments, it is interesting to study the practice in strategic versus financial orientations. Findings refer that some organisations might be willing to adjust the financial performance of a project due to strategic reasons. In addition to whether organisations have financial or strategic weights in their decisions, the findings based on contextual settings can be analysed. Again, both country and size are founds to be significant. (Carr, 2005). Abdel-Karel and Dugdale (1998) studied investment decision practices in advanced manufacturing technology in UK. They found that the decisions include increasingly strategic views and analyses but not on the expense of in-depth financial analysis. These findings indicate that companies do take both strategic and financial aspects in to consideration when evaluating investment projects. Companies account for instance quality and reliability of outputs, reduced lead times,

obtaining greater manufacturing flexibility and reduced inventory levels to justify investment proposals in advanced manufacturing technology. Thus this means that in addition to cost-benefit analysis, organisations do weight factors that are more difficult to quantify with traditional investment analysis.

Empirical evidence indicates that companies in different countries are taking the above mentioned issues differently in to account. Country context seem to be extremely relevant when strategic and financial approaches are evaluated. This topic has been studied largely by Carr *et al.* (see e.g. Carr, 2005; Carr and Tomkins, 1996; Carr and Tomkins 1998). These studies indicate that Anglo-Saxon companies are weighting the financial considerations more than other countries. The longnitudal analysis between the years 1989-1998 was constructed by Carr (2005) and results in table 2 highlights the differences in different geographical contexts.

Country	*Analysis years*	*Influence of financial calculus*	*Influence of value chain analysis*	*Influence of cost driver analysis*	*Influence of competitive advantage analysis*	*Influence of other factors*
UK	1989–91	46 %	24 %	6 %	17 %	7 %
Germany	1989–91	15 %	44 %	7 %	31 %	3 %
USA	1994	49 %	9 %	3 %	46 %	0 %
Japan	1995	15 %	53 %	3 %	29 %	0 %
UK	1996–1998	41 %	12 %	5 %	37 %	5 %
Germany	1996–98	18 %	29 %	7 %	41 %	5 %
Jap'	subsids 1996–98	5 %	32 %	50 %	13 %	0 %
US	subsids 1996–99	45 %	15 %	3 %	37 %	0 %

Table 2. Carr (2005, 1166): Relative attention to financial and strategic issues within SIDs

This table can be interpreted that German corporations weight strategy highly over financial approaches. Same phenomenon can be observed in Japanese companies, of which 82% weighted the influence of value chain analysis and competitive advantage analysis as the more important features in strategic investment decisions. In contrast, UK based companies weighted 52% on financial valuation[7].

Country-context does not completely explain the use of financial versus strategic approaches to SID's. Research evidence also suggests that the emphasis of financial versus qualitative

[7] In UK companies, 7% of influence was given to other than financial and strategic approaches. Thus the 52% relative weight is higher when comparing only strategic and financial considerations.

approach to strategic investment decisions vary not only in the context of nationality. It seems that also other contextual settings affect to these evaluations. Carr and Tomkins (1998) also found that there are significant differences in the financial methods used in *strategic* investment decisions. Their research reveals that for example in the U.S.A, almost all companies generally use DCF models, but simultaneously half of the same corporations use DCF methods as primary technique in the strategic investment decisions. This implies that although Anglo-Saxon companies tend to use DCF methods much frequently, it is not said that it correlates with strategic investments. On the other hand, Alkaraan and Northcott (2006) did not find differences in used methods, whether the investment was operative or strategic. This finding is interesting due to contradicting conclusion from other academics (see for example Pike, 1996).

Another finding is that size of the organisation is correlating with the use of sophisticated financial techniques and strategic considerations. It also seems that the companies who utilize un-sophisticated financial methods, such as payback, are weighting the strategic importance more than companies who use advanced financial techniques. (Sandahl and Sjögren, 2003).

As has been explained in this section, strategic investment decisions are extremely hard topic to explain thoroughly. Strategic investment decisions are recognized as important, or even vital, to the survival of companies. Some researchers have even tried to combine strategic and financial analysis together via multiple attribute scores, sophisticated analytic hierarchy processes and the use of strategic cost management analysis (Abdel-Karel & Dugdale, 1998, 280). In addition to these models, there are some indications that contextual aspects are affecting the use of different techniques. However, there are relatively narrow research findings on the fundamental reasons on strategic investment decision behaviour. This is why one cannot flawlessly state the drivers behind SID's.

To broaden the knowledge on the fundamental reasons affecting the valuation of strategic investment decisions, Carr, Kolehmainen and Mitchell (2010) have developed a contextual framework. The foundations of this theoretical framework is in Oldmans and Tomkins' (1999) four-state Cost Management Model, which highlights the importance of contextual variables in strategic management accounting. The foundations and findings of Carr *et al.* (2010) are discussed next.

3.4. Contextual Approach to Strategic Investment Decisions (Carr *et al.*, 2010*)*

Carr *et al.* (2010) have modified Oldman and Tomkins' (1999) framework by changing the dimensions to meet the requirements for contextual analysis on strategic investment decisions. "Market orientation" axis has been modified to "market context and orientation", which emphasize the contextual position of an organisation in the market, in addition to their orientation. Oldman and Tomkins' (1999) horizontal axis "need for turnaround" has been modified to "performance in relation to shareholder expectations".

3.4.1. Categorization of Contingency Positions

Carr *et al*. (2010) introduces a new framework that forms around four broad contingency positions. Companies are categorized in to four classes based on context that the organisations are in:

1. Market creators
2. Refocusers
3. Value creators
4. Restructurers

Market creators are companies who are performing well and are free of financial constrains and can concentrate on the long-term views on their market position, competitive environment and overall market development. Market creators are evaluating the strategic investments exactly from the strategic point of view. They are not too keenly considering the financial aspects and short-term profit that projects could provide. Market creators can provide a flexible approach to financial appraisal of a project.

Refocusers, on the other hand, are companies that face high pressure for short term performance. Refocusers are also likely to refocus their strategy and operations and at the same time tries to protect their intangible assets, such as brands and technology. Thus refocusers are being much more conservative in their strategic investment decisions. This situational group pay attention both to financial and strategic aspects of strategic investment

decisions. Nevertheless, financial targets are rather tight and hence the flexibility to adjust the different projects is fairly limited if financial barriers are in place.

Value creators are well-performing companies, whose main objective is to improve internal efficiencies and create value for their existing and new customers. This is sometimes executed through tight cost control. Value creators are also paying attention both to strategic and financial appraisal methods in their strategic investment projects. As with refocusers, tight financial targets are also in the scope of value creators' SID's. To distinct refocusers and value creators, one must note that value creators are performing better and does not have the need for constant strategy alignments and refocusing.

Restructurers are the most dramatic group, which are facing large re-structuring and cost savings pressure in their operations. They have very high demands for improving short-term performance. Thus restructurers are naturally the group which has the highest emphasis on financial performance, which is labelling their strategic investment decisions as well. This group is viewing SID's through financial scope, hence setting very tight financial targets and being very conservative in the strategic benefits of an investment project. This means that restructurers cannot generally accept investment proposal, which include high level uncertainty and even negative cash flows.

Figures 2 and 3 summarizes the key features of the different contingency positions in respect to the dimensions of "market context and orientation" and "performance in relation to shareholder expectations". Figure 2 views that as we move from restructurers and refocusers towards value and market creators, the financial weight in SIDs decreases and strategic weight increases. Figure 3 summarizes the key findings of each contextual category.

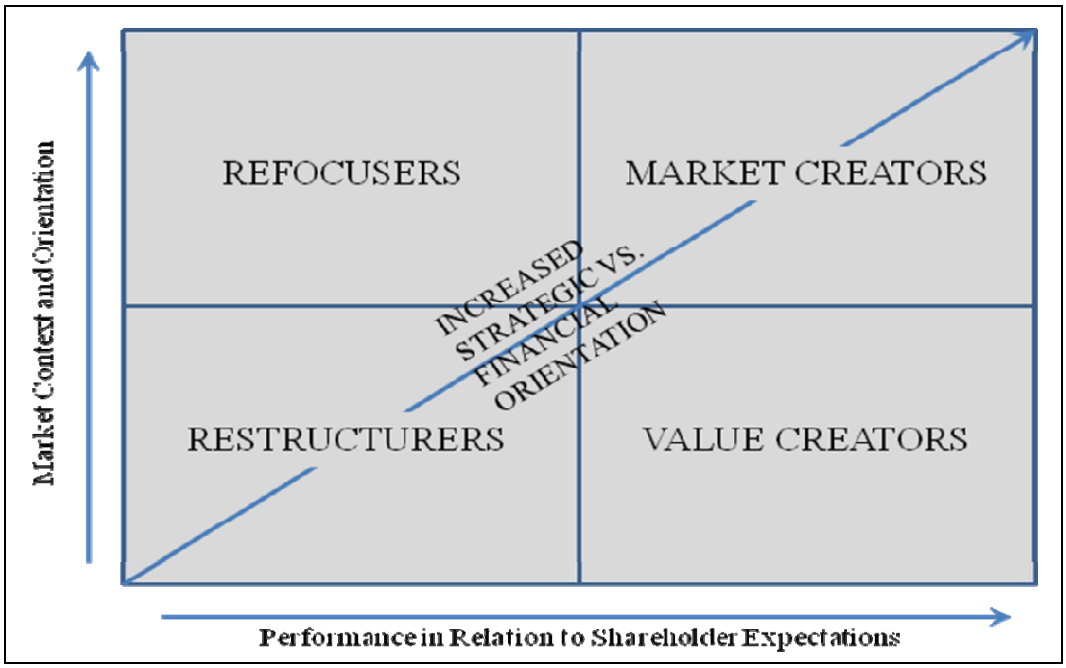

Figure 2. Contextual framework for strategic investment decision making practices (Carr et al., 2010, 39).

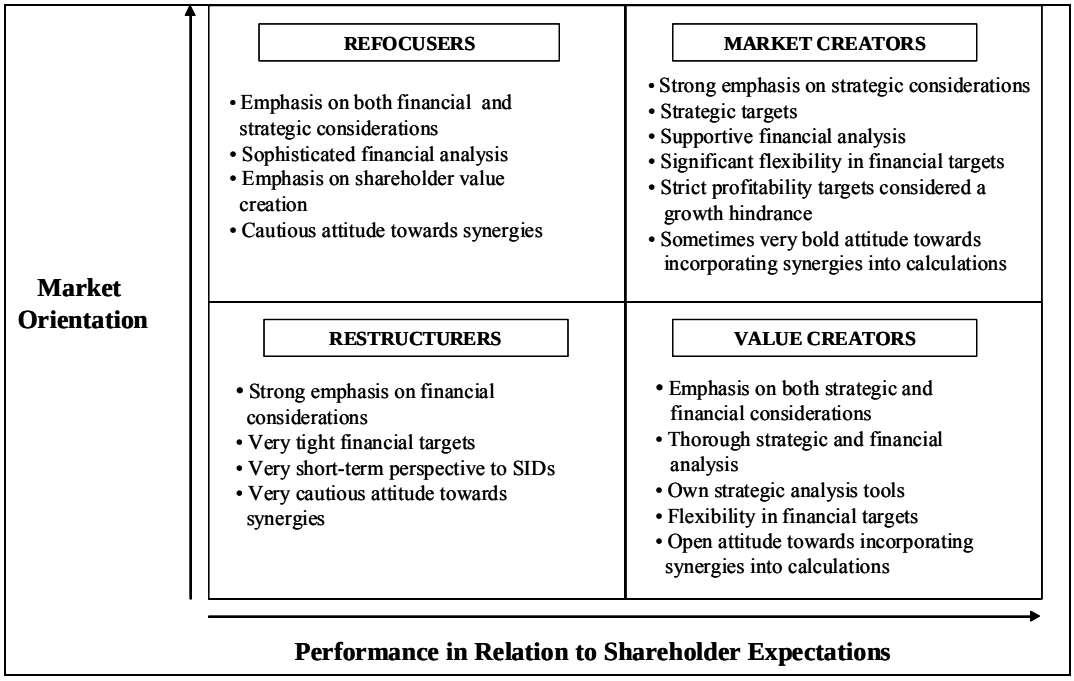

Figure 3. Contextual strategic investment decision making approaches (Carr et al., 2010, 40).

3.4.2. Research Findings of Carr *et al.* (2010)

Carr, Kolehmainen and Mitchell (2010) evaluated the 14 case organisations and positioned them in to the contextual framework presented earlier in figure 2. They found that the telecommunication companies are distributed exclusively to market creator and refocuser categories of the contextual model. On the other hand, the vehicle component companies positioned more widely across the four categories: to market creators, value creators, refocusers and restructurers classes. This provides the contextual ground conclusion that vehicle component industry, as being more un-attractive market, are facing more harsh financial pressure in the strategic investment decisions than companies in telecommunication industry.

3.4.2.1. Financial Techniques and Targets Used in SID's

When investigating the findings in the light of capital budgeting techniques for different contextual categories, interesting observations can be found. General finding is that companies typically use four different capital budgeting techniques when evaluating strategic investment projects. DCF methods were found to be most influential and utilized in the case companies. Especially IRR was found to be most used financial technique. The research of Carr *et al.* (2010) reveals that the differences in the used techniques across the contextual groupings are exiguous. Value creators and market creators prioritize DCF techniques over the un-sophisticated methods, such as payback period, but also use the return on capital methods. Refocusers and restructurers, as being faced with more short-term financial expectations, highlight the importance of EPS growth targets. This phenomenon was not found in any value creator companies and in only one market creator organisation. This implies that both refocusers and restructurers exhibit high shareholder pressure which is then observed via EPS growth targets in strategic investment decisions. (Carr *et al.*, 2010, 18)

When looking at the financial targets across different categories, more consistent differences can be found. IRR rates rise when moving from strategically orientated classes towards more financially orientated groups. Average hurdle target rates are 16% for market creators, 18% for value creators, 20% for refocusers and 22% for restructurers. Carr *et al.* (2010) sees that

the different hurdle rates reflect the differences of cost of capital. Companies in more difficult financial situation, and facing more financial pressure, are required to give better return on both equity and debt. Hence, they have higher cost of capital and internal rate of return targets. Biggest difference in financial targets is found in market creators: they are accepting lower premiums. This reflects the strategic orientation and the supportive role of financial appraisal techniques of the group. They do not have as high constraints in their strategic investment decisions as the other groups. Another difference that can be found is the payback targets and time horizons of investments. Restructurers have an average of 2,5 year payback target, which is much lower than the 4 year average of the whole sample consisting 14 organisations. Also their time horizon is standing out from the 9 year average of the whole sample; being only 3 years. (Carr *et al.*, 2010, 19). This is again supporting the categorization of the study well. Organisations that are facing financial pressure, and cannot utilize the more strategic considerations in their SID's, and are clearly setting more harsh short-term performance targets. Restructurers in particular, seem to be rather cautious in their strategic investment decisions.

Research findings on the quantitative valuation of SID's provide some differences between the categories. There is clear that companies, who are originally evaluated to be more strategically than financially orientated in their strategic investment decisions, can be confirmed to employ more flexible methods of valuation. These organisations may sometimes downplay the significance of financial appraisal methods, and concentrate on their qualitative, strategic views of the SID. When findings in financial techniques and targets were subtle, more significant differences were found in the overall SID approaches of the contextual categories. The qualitative approach to strategic investment decisions, which is based on the qualitative interview data, is discussed next.

3.4.2.2 Qualitative Approaches to Strategic Investment Decisions

The findings of Carr *et al.* (2010) show clear differences between the financial versus strategic orientation on SID's across the contextual categories. Market creators highlight the strategic importance of an investment. These companies consider that strategy overrides the financial appraisal in their strategic investment decisions. Financial valuation and analysis is

being much more in supporting role. Restructurers are considering strategic investment decisions almost vice versa from market creators. They emphasis the financial analysis and appraisal techniques and do not see the strategic analysis as a major element in their SID's. Value creators and refocusers have an approach from between market creators and restructurers. Their approach to strategic investment decisions is a balance between strategic and financial considerations. (Carr *et al.*, 2010, 19).

Market creators see strategic approach as the key analysis factor. Financial analysis is very much in a supportive role. Market creators even tend to define strategic criteria on which the strategic investment decision will be based on. They allow major flexibility in the use of financial analysis and targets. It is also showed that some organisations in market creators are adjusting the financial analysis to meet the targets. This reflects that market creator organisations do not see the financial point of view as clearly as strategic importance in their strategic investment decisions. Market creators see that in order to meet high growth targets, financial targets are not always achieved. These companies also tend to consider synergies in their calculations, which turn the financial analysis to a "wanted position". (Carr *et al.*, 2010, 19).

Value creators pay attention to both strategic and financial aspects in their strategic investment decisions. These companies have a propensity to make in-depth analysis of their SID, which includes the two important aspects with a good balance. Their appraisal method is to value both quantitative and qualitative aspects of and investment proposal. Although their approach is balanced, also value creators are willing to adjust the financial analysis to meet their own agenda, if the investment is seen to include high strategic importance. Value creators are viewing synergies sometimes with even probable causes. This indicates that like market creators, value creators as well are including synergies to improve the financial performance of an investment project. (Carr *et al.*, 2010, 20-21).

Refocusers are also paying attention to both strategic and financial aspects of investment decisions. The nuance between these two is more towards the financial appraisal methods than strategic ones, as value creators tend to lean more on the strategic analysis in their balance. The investigated companies were found to utilize the latest financial theories in their financial analysis. The primary driver of refocusers' SID's, however, is value creation to

shareholders. Strategic investments are undertaken highly in respect to their probability to increase the shareholder value. (Carr *et al.*, 2010, 21-22).

Fourth contextual group, *restructurers*, are utilizing high financial weight in their strategic investment decisions. As a contrast, strategic analysis is seen as little of importance and even "non-sense", as one interviewed Vice President implies. Restructurers also set high targets for their SID's, with short-term view. They are also very cautious to include synergies in their investment analysis, as they have high shareholder influence and financially constrained position. (Carr *et al.*, 2010, 22-23).

3.4.3. Analysis and Critique on the Research of Carr *et al.* (2010)

The research by Carr, Kolehmainen and Mitchell (2010) supports the general findings of the investment and strategic investment decision literature. It shows that DCF models are widely used in the organisations, and that the choice of techniques is aligned in the Anglo-Saxon countries. (see e.g. Graham & Harvey, 2001; Carr and Tomkins, 1998; Alkaraan & Northcott, 2006; Klammer *et al.*, 1991).

More interesting part of the research is the ability to explain the way the techniques are used and how the different contextual setting affects to the strategic investment decisions. The study by Carr *et al.* (2010) gives interesting foundations for discussion on the appraisal techniques, especially in the consideration of strategic versus financial emphasis on the SID's. One interesting starting point of analysis from this research is the performance of companies when using different valuation methods. The question whether companies with high financial weight in their SID's are performing financially better in the future, is an interesting question.

The research provides also better analysis and framework to analyse inter-country differences in strategic investment decisions. Previous studies, as explained earlier, have explained wider contextual variables, such as country and size, but have not been able to provide ample evidence on how and why organisations inside larger contextual settings are differing. The contextual framework model by Carr *et al.* (2010) is giving good basis for further analysis on the more detailed variables.

Although the model provides the first such approach, with a rather wide explanatory property on strategic investment decisions based on the contextual setting, there are also some caveats in the research by Carr *et al.* (2010). These are analysed and discussed next.

A total of four caveats can be identified from the study made by Carr *et al.* (2010). These relate to subjectivity, sample, distribution of answers among the four contextual categories, and to country dependency. These problems are considered to be rather minor, but still needed to discuss the validity and reliability of the theoretical framework that is tested in this thesis.

First deficiency in the research of Carr *et al.* (2010) is relating to the general problem of qualitative research method. It is common that case and field studies are subject to errors in the respect that the researcher and the respondent are in the same time and place during the interview. This results in to general problem, where researcher can guide the respondent to achieve favourable answers. Also the chemistry between the researcher and the respondent is affecting the results perceived from interview. In the case of Carr *et al.* (2010) it might be argued that the researcher gathering the qualitative data might have affected the results by own interpretations of the results, as well as by being rather close to the target organisations. Researcher has made many studies based on the same organisations, and thus that might reflect in to the research findings of the paper.

Second problem in the study is the fact the sample size is small and gathered during different years in different organisations. Only fourteen organisations were as target in the research. Although the sample size is narrow, it is considered to be high quality. Part of the organisations, one on each continent, was interview with follow-ups, which add value to the general conclusions that can be drawn from the paper. The second problem regarding sample, however, might distort the results. As the data was gathered between years of 1994 and 1998, the results might differ among years. Four years might change the course of macro or micro economy, which in turn might change the attitudes against strategic investment decisions.

Third potential shortcoming of the study is the distribution of the answers among contextual categories. Only two of the fourteen companies are categorized as refocusers and two as restructurers. As the sample of these groups is based on two companies operating in the same countries, general conclusions are experienced to be difficult. Also the fact that half of the

organisations were categorized as market creators, the analysis of differences of strategic investment decisions between the categories is rather weak.

Fourth problem of the study is the explaining power of country context *per se.* As mentioned earlier, the national background of the organisation might itself explain the results. However, the answers are not only applicable in country context, but indicate also other variables to explain the results. It might be argued that as the research of Carr *et al.* (2010) addresses the contextual dependencies to exist, study's main objective is to create the framework and not to prove its applicability.

This thesis is aiming to address to the above mentioned four deficiencies of the study by Carr *et al.* (2010). As mentioned earlier, the qualitative approach has been justified to develop the complex model, which relates to decision making practices. This quantitative research is thus needed to validate the findings of the model. To conclude the theoretical discussion around strategic investment decisions, a short summary will be drawn from the chapter, as well as the relations and important points for this study is addressed next.

3.5. Conclusion on Current SID Literature and Relation to this Study

This theoretical part of the study has now covered the main points from current literature around strategic investment decisions. Concept of investments has been discussed from two distinctive aspects: financial versus real investments and operative versus strategic investments. Also an overview and discussion has been explained on strategic investment decision practices. Last part of the theoretical section of this research has covered the contextual approach to strategic investment decisions by Carr *et al.* (2010).

In the light of this thesis, financial investments are not at the heart of interest. In the category of real investments, strategic investments are central area of investigation. As mentioned earlier, operative investments are more concentrating on the question of how to improve efficiency of for example production facility or how to streamline processes with new equipment that improves quality. Strategic investments, as being harder to predict and at the same time determining the future success of an organisation, is the key category of investment in this research.

Strategic investment decision making practices have been of wide interest of academia during the past decades (see e.g. Carr and Tomkins, 1996, 1998; Alakraan and Northcott, 2006; Pike, 1996). Also other than strategic investment decision literature has observed the strategic aspect of accounting and decision making (see e.g. Adler, 2000; Mintzberg and Westley, 2001; Wikman, 1997). Also the strategic versus financial appraisal has been studied to analyze and understand the decision making practices (see e.g. Klammer, Koch & Wilner, 1991; Abdel-Karel and Dugdale, 1998). Despite these, no previous research has been done to combine the above mentioned aspects of strategic investment decisions. The study of Carr *et al.* (2010) is the first model that has been made to identify the contextual factors affecting to the utilization of different methods and to highlight the practices of how these methods are actually applied in the contemporary organisations. Due to newly created theory by Carr *et al.* (2010), no validity test with quantitative approach has been performed.

This research will strive to fill the gaps in theory via testing the contextual framework of Carr *et al.* (2010). Thus the research is aiming to contribute to the strategic investment decision making practices literature.

4 RESEARCH METHODOLOGY AND DESIGN

Research methodology is formed around statistical test of the sample data. General methodology and approach to the empirical sample is divided in to three steps:

1. Providing general picture with information on all respondents
2. Categorization of companies in to four classes of market creators, value creators, restructurers and refocusers (Carr *et al.*, 2010)
3. Analysis on whether the four classes can be used to explain different approaches to strategic investment decisions

This chapter covers the operationalization of the independent and dependent variables, empirical data gathering process, process of identifying the contextual category of the company as well as the analysis methods of the dependent variables. Last part of this chapter evaluates the reliability and validity of this research.

4.1. Operationalization of Variables

In order to accomplish the above mentioned objectives, contextual independent and dependent variables are created for the questionnaire. Contextual independent variables are first used to position the companies into the four categories. Dependent variables, on the other hand, are explaining the patterns of the contextual groups' strategic investment decisions.

4.1.1. Contextual Independent Variables

In order to analyze contextual settings around strategic investment decisions, thorough operationalization of different variables is needed. In this study, there are eight contextual variables that describe the overall position of target corporations in the markets. Variables include strategic configuration, market orientation, generic strategy, management style, market dynamism, shareholder influence, market attractiveness and performance. Measuring

the variables is mainly done by using methods that have already been utilized in the literature. By doing this, the validity of this research improves.

Next, an in-depth explanation on selected measures for mentioned variables is given. The concrete and precise description of the operationalizations can be found from the questionnaire, which is as an appendix (appendix 2).

Strategic Configuration

Strategic configuration builds on the basic four-state model to identify companies' orientation on the market. Categories include reactors, defenders, prospectors and analyzers. (Miles & Snow, 1978). The study of utilized operationalizations of market orientation reveals a wide variety of methods used to measure this variable. Simons (1987, 1990) leaves space for wide, subjective analysis to determine how the respondent is categorized. In Simons (1987) paper, categorization is strictly done by researcher's observations and analysis of documents in the organisation. In Simons' second study on the subject (1990), industries are categorized to certain archetype and then companies are categorized based on their industry. Another approach has been to categorize and describe the four archetypes and then the respondents have been asked to evaluate what archetype they belong to compared to the industry (Snow & Hrebiniak, 1980; Guilding, 1991). Also Shortell and Zajac (1990) and Chong and Chong (1997) have made similar categorization, where they have placed four statements in to 7-point Likert scale. Respondent is then asked to analyze, which statement describes their organisation the best.

The operationalization of Shortell and Zajac (1990) is selected as the method for this study. One rationale to use this method is that the measure has been widely used in the academia (e.g. Cadez & Guilding, 2008; Abernethy & Brownell, 1999; Chong & Chong, 1997). Another reason is that some researchers, who have studied the subject for longer period of time, have also changed their measure of business strategy to the model of Shortell and Zajac (1990)[8]. These factors indicate that the method is valid to measure strategic configuration.

[8] For example Guilding used the model of Snow and Hrebaniak (1980) to measure business strategy. In the recent research (Cadez & Guilding, 2008) the selected method was based on the model created by Shortell and Zajac (1990).

However, instead of using a 7-point likert scale to determine which of the four archetypes describe the respondents fit best, simple four point selection of the types was employed. Companies were subjectively asked to select one of the options. This method was used in a ”best practice in performance management” survey, which was conducted by the Bedford (2007). The answers were then rated to fit the general analysis scale of 1-7.

Market Orientation

Market orientation indicates the level of a company to account market needs and demands in their operations. In other words, companies that do have a high market orientation will see customer as a key focus, which should be stressed in decisions. (Guilding and McManus, 2002; Cadez and Guilding, 2008).

The operationalization of this contextual variable is done by setting up a 7-point likert scale, and forming four questions to determine the level of market orientation, where scores closer to 1 indicates low market orientation and scores near to 7 indicates high market orientation. This method has previously been used in studies of Guilding and McManus (2002) and Cadez and Guilding (2008).

Generic Strategy

The concept of generic strategy is based on the theory created by Porter (1980). It comprises of three basic elements of cost leadership, differentiation, and focus, with what the organizations compete on the market. There are several approaches also to the measurement of Porter’s generic strategy theory. Chenhall and Langfield-Smith (1998) measured this by setting up a 7-step Likert scale, which provides a basis to weight different strategic priorities. Govindarajan (1988) also operationalized the theory of Porter with 7-point Likert scale, which was based on six questions. Respondent were asked to position themselves against best competitor to each question.

The operationalization of Govindarajan (1988) is selected as the method to measure Porter’s generic strategy. This operationalization fits the objectives of this research the best, and is

good due to comparison against the best competitor on the market. Another foundation is that again, this method has been used also in other studies (e.g. Nilsson, 2000).

Management Styles

Management styles are based on the theory of Goold and Campbell (1987). The main point of the theory is to explain the different management styles that affect the organisation as a whole. These include strategic planning, financial control and strategic control styles. Strategic planning companies are highly strategically orientated and they want to maximize competitive advantage of their business portfolio. They also have ambitious long-term goals, but lack the reaction to e.g. short term poor performance. The opposite of this is financial control style, where companies are more focused on their financial performance than competitive position. In these companies, general expansion strategy is based rather on acquisitions than on by market share. Strategic control style is a management style from between the two mentioned.

The operationalization of this model is not done in large range of studies. Nilsson (2000) has formed a questionnaire based on this theory. Nilsson evaluates two aspects of the model; planning and financial control styles. It is evaluated through 4 questions on 3-point Likert scale. Due to the lack of comprehensive operationalization of current researches, a unique operationalization to suit this study is planned. The basis is a combination of Nilsson (2000), Shortell and Zajac (1990) and Goold and Campbell (1987). Nilsson's (2000) operationalization is not selected as such, due to the fact that this research is not only interested in the strategic planning and financial control styles as in Nilsson (2000), but also on the strategic control style. Hence the descriptions of the three respective management styles are derived from Goold, Campbell and Luchs (1993). The format of the operationalization is as in Shortell and Zajac (1990), where the respondents are asked to analyze which of the descriptions best suits the organisation in question.

Market Dynamism

Market dynamism refers to the degree to which the factors of the environment remains the same and which change over time or are in a constant long-term change. This can be divided in to two sub-dimensions. First one is concentrating on the level of stability on company's

internal and/or external environment factors. Second factor in the static-dynamic dimension is about the frequency with which they take new and different internal and/or external factors in the decision making process. (Duncan, 1972, 316-317)

In Duncan (1972), these two sub-dimensions were measure in a five point scale. First sub-dimension was measured by asking the respondents to analyze how often each of the internal and/or external factors is identified as important in decision making change. Response categories were from never (1) to very often (5). A score was then given as an average of all identified factors for this first sub-dimension. Second sub-dimension was measured by asking the respondents how often they consider new and different factors in decision making, with the same 5 point scale as in first sub-dimension. Total score is formed by adding the two sub-dimension scores together for total static-dynamic index score. Gordon and Narayanan (1984) selected a different approach to measure market dynamism. They selected eight questions to measure the variable in 7-point Likert scale. This approach is seen to provide insight on the uncertainty elements of the corporation, in order to reveal the foundation on the complete market dynamism of an organisation. The individual scores were then averaged out to perceive a total score.

Duncan (1972) has created an ample basis to measure market dynamism, which is widely used in the operationalizations of market dynamism (e.g. Emsley, 2005). Gordon and Naryanan (1984) have further developed the method. The latter method suits this research better as it is not industry orientated. The target respondents are not industry dependent, and thus the measure of Gordon and Narayanan (1984) is very applicable for this research and is also utilized as the operationalization of this variable.

Shareholder Influence

Shareholder influence refers to the level by which company is steered by the expectations of shareholders. For some organizations, shareholders might demand a high short-term financial performance which generates high pressure for the company to outperform each quarter. On the other extreme end of shareholder influence, owners are highly patient and have long-term scope on their investment. In the latter cases, the focus is not always to perform extremely well financially, but rather that the long-term ambition are high. Also in the latter cases, the nature and steering can be better described by strategic focus.

For this purpose, no clear operationalization can be found in the management accounting literature. Therefore an own measure to analyze shareholder influence is introduced. It is analyzed through three questions on the shareholder influence on seven point Likert scale. Respondents were asked to answer to each question separately and the total score is defined by the average of the three answers. Companies who receive lower scores, have low shareholder influence and the companies with high scores have higher shareholder influence.

Market Attractiveness

Market attractiveness refers to the level of attractiveness for e.g. new companies to enter the market. Attractive markets usually provide high level of profitability and growth opportunities whereas un-attractive business sectors provide ambiguous future prospects. In the paper of Carr *et al.* (2010), the operationalization of market attractiveness was executed by average 5 year sales growth for the industry and average 5 year ROCE% for the industry. Scoring was then given intuitively by analyzing both of these measures to determine level of market attractiveness.

In this study, the operationalization is slightly different. The respondents were asked questions on the attractiveness and future prospects of the industry. Answers were again given on a 7 point Likert scale.

Performance

Carr et al. (2010) operationalized performance by measuring it from two aspects: long-term financial performance and market position. Financial performance is measured by 5 year average sales growth % and 5 year average ROCE% of the organisations in three different timeframes[9]. Market position is measured by relative market share against the largest player of the industry. After this, there was a subjective analysis to score the performance of each organisation.

[9] In study by Carr *et al.* (2009), the timeframes used are 1994, 1999 and 2004. This means that the measured times are 1990-1994, 1995-1999 and 2000-2004.

In this research, the approach is slightly different. Performance variable is conducted by retraining information from three questions on company's performance relative to those of the leading competitors. The questions were about long-term financial performance, market position and sales growth. This method was selected due to the fact that there would be no need to subjectively estimate, what level of performance is good. For instance, a certain level of ROCE might be good in one industry but not on the other. The CFO's of the organisations is expected to have better subjective estimate on this issue than the researcher.

4.1.2. Dependent Variables

Dependent variables are categorized in to three sections: financial analysis, strategic analysis and strategic investment decision making practices. First section concentrates on the different financial and risk analysis methods, hurdle rates, payback targets, time horizon of investments and flexibility of financial evaluation. Second section of our variables consists of the use of strategic analysis methods and strategic criteria of the SID. Third and final section of the dependent variables is covering the strategy process itself.

In the actual data analysis phase, the contextual independent variables described in the previous section, are categorized in to the framework of Carr *et al* (2010). Purpose is then to identify the contextual settings that affect in to the strategic investment decision making practices, revealed through the following dependent variables. In detail operationalization of these variables can be seen from the questionnaire, which is as an appendix (appendix 2).

Financial analysis

A total of 11 questions were asked on financial analysis. First question covered the use of financial methods. These questions were mainly based on the researsch made by Graham and Harvey (2001). In addition to the financial techniques proposed by Graham and Harvey, few additional methods were also added to this question. The respondents were asked to put their answers on 5-point likert scale, where 1 means that they never use the technique in question and 5 that the method is always used, respectively.

Second question covered the risk analysis methods used in the strategic investment projects. This question was mainly conducted based on the study by Liljeblom and Vaihekoski (2004). Few additional methods were again set in addition to the original ones. The scale was similar as in the financial method question, implying the frequency the respondent organization uses the risk analysis methods. 1 was again reflecting that the company never uses the method and 5 that the organization always uses the appropriate technique in strategic investment project analysis.

Next six questions were about required rate of returns, or hurdle rates. These questions were also mainly derived from the research by Liljeblom and Vaihekoski (2004). First question was about the required rate of return that the company has. In order to avoid asking this sensitive information directly, categories of a range of 2 percentage points each was employed. Second question on the hurdle rate covered the frequency with which the rate changes. Again, categories were presented to get a general frequency of this analysis. Third question on the required rate of return part asked how inflation is taken in to account in required rate of return and cash flows. The options on these questions were simply stating whether the cash flows and hurdle rates were in nominal or real terms. Fourth question asked the respondent how often the company evaluates the cost of capital. This question was constructed similarly as the one which covered the frequency of change. Fifth hurdle rate related question was about the methods, and the frequency of the utilization of the techniques, with which the organization estimate the cost of capital. Scale of the question was again from never to always, where 1 was never and 5 always. Last question about the required rate of return was about the premium that is set on top of the cost of capital when estimating the internal rate of returns and discount factors for investment projects. The options were similar as in the first hurdle rate questions, where the typical required rate of return was asked. The scale was again with 2 percentage point categories.

As the hypothesis is that the use of payback period is still quite widely employed in the Nordic countries, also a question on payback targets, and if there is one, was asked in the questionnaire. This operationalization was again based on Liljeblom and Vaihekoski (2004). The options were simple categories based on the different year classes, varying from under a year to over ten years. One question in the section of financial analysis was also about the typical time horizon with what the organizations calculate their strategic investments. This is an interesting question as one might assume that if an organization would put emphasis on

financial valuation, they would expect more short-term benefits from the investment projects, hence shorter time horizon. Last question in the financial analysis section was about the flexibility of financial analysis. The scale was 4 point likert scale, where 1 meant that there is no flexibility in the financial targets and 4 that the targets were very flexible in nature.

Strategic analysis

The composition of strategic analysis techniques was conducted similarly as in the question on financial appraisal techniques. A list of different, most common strategic analysis methods was presented. Respondents were asked to scale how often they use each method when analyzing a strategic investment project. The response options were presented as a 5 point likert scale, where 1 implies that the company does never use the technique in questions and 5 that the method is always used in the strategic investment decisions. This question was mainly based on Alkaraan and Northcott (2006) and Carr and Tomkins (1998), but some additional options were applied in this research.

Second question on strategic analysis was about strategic criteria. Respondents were asked to state how often they used different criteria as the basis for the selection on projects which to pursue. This question was based mainly on Alkaraan and Northcott (2007). The scale was again the five point likert scale, where 1 meant that the company never used the appropriate technique as criteria on the project, and 5 that it always uses the criteria.

Strategic investment decision making practices

The strategic investment decision making process was evaluated with two questions. First one consisted of 11 statements and the respondents were asked to state how often the different issues materialize in their organization. Purpose of this question was to clarify both the strategic and financial aspects that are taken in to account in a strategic investment decision.

Last question on strategic investment process was about the financial versus strategic weight in strategic investment decision analysis. The options were categorized with 10% point frequency. This question was conducted in order to specify the extent to which the organization from their own point of view takes strategic and financial aspects in to account. This question also validates the findings from the previous question.

4.2. Research methodology and data gathering

The empirical part of this research was made as an internet survey. The survey was conducted based on the above mentioned operationalizations and consisted a total of 24 questions. The actual survey was made with Webropol survey tool, used by Aalto University School of Economics. Due to highly theory based approach to the questionnaire, it was estimated that some of the respondents might not know all different techniques and methods stated in the survey. This was why a separate definition pop-ups were constructed. Definitions were partly developed by the researcher and partly derived from current literature.

Target group of this research was all CFO's, or equivalent, of companies that are listed in Helsinki, Stockholm, Copenhagen or Oslo stock exchange. Some of the organizations in our target group were quite small, which also sometimes meant that no named CFO's could be found. In these cases the survey was sent out to the CEO's or to a general info e-mail address, with a cover letter asking the receiver to forward this to the person who is responsible for the financial analysis in the firm. The survey was sent at the end of March to a total of 1000 CFO's in the four countries.

The survey methodology followed that of Dillman (2009). First, a prenotice was sent to the target organizations describing the purpose and motivation of the research. After a few days from the prenotice, the actual questionnaire was sent out. First reminder was sent 2,5 weeks after the actual questionnaire to reach as much respondents as possible, due to the assumption that the CFO's were considered as busy and they would answer instantly when receiving the e-mail or not at all. Hence the reminders were increasing the probability of getting more answers. Finally, a second reminder was sent 4,5 weeks after the original questionnaire.

As the questionnaire was sent out via e-mail, also undeliverable surveys were captured. A total of 820 questionnaires were delivered in the initial sending. As a result, total of 179 e-mails were rejected either due to the fact that the respondent e-mail address was incorrect or spam-suspicion was identified by the receiving organization. All the e-mail addresses that were rejected were analyzed, and a secondary e-mail was sent out to a total of 169 contacts. As a sum, 53 of the contacts were unusable due to above mentioned delivery problems. The final number of responses was 54, returning a response rate of around 6%. More precise descriptive statistics is given in the beginning of the research findings.

Analysis of the data was made along as the responses arrived. This was done in order to be able to constantly observe both the quality of the responder data as well as the analysis logic without waiting for the closure of the survey.

Analysis methodology for positioning the companies was selected strictly as it is in Carr *et al.* (2010). Their methodology was based on rather simple approach to identify the companies in to the four categories. The eight contextual independent variables were first identified by taking the average values of answers. After positioning the companies to a range varying from one to seven for each variable, three additional categories were identified: market context, market orientation and performance. To finally position the companies in to the contextual frame of Carr *et al.* (2010), an average of market context and orientation and the absolute value of performance were taken.

The statistical analysis was conducted by using SPSS 17.0 statistical program. First, a correlation matrix was constructed, after which multiple variable regression analysis was employed including control variables for size (natural logarithm of revenue), profitability (profit margin %) and P/E-ratio. After employing these two methods, the averages responses between the contextual categories for all variables were tested. The first part of the t-test was conducted by utilizing Levene's test for equality of variances, after which the statistical significance was determined in each case with 90%, 95% and 99% confidence levels. 90% confidence level was also selected to be shown as the whole framework has not been tested for statistical significances and also these indicatory results wanted to be presented to assist for further studies around the topic.

4.3. Reliability and Validity of the Research

Reliability and validity identifies the potential errors in a research data. Reliability refers to the repeatability of the research. For instance if several researchers end up in the same conclusion, the result can be defined as reliable. Also if many scholars use the same test and come up in to the same conclusion, the result is reliable. Validity on the other hand refers to the actual ability of the research to measure exactly what is meant to be measured. In other words, the methodology might not fit to reveal the result due to flaw in the way the result is

obtained. For instance in questionnaires, the respondents might interpret the questions differently, and thus the result is not comparable or easy to observe. (Hirsjärvi, Remes and Sajavaara, 2002).

In this research, reliability can be seen as very good. This research has sought, and mainly succeeded, to resolve main problems of subjectivity and low sample size of the original study. The validation of the contextual framework can thus be seen rather accurate. Also the operationalization of different variables is almost solely based on existing theory. One key element in selecting the operationalizations, was the general approval of the science society. Many of the measures were derived from widely recognized theories, such as Porter (1980) and Graham and Harvey (2001). The same operationalizations have been used in several other surveys, which also increases the reliability of this research.

Validity of this thesis can be thought from two aspects: construction of the questionnaire and sample data. Construction of the questionnaire was built so that the respondents would have minimal possibility to false interpretations among the different questions and answer options. The questionnaire itself included many explanatory introductions, clarifying headers as well as definitions to all more ambiguous answer options that would leave space for interpretation.[10] This was made by publishing definitions on an Aalto University website, which opened as a pop-up window in the questionnaire. These actions are expected to improve the validity of this research quite significantly.

The weak part of the research is the sample data size. As the questionnaire returned 54 answers, corresponding to a response rate of around 6%, the sample is rather limited in nature. However, the quality of the answers as well as the in-depth questions provided much more evidence than more descriptive survey. Although with this kind of response rate cannot provide statistical evidence for all questions, it can provide indication on the usability of the theory by Carr *et al.* (2010) as well as statistical significance on some results.

Another weakness of the data is the uneven spread of the answers towards the four contextual categories. 34% of the answers were concentrated on market creators, 13% on value creators,

[10] The definitions were made for all concepts that are theory-based and probably not known for persons who do not have a degree in accounting or finance. Even the most general terms, such as NPV, was defined.

13% to restructurers and 40% to refocusers. This implies that the validity of the answers is much stronger among market creators, refocusers than with restructurers and value creators. Although it is clearly a weakness on this thesis, it can also reflect the weakness of the initial model. The answers were almost as skewed in the qualitative research by Carr *et al.* (2010). This analysis is given in more detail in the next chapter.

5 RESEARCH FINDINGS

Research findings provide rather interesting evidence both on the findings of current studies and on the theoretical framework of Carr *et al.* (2010). General findings are reflected against the most relevant studies know in the field of investment decisions. Although the sample data received is quite narrow, many implications on the behavior can be derived for the companies listed on Helsinki, Stockholm, Copenhagen and Oslo stock exchange.

5.1. Descriptive Statistics

The survey was sent out to a total of 1000 respondents in the four Nordic countries. The majority of the initial contacts were Swedish companies as there were 482 organizations listed in the Stockholm stock exchange. Furthermore, 218 of the contacts were Norwegian, 178 Danish and 122 Finnish. A total of 53 contacts were unreachable either due to technical problem (spam-suspicion), invalid e-mail address or refusal to respond. Hence the questionnaire was delivered to 947 companies, of which 54 responses were received. In addition to this, 7 responses could not be positioned to the framework due to unanswered questions used for positioning. The response rates applicable for the test on the validity of the contextual framework were 5,4% in Sweden, 8,7% in Finland, 3% in Denmark and 3,4% in Norway. Table 3 includes the details of the response rates.

		Country where company is listed			
	Total	Sweden	Finland	Denmark	Norway
Number of companies	1000	482	122	178	218
Number of undeliverable or refuced contacts	53	22	7	11	13
Questionnaires delivered	947	460	115	167	205
Responses	54	29	11	6	8
Response rate %	5,7 %	6,3 %	9,6 %	3,6 %	3,9 %
Valid responses to position companies	47	25	10	5	7
Response rate % on contextual findings	5,0 %	5,4 %	8,7 %	3,0 %	3,4 %

Table 3. Descriptive statistics on response rate

Table 4 represents the control variables of all responses. The variables include revenue, total assets, profit margin %, ROCE% and P/E-multiple. All the control variables include latest information available from Orbis database. The control variables were not available for all companies, who responded the questionnaire. It was still decided not to fetch this information from other sources, as e.g. profit margin % and ROCE % might differ slightly depending on the calculation method, and would thus not provide comparable information between the companies. The industry codes of all companies are introduced in table 5, respectively.

	n	Average	Median	1st quartile	3rd quartile
Revenue (m€)	52	1698	61	5	1366
Total assets (m€)	52	8098	189	31	2758
Profit margin	43	0 %	4 %	-8 %	13 %
ROCE	44	-2 %	6 %	-9 %	18 %
P/E	46	9	3	-5	13

Table 4. Desriptive statistics of all respondent companies

SIC Code	SIC prefix	Industry name	n
0	Agric	Agriculture, forestry and fishing	0
1000	Minin	Mining and construction	3
2000	ManuC	Manufactoring - Consumption goods	9
3000	ManuI	Manufactoring - Industrial goods	13
4000	Trans	Transportation, communication, electric, gas, and sanitary services	4
5000	Whole	Wholesale and retail trade	4
6000	Finan	Finance, insurance and real estate	8
7000	Accom	Accomodation	6
8000	Other	Other services	7
9000	Publi	Public administration	0
Total	**Total**		**54**

Table 5. Industry codes of the respondent companies

Table 6 includes the descriptive statistics of the different contextual categories. The number of responses, % of all responses[11], the average and median of revenue, total assets, profit margin %, ROCE% and P/E-figure. All the five variables represent the latest information available from Orbis database. Figure 4 shows the positions of different companies on the contextual framework of Carr *et al.* (2010). All samples are included in the framework, with a label signaling the SIC code of the respondent company as well as the ordinal number of the answer for that respective industry. Sic code prefixes are also presented in the former table 5.

			Revenue		Total assets		Profit margin %		ROCE%		P/E	
Contextual category	n	% of all	Average	Median	Average	Median	Average	Median	Average	Median	Average	Median
Market creator	16	30 %	2355	107	18729	1379	-2 %	7 %	16 %	13 %	-5,6	0,6
Refocuser	19	35 %	633	128	2278	121	-8 %	2 %	-22 %	1 %	32,2	1,9
Restructurer	6	11 %	526	15	808	41	-1 %	1 %	2 %	-3 %	-35,0	3,3
Value creator	6	11 %	193	57	281	191	0 %	7 %	3 %	11 %	-1,0	2,0
Total*	54	100 %	1698	61	8098	189	0 %	4 %	-2 %	6 %	8,6	3,1

* including the ones who couldn't be positioned to the framework

Table 6. Desriptive statistics of the contextual groups.

[11] % of all is referring to a percentage out of 54 and not total answers of 47 for contextual framework. Hence the proportion given by each contextual category does not add up to 100%.

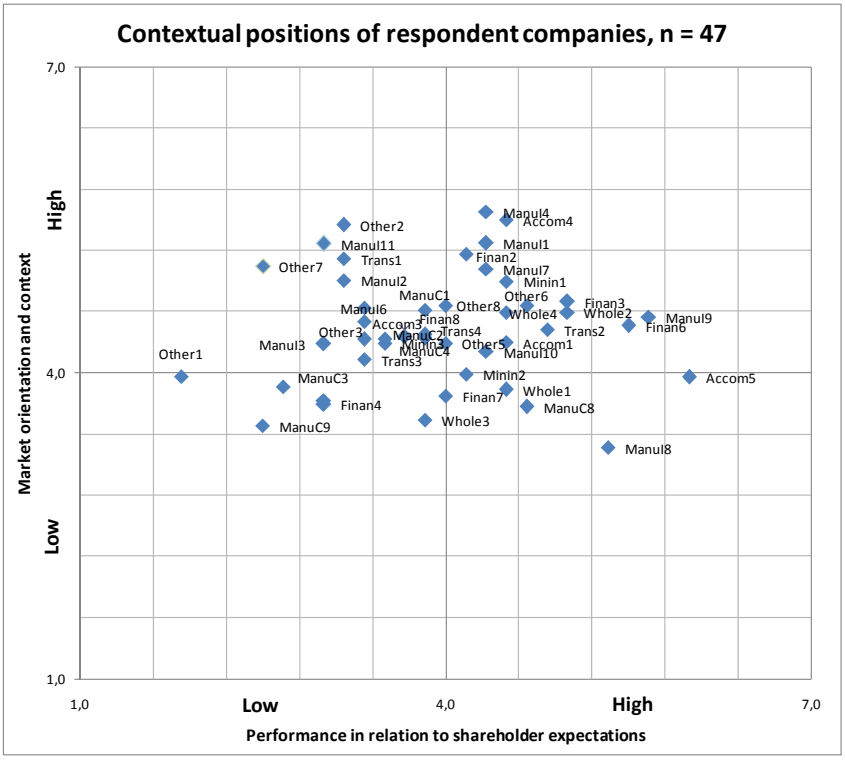

Figure 5. Contextual positions of respondent companies and their SIC codes[12].

5.2. Development of Sum Variables

In order to properly address the validity of the contextual framework by Carr *et al.* (2010) and to analyze the questions, which contain many different variables[13] in the questionnaire, sum variables are created. In addition to this, two combining sum variables are derived in order to analyze the total financial weight and innovativeness of the utilized methods. These sum variables are used in the correlation and regression analysis of this thesis. Contextual framework is operationalized to two independent variables. For all the following sum variables, the techniques are considered to be used if the responses were either 4 or 5, meaning that the technique is used regularly or always in SIDs. These variables are purely created by the researcher and introduced next.

[12] SIC codes are shortened to fit the picture. The prefixes refers to the following groups:

[13] See appendix 2: questionnaire, and more specifically questions 2, 3, 8, 13, 14 and 15

Independent variables of the contextual framework (*ContextID_2CAT* and *ContextID_4cat*)

The contextual framework is shown in the analysis as two different independent variables, which views the framework from two angles. *ContextID_2cat* includes only the extremes of the model, restructurers (1) and market creators (2), whereas *ContextID_4cat* includes all four categories, where 1 is restructurers, 2 is refocusers, 3 is value creators and 4 market creators. The selection of the order of the categories is based on the assumption from the original study that for instance strategic weight increases as we move from more financial distressed restructurers and refocusers to more financially stable value and market creators. The purpose of these variables is to evaluate how decision making practices change as the value of the variables change by one – in other words when moving on the framework. By these two variables, the linear applicability and the differences of the two extremes are captured.

Level of sophistication in financial analysis (*Fina_Soph*)

This variable gives out an index score of the level of sophistication in financial techniques. The techniques, which are considered to be unsophisticated, are payback period, discounted payback period, accounting rate of return and profitability index. These methods have a score of 1 and rest of the methods have a score of 2 (see questionnaire for details). Own methods were naturally ruled out from this score, as the level of sophistication in those cannot be know. In equation form, the score comprises as follows:

$$Fina\_Soph = \sum(\text{used sophisticated methods})*2 + \sum(\text{used unsophisticated methods})*1$$

The score of this measure varies between 0 and 16.

Width of usage of different financial analysis methods (*Fina_Wide*)

The width of used financial techniques is simply measured as the sum of all techniques used always or regularly in SIDs. In equation form, the score is as follows:

$$Fina\_Wide = \sum\text{used financial methods}$$

The score of this measure varies between 0 and 11.

Width of usage of different risk analysis methods (*Risk_Wide*)

Measured similarly as *Fina_Wide,* but taking risk analysis techniques into account.

The score of this measure varies between 0 and 11.

Level of sophistication in cost of equity capital evaluation (*CostEq_Soph*)

Measured similarly as *Fina_Soph*. The sophisticated methods include CAPM/beta-analysis, Using CAPM but including extra risk factors and Dividend Discount Model (DDM). Rests of the methods are considered as unsophisticated and own methods are again ruled out from this measure.

The score of this measure varies between 0 and 9.

Width of usage of different cost of equity capital methods (*CostEq_Wide*)

Measured similarly as *Fina_Wide,* but taking cost of equity capital methods into account.

The score of this measure varies between 0 and 7.

Total weight of financial analysis in SIDs (*Fina_weight_sum*)

In the question concerning the SID process (question 15 in questionnaire), six of the responses reveal the financial versus strategic weight in SIDs. Three of these are financially orientated and three strategically orientated responses. In addition to this, the financial weight in SIDs was asked explicitly, as the respondents were asked to inform the weight of financial aspects with 10% accuracy. To comprise a comprehensive answer to the overall financial weight in SIDs, this measure was developed:

> *Fina_weight_sum* = % materialized financially orientated responses + % financial weight in SIDs / 2

The score of this measure varies between 0 and 1.

Level of rationality in decision making (*Rationality*)

Again in the question concerning the SID process (question 15 in questionnaire), four questions covered the rationality of the decision making. Two of these imply formal and rational approach to SIDs. This measure is hence the average of these two answers that materialize always or regularly, out of all 4 questions.

The score of this measure varies between 0 and 0,5.

Level of sophistication in strategic analysis (*Strat_Soph*)

Measured similarly as *Fina_Soph,* but taking strategic analysis techniques into account. Benchmarking, market analysis, competitor analysis and competitive advantage techniques were considered as more simple, or unsophisticated, methods. Rest of the methods was considered as sophisticated and own methods were again ruled out from this equation.

The score of this measure varies between 0 and 18.

Width of usage of different strategic analysis methods (*Strat_Wide*)

Measured similarly as *Fina_Wide,* but taking strategic analysis techniques into account.

The score of this measure varies between 0 and 12.

Level of financial SID criteria (*Strat_Cr_Fina*)

This measure is operationalized by simply summarizing the financial criterias in SIDs. These criteria include short-term profitability, long-term profitability, efficiency (low cost), EVA, shareholder wealth (EPS growth) and survival (avoiding bankruptcy). Rest of the criteria is considered strategic (counted in *Strat_Cr_Strat*), but excluding other criteria from both of these measures.

The score of this measure varies between 0 and 7.

Level of strategic SID criteria (*Strat_Cr_Strat*)

Measured as *Strat_Cr_Fina*, but summarizing the strategic criteria.

The score of this measure varies between 0 and 4.

Proportion of financial SID criteria of all (*Strat_Cr_Fina%*)

This measure indicate the proportion of financial criteria in SIDs, weighting *Strat_Cr_Fina* and *Strat_Cr_Strat* to equal scale, as there are 7 financial criterion in the questionnaire as opposed to 4 strategic criterion.

The score of this measure varies between 0 and 1.

Innovativeness of used techniques (*Innov_methods*)

The innovativeness of used techniques is the sum of own methods used in financial, risk, strategy and cost of equity analysis, as well as own criteria that are used always or regularly in SIDs.

The score of this measure varies between 0 and 5.

5.3. Correlation Analysis

Correlation analysis is made to test the correlations between the dependent and independent variables. In this part of the analysis, the dependent variables mainly include sum variables, instead of showing all individual variables. The contextual framework is shown as two different independent variables, *ContextID_2cat* and *ContextID_4cat,* which were defined in the previous chapter. In addition to these two independent variables, control variables are also shown in the correlation matrix (table 7).

There are several interesting findings that can be derived from the correlation matrix. The explanation power of the contextual frame does not provide many statistically significant correlations. The ones that are found are the negative correlation against financial weight in SIDs and positive correlation on the evaluation frequency of required rate of return. The implication is that as we go from restructurers to market creators, the financial weight in SIDs is decreasing. This is similar finding as the key finding in the study of Carr *et al.* (2010). Also the fact that required rate is evaluated more often when moving from restructurers towards market creators is in line with the original framework. This is quite as expected as required rate evaluation might increase the targets of required rates even more for the organizations in financial distress. Hence, these companies might not even be that interested to re-evaluate the rate in order to survive. Interesting is also to note that the SID flexibility is almost statistically significantly positively correlating with the contextual model (significance of 0,12), which is thus implying that there might be some relation in this finding. However, the correlation is perhaps not the best method to explicitly determine whether the model by Carr *et al.* (2010) is applicable or not, because the categorization is not entirely linear. Instead of looking entirely the relation of between the changes in contextual category to the changes in variables, this analysis is important and valid when combining it to the findings from mean comparisons via t-test and regression analysis, presented later. One other interesting finding is that the contextual framework does not correlate with the control variables, which improves the validity of the analysis in this thesis. As for instance profit margin is not found to be in correlation with the contextual framework, it can be interpreted not to drive the findings.

Rather large range of other correlations than the ones related to the contextual model is found from the matrix. From control variables, companies with larger revenues utilize longer payback periods. Companies with higher total assets and profit margins have lower required rates of return. In addition to this, companies with higher profit margins do have longer payback targets. On the other hand, companies with higher ROCE are showing lower flexibility in SIDs and are using more sophisticated and wider range of strategic analysis than the ones with lower ROCE. Higher P/E rate is correlating positively with the sophistication of cost of equity capital evaluation methods, as well as the range of used methods.

Interesting fact is that the companies using sophisticated methods, are also using more wider range of methods in financial, risk, cost of equity and strategic analysis and criteria in

strategic investment decisions. They also weight financial criteria over strategic one in their decision making. In addition to this, they also have longer time horizons in SIDs, longer payback targets and higher target required rates of return. All these are correlating across with each other in strategic investment decision making practices.

When companies are having higher financial weight in SIDs, they are also following more rational decision making process. Also the required rate is evaluated more often in these cases. In addition to this, these companies have lower flexibility in SIDs and wider, more sophisticated strategic analysis.

All in all, companies who are addressing more financial aspects in SIDs or are using more sophisticated financial analysis have lower flexibility in SIDs. In addition to this, these companies also emphasize strategic aspects in the decision making. Also the level of sophistication follows throughout the different areas of the strategic investment decision making practices. The companies who evaluate one aspect thoroughly, does that on other parts as well.

	Mean	Stdev		ContextID_4cat	ContextID_2cat	Revenue	Total assets	Profit margin	ROCE	P/E	Fina_Soph	Fina_Wide	Risk_Wide	CostEq_Soph	CostEq_Wide	Fina_weight_sum	Rationality	Required-rate%	IRR premium %	Required rate (change freq)	Inflation in CF	Inflation in required rate	Cost of capital (change freq)	paybacK target	Time horizon in years	SID flexibility	Strat_soph	Strat_Wide	StratCr_Fina	StratCr_Strat	StratCr_Fina%	Innov_methods
ContextID_4cat	2,681	1,086	Pearson																												
			Sig. (2-tailed)																												
			N																												
ContextID_2cat	1,727	0,456	Pearson	1,00***																											
			Sig. (2-tailed)	,000																											
			N	22																											
Revenue	1698	5232	Pearson	,051	,168																										
			Sig. (2-tailed)	,739	,466																										
			N	45	21																										
Total assets	8098	31181	Pearson	,190	,174	,431***																									
			Sig. (2-tailed)	,212	,451	,001																									
			N	45	21	52																									
Profit margin	-0,005	0,275	Pearson	,045	-,018	,068	,235																								
			Sig. (2-tailed)	,792	,945	,663	,130																								
			N	36	17	43	43																								
ROCE	-0,016	0,523	Pearson	,232	,152	,027	,022	,630***																							
			Sig. (2-tailed)	,161	,575	,862	,886	,000																							
			N	38	16	44	44	38																							
P/E	8,635	60,661	Pearson	-,095	,293	,059	-,016	,141	,104																						
			Sig. (2-tailed)	,560	,238	,696	,915	,394	,511																						
			N	40	18	46	46	39	42																						
Fina_Soph	5,167	2,793	Pearson	-,076	,055	,230	,045	-,038	,207	-,001																					
			Sig. (2-tailed)	,610	,809	,101	,751	,809	,178	,993																					
			N	47	22	52	52	43	44	46																					
Fina_Wide	3,167	1,622	Pearson	-,095	,025	,183	-,008	-,061	,167	,033	,964***																				
			Sig. (2-tailed)	,527	,914	,193	,954	,697	,280	,827	,000																				
			N	47	22	52	52	43	44	46	54																				
Risk_Wide	3,259	2,085	Pearson	-,059	,141	,088	-,122	-,219	,133	,218	,595***	,617***																			
			Sig. (2-tailed)	,692	,532	,537	,388	,159	,390	,145	,000	,000																			
			N	47	22	52	52	43	44	46	54	54																			
CostEq_Soph	1,204	1,379	Pearson	-,109	,114	,216	-,027	,016	,184	,368**	,358***	,364***	,395***																		
			Sig. (2-tailed)	,464	,613	,125	,850	,921	,233	,012	,008	,007	,003																		
			N	47	22	52	52	43	44	46	54	54	54																		
CostEq_Wide	0,926	0,949	Pearson	-,020	,094	,164	-,052	-,067	,185	0,260*	,439***	,462***	,477***	,863***																	
			Sig. (2-tailed)	,895	,676	,245	,716	,667	,229	,081	,001	,000	,000	,000																	
			N	47	22	52	52	43	44	46	54	54	54	54																	
Fina_weight_sum	0,389	0,186	Pearson	-,300**	-,563***	,120	-,034	-,121	-,020	-,094	,175	,184	,091	,221	,114																
			Sig. (2-tailed)	,041	,006	,396	,812	,440	,895	,535	,207	,183	,511	,109	,412																
			N	47	22	52	52	43	44	46	54	54	54	54	54																
Rationality	0,245	0,197	Pearson	-,033	-,036	,187	,058	,200	,235	,167	,164	,179	,141	,420***	,275**	,381***															
			Sig. (2-tailed)	,824	,873	,185	,681	,199	,125	,269	,236	,194	,310	,002	,044	,004															
			N	47	22	52	52	43	44	46	54	54	54	54	54	54															
Required-rate%	0,137	0,038	Pearson	-,185	-,030	-,028	-,330**	-,388**	-,114	,027	0,304*	,314**	,205	,222	,349**	,034	-,062														
			Sig. (2-tailed)	,281	,920	,868	,043	,026	,529	,877	,057	,048	,204	,169	,027	,836	,705														
			N	36	14	38	38	33	33	35	40	40	40	40	40	40	40														
IRR premium %	0,058	0,031	Pearson	-,101	-,259	,114	,022	-,254	,058	-,194	,061	,068	-,051	-,023	,074	-,196	-,017	,391**													
			Sig. (2-tailed)	,521	,285	,467	,888	,141	,740	,250	,693	,658	,741	,883	,631	,197	,913	,015													
			N	43	19	43	43	35	35	37	45	45	45	45	45	45	45	38													
Required rate (change freq)	4,706	1,879	Pearson	0,276*	,346	,167	-,018	-,119	-,252	-,007	-,400***	-,393***	-,121	-,188	-,058	-,451***	-,324**	-,035	-,021												
			Sig. (2-tailed)	,069	,147	,251	,902	,465	,108	,965	,004	,004	,398	,187	,688	,001	,020	,830	,894												
			N	44	19	49	49	40	42	43	51	51	51	51	51	51	51	40	44												
Inflation in CF	1,577	0,499	Pearson	-,135	-,335	,187	-,069	,060	,156	-,069	-,005	,054	,116	,043	,089	-,122	,072	-,009	-,099	,120											
			Sig. (2-tailed)	,371	,138	,193	,633	,705	,325	,655	,972	,703	,413	,764	,529	,388	,613	,958	,518	,412											
			N	46	21	50	50	42	42	44	52	52	52	52	52	52	52	39	45	49											
Inflation in required rate	1,521	0,505	Pearson	-,072	-,191	,202	-,061	-,035	,117	-,045	,035	,065	,100	-,040	-,023	-,307**	-,135	,102	-,018	,213	,755***										
			Sig. (2-tailed)	,649	,434	,178	,689	,837	,477	,782	,813	,660	,500	,787	,877	,034	,359	,546	,912	,155	,000										
			N	42	19	46	46	38	39	40	48	48	48	48	48	48	48	37	41	46	47										

	Mean	Stdev		Context ID_4cat	Context ID_2cat	Revenue	Total assets	Profit margin	ROCE	P/E	Fina_Soph	Fina_Wide	Risk_Wide	CostEq_Soph	CostEq_Wide	Fina_weight_sum	Rationality	Required-rate%	IRR premium %	Required rate (change freq)	Inflation in CF	Inflation in required rate	Cost of capital (change freq)	paybac k target	Time horizon in years	SID flexibility	Strat_soph	Strat_Wide	StratCr_Fina	StratCr_Strat	StratCr_Fina%	Innov_methods
Cost of capital (change freq)	3,827	1,605	Pearson	-,088	-,210	-,142	-,220	,132	-,181	-,184	-,514***	-,514***	-,427***	-,492***	-,529***	-,136	-,221	,002	,126	0,240*	-,022	,122										
			Sig. (2-tailed)	,567	,374	,325	,124	,409	,252	,232	,000	,000	,002	,000	,000	,336	,115	,989	,415	,093	,881	,420											
			N	45	20	50	50	41	42	44	52	52	52	52	52	52	52	39	44	50	50	46										
payback target	5,359	2,288	Pearson	-,012	,021	,040	,068	-,538***	-,150	-,123	,326**	,225	,197	-,035	,035	-,129	-,372**	,425**	0,334*	-,116	-,074	,240	,065									
			Sig. (2-tailed)	,947	,942	,815	,691	,002	,422	,495	,043	,169	,230	,834	,832	,434	,020	,015	,054	,494	,664	,165	,700										
			N	36	15	37	37	30	31	33	39	39	39	39	39	39	39	32	34	37	37	35	38										
Time horizon in years	6,633	4,024	Pearson	-,149	-,068	,386***	,128	,036	,174	,052	,309**	0,258*	,185	,124	,088	,030	-,069	,202	,035	,030	,213	,320**	-,025	,454***								
			Sig. (2-tailed)	,334	,776	,007	,392	,823	,289	,749	,031	,073	,204	,396	,548	,838	,640	,230	,827	,846	,151	,036	,868	,004									
			N	44	20	47	47	40	39	41	49	49	49	49	49	49	49	37	42	46	47	43	47	38									
SID flexibility	2,759	0,799	Pearson	,202	,342	-,044	,017	-,167	-0,285*	-,102	-,083	-,056	,072	-,280**	-,148	-,434***	-,366**	,126	-,007	,310**	,142	,221	,161	,122	-,056							
			Sig. (2-tailed)	,172	,120	,759	,906	,284	,061	,499	,550	,689	,604	,040	,284	,001	,006	,440	,966	,027	,314	,132	,253	,459	,703								
			N	47	22	52	52	43	44	46	54	54	54	54	54	54	54	40	45	51	52	48	52	39	49								
Strat_soph	4,315	3,220	Pearson	-,036	,039	,076	,156	,146	,322**	-,080	,361***	0,257*	,395***	,508***	,440***	,272**	,277**	-,006	-,087	-,277**	-,117	-0,271*	-,282**	-,006	,053	-,300**							
			Sig. (2-tailed)	,813	,864	,590	,270	,350	,033	,596	,007	,061	,003	,000	,001	,047	,042	,968	,572	,049	,409	,062	,043	,971	,715	,028							
			N	47	22	52	52	43	44	46	54	54	54	54	54	54	54	40	45	51	52	48	52	39	49	54							
Strat_Wide	3,444	2,116	Pearson	-,065	-,061	,031	,124	,099	0,262*	-,076	,367***	,280**	,465***	,537***	,496***	0,258*	,288**	,057	-,050	-0,270*	-,052	-,209	-,313**	,085	,042	-,315**	,954***						
			Sig. (2-tailed)	,665	,789	,826	,382	,529	,085	,614	,006	,040	,000	,000	,000	,060	,035	,725	,745	,055	,715	,154	,024	,609	,775	,020	,000						
			N	47	22	52	52	43	44	46	54	54	54	54	54	54	54	40	45	51	52	48	52	39	49	54	54						
StratCr_Fina	2,907	1,521	Pearson	-,042	,089	,045	,091	-,090	-,149	,215	,350***	,366***	,365***	,378***	,401***	,334**	0,266*	,207	-,132	-,232	-,011	-,236	-,436***	,056	,054	-,220	,376***	,441***				
			Sig. (2-tailed)	,781	,694	,753	,519	,565	,333	,150	,009	,007	,007	,005	,003	,013	,052	,200	,386	,102	,937	,106	,001	,733	,712	,109	,005	,001				
			N	47	22	52	52	43	44	46	54	54	54	54	54	54	54	40	45	51	52	48	52	39	49	54	54	54				
StratCr_Strat	1,611	1,497	Pearson	-,069	-,013	,079	,055	,024	-,157	,113	-,129	-,105	,081	,176	,192	,165	,010	-,029	-,129	,001	0,233*	,008	-,065	-,202	-,123	-,032	,167	,133	,373***			
			Sig. (2-tailed)	,644	,955	,580	,697	,876	,308	,455	,354	,451	,559	,203	,165	,233	,944	,857	,398	,995	,096	,957	,647	,217	,400	,816	,228	,338	,005			
			N	47	22	52	52	43	44	46	54	54	54	54	54	54	54	40	45	51	52	48	52	39	49	54	54	54	54			
StratCr_Fina%	0,654	0,294	Pearson	,098	,105	,005	-,014	-,017	,073	-,022	,322**	,301**	,128	,000	,003	-,051	,110	,058	-,045	-,054	-,124	-,039	-,199	,157	,177	-,009	-,001	,077	,013	,906***		
			Sig. (2-tailed)	,524	,641	,971	,923	,917	,654	,891	,023	,033	,377	,999	,986	,723	,445	,733	,776	,718	,396	,797	,175	,368	,244	,952	,993	,594	,928	,000		
			N	45	22	48	48	39	40	42	50	50	50	50	50	50	50	37	43	47	49	46	48	35	45	50	50	50	50	50		
Innov_methods	0,574	1,159	Pearson	,154	,031	-,111	-,091	-,171	-,079	-,107	-,013	,129	,211	,008	0,245*	-,074	,074	,102	,071	,032	,273**	,164	-,158	,052	-,073	-,011	-,201	-,052	,148	-,054	,092	
			Sig. (2-tailed)	,302	,890	,435	,523	,274	,610	,478	,928	,353	,127	,954	,074	,594	,596	,530	,641	,823	,050	,266	,265	,755	,618	,937	,145	,708	,284	,699	,526	
			N	47	22	52	52	43	44	46	54	54	54	54	54	54	54	40	45	51	52	48	52	39	49	54	54	54	54	54	50	

Table 7. Correlation matrix of dependent and independent variables. Significance flagged with the following notation: green: * p<0,1, yellow: ** p<0,05, red: *** p<0,01

5.4. Mean Comparison using T-Test

Second part of the results concentrates on the mean comparison analysis based on the four contextual categories. The purpose of this part of analysis is to cover all the individual variables and the differences between the contextual groups. This is seen to be important as correlation matrix and regression analysis covers the sum and few key individual variables. To provide ample evidence on the validity of the framework, also these aspects must be analyzed. Also the fact that the contextual model is not entirely linear, independent comparison between the classes is highly important. Results are analyzed similarly as in Graham and Harvey (2001), where all questions are presented from two perspectives: how many of the respondents answered always or regularly (scores 4 and 5 on scale 1 to 5) as a % of all answers, and what is the mean score of the answers to a specific question. When doing this, both the absolute usage of the method as well as the spread of the answers is covered.

The t-test is constructerd as follows. All mean scores of individual as well as sum variables are tested. First a Levene's test of equal means is conducted, after which the statistical significance is analyzed either for equal or unequal means. All the tables included in this part of analysis note if the result is statistically significant, or almost significant, using t-test at 90%, 95% and 99% confidence levels (* p<0,1, ** p<0,05, *** p < 0,01). Also the significance against the contextual groups are presented with prefixes (mc=market creators, rf=refocusers, rs=restructurers and vc=value creators). Hence for instance a mean of 3,5 that is statistically significant against value creators at 5% confidence level is shown as "3,5 **vc".

5.4.1. Financial Appraisal in SIDs

5.4.1.1. Capital Budgeting Techniques

	Market creators (mc)		Refocusers (rf)		Restructurers (rs)		Value creators (vc)	
Financial Techniques	% always or regularly	Mean score	% always or regularly	Mean score	% always or regularly	Mean score	% always or regularly	Mean score
NPV	50 %	3,2	68 %	3,7	67 %	4,0	67 %	3,5
IRR	38 %	2,9	47 %	3,4	50 %	3,2	67 %	3,5
Payback period	56 %	3,3	68 %	3,5 **vc	33% *vc	3,2 *vc	83% *rs	4,5 **rf, *rs
Discounted payback period	0% ***rf, ***vc	1,6 ***rf, ***vc	42% ***mc	2,9 ***mc	17 %	2,5	50% ***mc	3,7 ***mc
ARR	0 %	1,4	16 %	1,8	0 %	1,7	0 %	1,3
Sensitivity analysis	69 %	3,6	68 %	3,8	33 %	3,0	33 %	3,0
Scenario analysis	44 %	3,3	47 %	3,1	33 %	2,8	33 %	2,8
Profitability index	0 %	1,1 ***rs, **rf	0% *rs	1,5 **mc	17% *rf	2,2 ***mc	0 %	1,5
Decision trees	6 %	1,7	0 %	1,8	0 %	1,7	0 %	1,7
Real options approach	0 %	1,4	0 %	1,2	0 %	1,2	0 %	1,2
Analysis method developed by the company	13% **vc	1,6	0% ***vc	1,4 ***vc	17% *rf	2,2	50% ***vc, **mc	2,8 ***rf
Fina_Soph (Level of sophistication in financial methods)	*N/A*	4,7	*N/A*	5,9	*N/A*	4,3	*N/A*	5,3
Fina_Wide (Width of financial analysis)	*N/A*	2,8	*N/A*	3,6	*N/A*	2,7	*N/A*	3,8
number of responses (n)	16		19		6		6	

NOTE: *** p<0,01, ** p<0,05, * p<0,1. mc=market creators, rf=refocusers, rs=restructurers,vc=value creators

Table 8. Financial appraisal techniques used by contextual categories

The most used capital budgeting technique among all companies is the NPV. 61% of the companies use the method always or regularly in strategic investment decisions (mean score 3,6). IRR is also rather utilized method in strategic investment decision. 44% of companies use the method always or regularly in SIDs (mean score 3,1). However, these DCF methods do not provide statistical significance between the contextual categories, and hence only indicatory results can be shown.

There is, however, significant differences observed in unsophisticated methods. 57% of all companies utilize payback period in SIDs (mean score 3,4). This tool is used the most among value creators. 83% of these organizations always or regularly use the method in their strategic investment analysis (mean score 4,5). Second most frequent user of payback method is refocusers. 68% of these companies always or regularly employ the method in the investment analysis (mean score 3,5). Market creators also use the method quite frequently as 56% of these organizations use it regularly or always in SIDs (mean score 3,3). Restructurers are less eager to use the method in strategic investment decisions. Only 33% of these organizations use the method regularly or always in SIDs (mean score 3,2). Although discounted payback method is utilized always or regularly only in 22% of the companies, value creators use the method in 50% of the cases (mean score 3,7). Also 42% of refocusers

use the method always or regularly in SIDs (mean score 2,9). In other contextual categories, especially among market creators, discounted payback period is used much less frequently. Profitability index is also fairly unpopular method as only 4% of companies use the method always or regularly (mean score 1,4). Restructurers on the other hand use the method regularly or always in 17% of companies (mean score 2,2). The usage is thus much more frequent than among refocusers or market creators. One extremely interesting finding can be observed when evaluating the analysis methods developed by the respondent companies. As much as 50% of value creators always or regularly use analysis methods of their own (mean score 2,8). Market creators and refocusers are using the method much less frequently in SIDs.

Accounting rate of return is very unpopular method among the respondents. 7% of all companies use the method regularly (mean score 1,6). Decision trees or real options are not used specifically among any contextual category either.

The findings from the sum variables, which measure the level of sophistication and the width of used techniques in the financial methods, does not reveal statistical significant results. However, indicative interpretation can be made. It seems that refocusers use more sophisticated methods than other contextual groups. In the width of used techniques, it seems that value creators are using the most wide spread of methods.

The findings of financial techniques used among contextual categories provide interesting insight. There are no statistically significant differences in the use of DCF methods or supportive tools. This was also the finding in Carr *et al.* (2010). This is not entirely surprising as DCF methods is utilized widely in companies and is not that much in relation to the market orientation and context, and performance in relation to shareholder expectations. Also the different use of supportive tools seems not to have statistical significance among the contextual groups. Sensitivity and scenario analysis is used quite dispersedly throughout the framework. However, interesting observation can be made in the use of unsophisticated methods. Value creators weight methods such as payback period and discounted payback period more often than other categories. They also put emphasis on their own methods, using those much more than other contextual categories. On the other hand, value creators do use wide range of valuation methods, which of course similarly increases the use of unsophisticated methods. Thus the interpretation is that as the combination of good financial

performance and low market orientation and context drives companies in to more widespread use of the methods, and also similarly towards utilization of unsophisticated methods.

5.4.1.2. Risk Analysis Techniques

	Market creators		Refocusers		Restructurers		Value creators	
Risk Analysis Techniques	% always or regularly	Mean score	% always or regularly	Mean score	% always or regularly	Mean score	% always or regularly	Mean score
Sensitivity analysis	75 %	3,7	79 %	3,9 *vc	50 %	3,0	33 %	2,8 *rf
Scenario analysis	50 %	3,3	63% **rs	3,2	17% **rf	2,8	33 %	2,5
Simulation analysis	19 %	1,9	26 %	2,3	33 %	2,3	0 %	1,3
CAPM/beta analysis	0 %	1,4	5 %	1,6	0 %	1,5	0 %	1,2
Break-even analysis	44 %	2,9	53 %	3,3	33 %	2,8	33 %	3,0
Adjust cash flows to allow for risk	31 %	2,3	32 %	2,7	33 %	2,3	50 %	2,8
Adjust required payback period to allow for risk	13 %	1,8 *vc	16 %	2,2	0 %	1,5 **vc	33 %	3 **rf, *mc
Adjust discount rate to allow for risk	13 %	1,9 *rf	32 %	2,8 *vc, *mc	33 %	2,3	0 %	1,7 *rf
Adjust required return on investment to allow for risk	13 %	1,8	21 %	2,3	17 %	2,0	33 %	2,5
Qualitative assessment	38 %	3,3	63 %	3,6 *vc	33 %	2,7	33 %	2,7 *rf
Analysis method developed by the company	13% *vc	2,0	0% ***vc	1,5 **vc	0% **vc	1,8	50% ***rf, **rf. *mc	2,8 *rf
Risk_Wide (Width of risk analysis)	*N/A*	3,1	*N/A*	4,0	*N/A*	2,5	*N/A*	3,0
number of responses (n)	16		19		6		6	

NOTE: *** p<0,01, ** p<0,05, * p<0,1. mc=market creators, rf=refocusers, rs=restructurers,vc=value creators

Table 9. Risk analysis techniques used by contextual categories

When looking in to the use of different risk analysis techniques, sensitivity analysis is by far the most popular among all companies. 75% of the companies use the method always or regularly (mean score 3,5). It implies that the most eager contextual categories to use the sensitivity analysis are refocusers, as opposed to the low utilization among value creators. 79% of refocusers always or regularly use the method (mean scores 3,9). Only 33% of value creators (mean score 2,8) employ sensitivity analysis as risk assessment tool, which indicates lowest implementation of the method. Second most utilized method is scenario analysis. 50% of all companies use the method always or regularly (mean score 3,1). Refocusers are the most frequent user of scenario analysis, as 63% of the organizations use the method always or regularly (mean score 3,2). Restrcuturers are less frequent in using the method as 17% of refocusers (mean score 2,8) employ the method always or regularly.

Another part in risk analysis that provides statistically significant results is the adjustment of payback period and discount rate to allow for risk. Value creators are the most eager to adjust payback period to allow for risk as 33% of companies are stating this to be the risk analysis tool used always or regularly (mean score 3,0). On the other hand, refocusers adjust discount rate more than value creators or market creators. This is naturally correlating positively with the utilization of the DCF versus payback methods[14].

Refocusers use the qualitative assessment more than value creators. Although the method is always or regularly used in 43% of all companies (mean score 3,1), 63% of refocusers and are using the method in their strategic investment decisions (mean score 3,6). Value creators highlight the qualitative aspects regularly or always in 33% of cases (mean score 2,7).

Highly ample evidence can be observed in the utilization of analysis methods developed by the respondent companies. 11% of all companies (mean score 1,9) use their own methods always or regularly in SIDs. Interesting note is that value creators utilize the method the most, as 50% of these companies are utilizing their own methods in SIDs (mean score 2,8). In contrast, 13% of market creators (mean score 2,0) use their own techniques in their SIDs and none of the refocusers of restructurers are using their own methods in risk analysis of SIDs.

Other methods do not provide statistically significant differences using the t-test, as does not the variety of risk analysis (Risk_Wide) methods used in the SIDs. As a sum of the risk analysis techniques, it implies that if performance in relation to shareholder expectation is low and market orientation and context is high, the risk analysis methods are used more frequently. On the other hand the innovativeness of the used methods is inversely related, as value creators are clearly using their own methods the most. This is rather logical as value creators also use the unsophisticated financial analysis methods more than for instance refocusers and market creators, which further implies that the risk factors are seen as not that important in SIDs calculations.

[14] A correlation analysis between all individual variables has been made, but not shown in the results of this research as there is over 150 individual variables in this research. Thus only the sum variables are shown in the correlation matrix presented in table 7.

5.4.1.3. Required Rate of Return

	Target required rate of return (IRR)		Change frequency of IRR (years)		IRR premium over cost of capital		% real required rate of return		% real cash flows	
	n	Target rate%	n	Change (years)	n	Premium %	n	% real	n	% real
Market creator	9	12,3 %	8	2,3	14	5,3 %	13	53,8 %	15	53,3 %
Refocuser	16	15,4% ***rs, **vc	17	2,9 **vc	18	5,6 %	17	52,9 %	19	52,6 %
Restructurer	5	12,6% ***rf	5	2,5	5	7,0 %	6	33,3 %	6	16,7 %
Value creator	6	13,0% **rf	6	1,5 **rf	6	7,3 %	6	33,3 %	6	33,3 %
All companies	39	13,7 %	40	2,4	44	5,8 %	47	47,9 %	51	42,3 %

Table 10. Required rate of return treatment by contextual categories

The overall average required rate of return for all respondents is 13,7%[15]. From the contextual categories, highest required rate of return is among refocusers. This group has a total required rate of return of 15,4%. Second highest required rate of return is among value creators and restructurers. The groups have on average required rate of returns of 13,0 % and 12,6 %, respectively. The target required rate of return among market creators, on average 12,3%, is not statistically significantly lower than the rates of the other categories. In addition to the averages, as much as 37,5 % of market creators and 11,1% of refocuser do not use required rate of return targets in SID, whereas all restructurers and value creators do have required rate of return targets. This also affects to the number of responses in this part, which in turns dilutes the statistical significance of this contextual group. All in all, it is fair to state that market creators are either *indifferent* for the target rate, or using rather low required rate.

The mean change frequency of the required rate of return of all companies is 2,4 years. Highest score in this question is among refocusers. The average score for this group is 2,9 years.. One important note to take account when analyzing these results is that as much as 42,9% of market creators do not use required rate of return targets. However, the ones who do, the average is the mentioned once in 2,3 years. The most dramatical group to evaluate the required rate of return is value creators. The mean score for this contextual category is 1,5 years.

[15] In order to obtain as much answers as possible to this question, the rate ranges were structured with 3 %-point intervals. In the results, the intervals' average is used to analyze the required rate of return of each contextual group. In other words, one option in the questionnaire was 10-12%, which is then reported as 11% in this part of the thesis.

The average premium that companies set over the cost of capital is 5,8%. The differences among the contextual categories are not statistically significant. However value creators set on average the highest margins, as the average premium is 7,3% over the cost of equity capital. Also restructurers set quite high premium over cost of capital, being on average 7,0%. Otherwise the average premiums are quite independent as the average premium in strategic investments is 5,6% for refocusers and 5,3% for market creators. One must note that the differences are only indicatory according to the t-test.

One part of the questionnaire asked if the cash flows or required rate of returns were nominal or real, in other words whether inflation is taken in to account or not. In general, 57,7% of the companies use nominal cash flows and thus the inflation is not taken in to account. The differences between the contextual categories did not provide statistical significance. On average, the highest utilization of real cash flows is among market creators, where 53,3% of the companies use real cash flows in their strategic investment calculations. Next most frequent users of real cash flows are refocusers and value creators. 52,6% of refocusers and 33,3% of value creators take inflation in to account in the cash flows. Interesting note is that 16,7% of the restructurers use real cash flows in investment projections. In general, same pattern can be observed in inflation of required rates. A total of 52,1% of the Nordic companies use nominal required rate of returns. The most eager category to use real cash flows is market creators. 53,8% of the companies use real required rate of return. Next most frequent users of real rates are refocusers, of which take inflation in to account in 52,9% of companies. Lowest utilization of real rates is again among restructurers and value creators, where only 33% use real required rate of returns in strategic investment projects.

Key findings on the required rate treatment are that refocusers are having the highest target rate % as well as changing the rate rarely. On the other hand, value creators on the other far end of the framework, are having lower target rate and changing the rate more often. This is somewhat as expected. Firms in tighter financial positions ought to have higher required rate of return. It can also be argued that the evaluation frequency of the rate might be even unfavorable for companies facing financial problems as the targets might increase in relation to the evaluation. The most surprising finding is that restructurers have lower required rate than refocusers. There is no clear implication on why, but on this matter the only feasible explanation is that the sample is only 5 companies in this question. Also the indicative finding that restructurers use the nominal cash flows the most, might affect this interpretation.

5.4.1.4. Cost of Capital

Companies' behavior regarding the cost of capital is evaluated through two questions. First, a question on how do the companies estimate the cost of equity capital was put forward. Secondly, the respondents were asked to describe the frequency of the cost of capital calculations.

	All companies		Market creators		Refocusers		Restructurers		Value creators	
Cost of Equity Capital Evaluation Methods	% always or regularly	Mean score	% always or regularly	Mean score	% always or regularly	Mean score	% always or regularly	Mean score	% always or regularly	Mean score
CAPM/beta-analysis	26 %	2,4	25 %	2,3	47% ***vc, **rs	3,1 ***vc, ***rs	0% **rf	1,5 ***rf	0% ***rf	1,5 ***rf
CAPM but including some extra risk factors	11 %	1,8	0% **vc	1,4	16 %	1,9	0 %	1,5	33% **mc	2,2
Dividend discount model (DDM)	0 %	1,3	0 %	1,3	0 %	1,5	0 %	1,2	0 %	1,2
Averagic historical returns on common stock	9 %	1,8	13 %	1,9	5 %	1,8	17 %	2,2	0 %	1,3
Based on investors' expectations	31 %	2,5	25 %	2,1	37 %	2,6	33 %	2,7	33 %	2,8
By regulatory decisions	6 %	1,6	6 %	1,5 *rs	5 %	1,5	17 %	2,7 *mc	0 %	1,5
An approach developed by the company	9 %	1,7	19% **rf	1,9 *rf	0% **mc, *vc	1,3 *mc, *vc, *rs	0 %	2,0 *rf	17 %	2,0
CostEq_Soph (Level of sophistication in defining cost of equity capital)	*N/A*	1,2	*N/A*	0,9 *rf	*N/A*	1,7 *mc, *rs	*N/A*	0,7 *rf	*N/A*	1,0
CostEq_Wide (Width of cost of equity capital analysis)	*N/A*	0,9	*N/A*	0,9	*N/A*	1,1	*N/A*	0,7	*N/A*	0,8
number of responses (n)	54		16		19		6		6	

NOTE: *** p<0,01, ** p<0,05, * p<0,1. mc=market creators, rf=refocusers, rs=restructurers,vc=value creators

Table 11. Utilization of cost of equity capital evaluation methods

The most utilized technique to evaluate the cost of equity capital is, perhaps even surprisingly, based on investors' expectations. A total of 31,5% of all companies use this method in their cost of equity capital evaluations (mean score 2,5). There are no significant differences in the utilization of this method, as all contextual categories use this as cost of capital evaluation method always or regularly between 25%-37% of the companies.

CAPM/beta-analysis is used always or regularly in 25,9% of the companies (mean score 2,4). Most frequent use of the method is among refocusers, of which 47,4% use the method always or regularly (mean score 3,1). Second group that uses the method always or regularly, in 25,0% of the cases, is market creators (mean score 2,3). Interesting is to note that none of the restructurers or value creators use the method in cost of equity capital calculations. This implies a high utilization of the method among the higher market context and orientation companies. On the other hand, value creators are using CAPM with additional risk factors more than market creators. The utilization level is in general low, as 33% of value creators use the method always or regularly as opposed to none of the market creators utilizing the method with the same frequency.

Other statistically significant differences on the cost of equity capital evaluation methods is found on the regulatory directed evaluations and utilization of own methods. Restructurers are evaluating the cost of equity capital by regulatory decisions more than market creators. This is not surprising as there might be some regulations on the cost of equity capital on the companies who are in financial distress. Market creators seem to utilize their own methods quite frequently in cost of equity evaluations. This is rather surprising as this contextual group is not that innovative in the utilization of own methods in other evaluations. Another clear implication is that regarding cost of equity capital, refocusers are not using their own methods.

The sum variable regarding the level of sophistication in the analysis of cost of equity capital also shows that refocusers are utilizing the most sophisticated methods. Differences are found at least against restructurers and market creators, whereas the other *middle* category in the framework, value creators, is not providing significant difference to refocusers in the level of sophisticated methods used.

As the second question regarding cost of equity capital practices, the evaluation frequency of cost of equity capital was asked. The average frequency is 2,9 years for all companies. The results are not showing statistically significant differences between the contextual categories. The results, however, indicate that the longest evaluation frequency of the cost of capital is among value creators. They estimate it once every 4,2 years. Second longest frequency of evaluation is for restructurers, with a mean score of 3,8 years. Market creators approximate their cost of capital on average once in 2,6 and and refocusers once in 2,5 years.

Cost of equity capital practices indicates that more sophisticated methods are used among the refocusers. On the other hand, the utilization of own methods are again inversely related to this finding. This indicates that if the contextual category is using sophisticated methods, the own analysis methods are used less frequently. The wider use of cost of equity capital methods is correlating with the innovativeness variable, which supports this finding.

5.4.1.5. Time Horizon, Payback Target and Flexibility in SIDs

Other financial aspects in SIDs that were asked in the questionnaire concerned the time horizon of investments, used payback targets and flexibility of financial targets in SIDs

	Time horizon of investments (in years)		Payback target (in years)		Flexibility on financial targets in SIDs	
	n	Years	n	Years	n	% somewhat flexible or flexible
Market creator	14	5,7	9	4,8	16	68,8% **rs
Refocuser	18	7,9	15	4,5	19	63,2 %
Restructurer	6	6,2	6	4,7	6	16,7% ***rf, **mc, *vc
Value creator	6	6,3	6	3,5	6	66,7 %
All companies	49	6,6	39	4,4	54	61,1 %

NOTE: *** p<0,01, ** p<0,05, * p<0,1. mc=market creators, rf=refocusers, rs=restructurers,vc=value creators

Table 12. Time horizon and flexibility of SIDs

The average time horizon of strategic investments in all companies is 6,6 years. There are no statistically significant differences observed among the contextual categories. However, the implication is that the longest time horizon in investments is among refocusers. They calculate the investments on average to last for 7,9 years. Second longest time horizon is among value creators, whose average investment horizon is 6,3 years. Restructures follow close behind, as their time horizon of investment calculations is on average 6,2 years. Shortest time horizon in investments is among market creators, being 5,7 years.

The average payback target of all companies is 4,4 years. However, there are no statistically significant differences between the four contextual groups. The payback target years vary between 3,5 and 4,8 years.

The overall flexibility to meet required financial targets is rather flexible. 61,1% of all companies state that they are very or somewhat flexible in SIDs, and only 3,7% of companies state that there is no flexibility. There is also statistical significance evidence on the differences between the contextual categories. Largest flexibility can be observed among market creators, value creators and refocusers. 68,8% of market creators, 66,7% of value creators and 63,2% of refocusers are either flexible or somewhat flexible in SIDs. On the other hand, only 16,7% of restructurers are very or somewhat flexible to meet required financial targets in strategic investment projects.

The findings on these parts of financial analysis methods are not surprising. The argument by Carr *et al.* (2010) was that the time horizon shortens as we move from market creators towards restructurers. There is no statistical evidence on this and also the indicative results do not support that view. One argument on the inverse finding is that the companies, who are more in financial distress, might prolong the future cash inflows in the calculations to improve the profitability of the whole investment project. Hence, market creators might make more accurate evaluations than refocusers or restructurers, who experience more financial pressure. Payback targets did not provide ample evidence either. This is highly related to the utilization of different financial methods, which in turn distorts the contextual findings. There is ample evidence that restructurers have the lowest flexibility in SIDs and indication that market creators are more flexible in meeting the financial targets. This is logical and also part of the original framework of Carr *et al.* (2010). Companies, who are emphasizing the financial aspects in SIDs, are also having the tightest financial targets in SIDs.

5.4.2. Strategic and Qualitative Appraisal to SIDs

The strategic and qualitative aspects are expected to be vital in companies' strategic investment decision making practices. As highlighted in the earlier chapters, strict financial analysis is generally not seen to be adequate in SIDs.

5.4.2.1. Strategic Analysis Methods

First question concerning strategic appraisal covered the utilization of different strategic analysis methods. Respondents were again asked to state how often they use the respective techniques in SIDs on a scale from 1 to 5, where 1 implies that the companies never and 5 that they always use the technique in strategic investment decisions.

	All companies		Market creators		Refocusers		Restructurers		Value creators	
Strategic Analysis Methods	**% always or regularly**	**Mean score**	**% always or regularly**	**Mean score**	**% always or regularly**	**Mean score**	**% always or regularly**	**Mean score**	**% always or regularly**	**Mean score**
Market analysis	79 %	3,9	81 %	3,9 **rs	89% **vc	4,2 *vc	100% **vc	4,7 **vc, **mc	50% **rs, **rf	3,2 **rs, *rf
Competitor analysis	66 %	3,7	81% *vc	3,9 *vc	68 %	3,8 **vc	67 %	4,0	33% *mc	2,7 **rf, *mc
Benchmarking	49 %	3,2	44 %	2,9 **rs	58 %	3,3	67 %	4,0 **mc	33 %	2,7
Competitive advantage analysis	34 %	2,7	38% **vc	2,9	26 %	2,7 *vc	50 %	3,2 **vc	17% **mc	1,5 **rs, *rf
Cost driver analysis	28 %	2,5	19 %	2,3	32 %	2,8	33 %	2,5	17 %	2,0
Value chain analysis	23 %	2,5	19 %	2,1 *rf	37% **rs, *vc	2,8 *mc	0% **rf	2,0	0% *rf	2,2
Strategic portfolio technique	23 %	2,3	19 %	2,3	26 %	2,3	17 %	2,3	17 %	2,2
Technology roadmaps	15 %	2,0	25 %	2,1	5 %	1,8	17 %	1,8	0 %	1,5
Five forces analysis	17 %	1,6	13 %	1,7	5 %	1,7	33 %	1,2	33 %	1,5
Analysis method developed by your company	9 %	1,8	0 %	1,8 **vc	16% **rs, *vc	1,2 ***vc, *rs	0% **rf	2,3 *rf	17% *rf	3,0 ***rf, **vc
Balanced scorecard	6 %	1,8	13 %	1,5 *rf	0 %	2,1 *mc	0 %	1,7	0 %	2,0
Real options approach	2 %	1,5	6 %	1,6	0 %	1,6 **vc	0 %	1,5	0 %	1 **rf
Strat_Soph (Level of sophistication in strategic analysis methods)	*N/A*	4,3	*N/A*	4,4	*N/A*	4,7 *vc	*N/A*	4,2	*N/A*	2,3 *rf
Strat_Wide (Width of strategic analysis)	*N/A*	3,4	*N/A*	3,6	*N/A*	1,6	*N/A*	3,8	*N/A*	2,2
number of responses (n)	54		16		19		6		6	

NOTE: *** p<0,01, ** p<0,05, * p<0,1. mc=market creators, rf=refocusers, rs=restructurers,vc=value creators

Table 13. Utilization of strategic analysis methods.

Most utilized method is market analysis. A total of 79,3% of all companies use this method in their strategic evaluation (mean score 3,9). The method is uses the most among restructurers and refocusers. 100% of restructurers (mean score 4,7) and 89,5% of refocusers (mean score 4,2) use this technique in their strategic investment projections. Market creators use this method more rarely than restructurers and value creators less frequently than restructurers and refocusers.

Second most used method is competitor analysis. 66,0% of all companies use the method always or regularly in strategic investment decisions (mean score 3,7). This technique is most used among market creators. 81,3% of these companies use competitor analysis in SIDs (mean score 3,9). 68,4% of refocusers (mean score 3,8) and 66,7% of restructurers (mean score 4,0) always or regularly use the method in SIDs. This technique is more rarely used among value creators than among market creators and refocusers. Only 33,3% of value creators utilize competitor analysis in strategic investment decisions (mean score 2,7).

Third method that is used quite frequently by all companies is benchmarking. 49,1% of all companies use the method always or regularly in strategic investment evaluations (mean score 3,2). Restructurers use this method more than market creators. 66,7% of restructurers use the method always or regularly (mean score 4,0) as opposed to 43,8% of market creators (mean

score 2,9) and 33,3% of value creators (mean score 2,7) use benchmarking as strategic analysis method in SIDs. The difference between restructurers and market creators is statistically significant.

Value chain analysis is used more by refocusers than other contextual categories as 37% utilize the method always or regularly (mean score 2,8). As a contrast, 19% of market creators use value chain analysis always or regularly in SIDs (mean score 2,1). None of the restructurers or value creators use value chain analysis always or regularly in SIDs (mean scores 2,0 and 2,2 respectively). Interesting findings also is that value creators are once again using their own methods in SIDs the most. Also refocusers are using the methods more than restructurers. Although real options approach is not used frequently, findings indicate that the utilization is more significant among refocusers than value creators. When observing the sum variables, refocusers in general utilize more sophisticated strategy methods than value creators.

The findings regarding strategic analysis are somewhat surprising. Market creators were expected to dominate these, but it seems that this group is not using more sophisticated methods than other categories. On the other hand they utilize the most used methods of market and competitor analysis more than the companies in low market orientation and context. In general it seems that the most thorough strategic analysis is made among refocusers, which is rather natural as they have high market orientation and context while experiencing some financial difficulties. Also Carr *et al.* (2010) provided reflections that market creators are the most strategically sophisticated category, which is not supported completely by these findings.

5.4.2.2. Strategic Criteria in SIDs

Second question concerning strategic analysis was about how often the respective strategic criterion is used as a base of strategic investment decision. The scale was again between 1 and 5, where 1 indicates that the criterion is never used and 5 that it is always used in strategic investment decisions.

	All companies		Market creators		Refocusers		Restructurers		Value creators	
Used Criteria in SIDs	**% always or regularly**	**Mean score**	**% always or regularly**	**Mean score**	**% always or regularly**	**Mean score**	**% always or regularly**	**Mean score**	**% always or regularly**	**Mean score**
Long-term profitability (net profits)	83 %	4,2	81 %	4,1	84 %	4,2	100 %	4,5	67 %	3,7
Short-term profitability (net profits)	53 %	3,3	38 %	3,3	53 %	3,2	67 %	3,3	50 %	3,0
Efficiency (low costs)	49 %	3,2	44 %	3,2	58 %	3,4	33 %	3,0	50 %	3,5
Quality	53 %	3,2	50 %	3,0	58 %	3,4	67 %	3,7	33 %	2,7
Growth (increase in total assets/sales)	47 %	3,1	56 %	3,1	58% *vc	3,4 *vc	17 %	2,5	17% *rf	2,2 *rf
Market leadership (market share)	43 %	2,9	44 %	2,9	53 %	3,2	33 %	3,0	33 %	2,3
Technological leadership (innovation/creativity)	36 %	2,8	50% **vc	2,9	42% *vc	3,1 *vc	33 %	3,2	0% **mc, *rf	2 *rf
Utilisation of resources (ROI)	32 %	2,6	19% *rf	2,1 *rf	37% *mc	2,9 *mc	33 %	2,5	33 %	2,7
Shareholder wealth (EPS growth rate plus stock price appreciation)	30 %	2,5	44% *vc	2,8	32 %	2,7	33 %	2,5	0% *mc	2,0
Economic value added (EVA)	17 %	2,1	19 %	1,9	16 %	1,9	17 %	2,3	17 %	2,5
Survival (avoiding bankcruptcy)	17 %	2,1	13 %	1,9	26 %	2,4	0 %	1,7	17 %	2,2
Other criteria	8 %	2,0	0 %	1,8	11 %	2,1	0 %	2,0	17 %	2,3
Strat_Cr_Fina_weight (Level of financial criteria used in SIDs)	*N/A*	0,4	*N/A*	0,4	*N/A*	0,4	*N/A*	0,4	*N/A*	0,4
number of responses (n)	54		16		19		6		6	

NOTE: *** p<0,01, ** p<0,05, * p<0,1. mc=market creators, rf=refocusers, rs=restructurers,vc=value creators

Table 14: Used Criteria in SIDs

Perhaps even surprisingly, not many differences were found in the criteria used among the categories. Long-term profitability is the most important criteria in the selection of which strategic investment projects to pursue. 83,0% of companies use this criterion always or regularly in SIDs (mean score 4,2). Second most important criterion in SIDs is short-term profitability. 52,8% of all companies use this principle as the driver of strategic investment project selection (mean score 3,3). Third criterion that is used always or regularly in more than 50% of all companies is quality. This is the first *strategic* criterion that is utilized quite frequently. 52,8% of all companies use this principle in SIDs (mean score 3,2).

The criteria used more seldom among all companies, are indicating some differences among the contextual categories. Growth, meaning increase in total assets or sales, is used more often by refocusers than value creators. 58% of refocusers are using this criterion (mean score 3,4), as opposed to 17% of value creators using growth always or regularly as criterion in strategic investments (mean score 2,2). Technological leadership on the other hand is used more often among market creators and refocusers against value creators. 50% of market creators (mean score 2,9) and 42% of refocusers (mean score 3,1) are using this criterion as basis for SIDs, whereas none of the value creators are using it always or regularly as criterion (mean score 2,0). Utilization of resources is used quite rarely as criterion by market creators. Refocusers are using this criterion more often than market creators, as 37% of this contextual group use it always or regularly as criterion (mean score 2,9), whereas 19% of market creators utilize this

criterion in SIDs (mean score 2,1). One interesting note is that shareholder wealth is used quite frequently as criterion among market creators. 44% of these companies utilize this criterion always or regularly in SIDs (mean score 2,8). Value creators are using shareholder wealth much more seldom than market creators, as none of these companies are utilizing this criterion always or regularly.

The findings around criterion are again somewhat surprising. The expectation was that financial criterion would be highly more valued by restructurers and refocusers. Although both the averages and % of these criteria used always or regularly is higher among these companies, there is no statistical significance in the differences. All in all, the level of financial criteria used, revealed through sum variable, is rather similar for all categories, which in turn might also reflect the timing of this survey. The global markets are currently rather special in nature. This might also affect to the responses on strategic versus financial criteria, which might have changed among some of the companies during the past year towards more cautious and forward looking aspects for all categories.

5.4.3. Overall SID Approaches

The overall SID approaches consist of more general investigation on how companies are actually evaluating strategic investments. Carr *et al.* (2010) found that the biggest differences among the different contextual categories are observed in strategic versus financial orientation of the organizations. Also the general criticism brought forward in academia that rational decision making process is perhaps not the most optimal one, is covered in this part of the study.

5.4.3.1. Financial versus Strategic Weight in SIDs

	All companies		Market creators		Refocusers		Restructurers		Value creators	
Overall SID approaches	% always or regularly	Mean score	% always or regularly	Mean score	% always or regularly	Mean score	% always or regularly	Mean score	% always or regularly	Mean score
Financial evaluationused in the early analysis of investments	50 %	3,3	50% **rs	3,5	47% **rs	3,2 *rs	100% **mc, **vc, **rf	4,2 *vc, *rf	33% **rs	2,8 *rs
Financial evaluation used in the final choice of investments	65 %	3,7	50% *rf	3,3 *rf	79% *mc	4,1 *mc	67 %	4,0	67 %	3,8
Strategic analyses used in the early analysis of investments	61 %	3,6	69% **vc	3,9	68% **vc	3,8	67% *vc	3,8	17% **rf, **mc, *rs	2,7
Strategic analyses used in the final choice of investments	70 %	3,8	63 %	3,6	84 %	4,1	67 %	3,8	67 %	3,7
Strategic investment rejected if its financial return does not meet the minimum requirements of return on investment	54 %	3,3	38% ***rs	3,1	58% *rs	3,5	100% ***mc,**vc, *rf	4,2 **vc	33% **rs	2,5 **rs
Strategic investment proposal whose expected financial return meets the minimum requirements is rejected as it is not in line with firm's competitive strategy	63 %	3,5	63 %	3,8	74 %	3,6	67 %	3,7	50 %	2,8
Fina_weight_sum	*N/A*	0,4	*N/A*	0,3 ***rs	*N/A*	0,39 *rs	*N/A*	0,55 ***mc, *vc, *rf	*N/A*	0,41 *rs
Financial vs strat weight %	*N/A*	0,55	*N/A*	0,48 **rs	*N/A*	0,53	*N/A*	0,65 **mc	*N/A*	0,60
number of responses (n)	54		16		19		6		6	

NOTE: *** p<0,01, ** p<0,05, * p<0,1. mc=market creators, rf=refocusers, rs=restructurers,vc=value creators

Table 15. Financial versus strategic weight in SIDs

The strategic aspects seem to be important factor in strategic investment decisions. Strategic analyses are used both in the early analysis and in the final choice of strategic investments. Strategic and financial analysis seem to be equally important factors in the final choice of investments (mean scores 3,8 for both). Also financial evaluation is used both in early stages of investment as well as in the final choice. Financial evaluation seems to be more important in the final choice than in the early analysis of strategic investments (mean score 3,8 compared to 3,3 of early analysis). On the other hand, financial weight among all companies is higher than strategic weight, when companies were asked about this explicitly.

Extremely interesting differences are found between the contextual categories. Restructurers weight mainly financial aspects throughout the questions. They use financial evaluations in early analysis of investments much more than other categories. Moreover, they reject the investment projects that do not meet the minimum requirements of the company much more frequently than other categories. The explicit financial weight is higher among this contextual category than for others. The other far-end, market creators, is utilizing the financial aspects much less frequently. On the other hand, there is no statistically significant evidence that market creators would use more strategic evaluation in the investment process. Explicitly, market creators do have the lowest financial weight in SIDs. Value creators and refocusers are again found to be mainly in the middle of the framework. Refocusers tend to have more financially orientated approach than value creators.

In general it seems that the overall approach to SID in terms of financial versus strategic approach, the contextual model is reflecting this linearly. The implication is that the financial

orientation decreases as we move from restructurers and refocusers to value creators and market creators. Hence these findings are extremely tightly in accordance to the framework of Carr *et al.* (2010) as one of the key findings was exactly this, and was presented earlier in figure 2. Fundamentals behind the higher financial orientation among restructurers and refocusers are well explained by the horizontal axis of the framework. It does not seem to make as much difference whether the company has a high or low market orientation and context, if the performance in relation to shareholder expectations is weak – the financial aspects are still valued more in strategic investments.

5.4.3.2. Rational Decision Making and Use of Innovative Techniques in SIDs

	All companies		Market creators		Refocusers		Restructurers		Value creators	
Overall SID approaches	**% always or**	**Mean score**	**% always or**	**Mean score**	**% always or**	**Mean score**	**% always or**	**Mean score**	**% always or**	**Mean score**
Strategic investment whose expected financial return meets the minimum requirements is rejected if it does not satisfy the expectations and intuition of top management	37 %	3,1	50 %	3,6 **vc	37 %	3,2 *vc	50 %	3,3	17 %	2,0 **mc, *rf
Strategic investment proposal, which is supported by the top management, is rejected by the board of directors if it doesn't satisfy their expectations and intuition	19 %	2,6	31 %	2,8 *vc	26 %	2,8 *vc	0 %	2,3	0 %	1,8 *mc, *rf
Strategic investment decisions emerge through the formal planning process of the firm	61 %	3,5	56 %	3,4	58 %	3,5	83 %	4,0	50 %	3,2
Corporate headquarters issue broad guidelines and each division produces its own capital investment plan	37 %	2,7	38 %	2,7	42 %	2,8	17 %	2,5	50 %	3,2
Each division produces its own capital investment plan without taking into account any corporate-level guidelines	11 %	1,7	25 %	2,1	11 %	1,5	0 %	1,5	0 %	1,8
Innov_methods	*N/A*	0,6	*N/A*	0,6 *vc	*N/A*	0,2 ***vc	*N/A*	0,5	*N/A*	1,7 ***rf, *mc
Rationality	*N/A*	0,2	*N/A*	0,2	*N/A*	0,3	*N/A*	0,3	*N/A*	0,3
number of responses (n)	54		16		19		6		6	

NOTE: *** p<0,01, ** p<0,05, * p<0,1. mc=market creators, rf=refocusers, rs=restructurers,vc=value creators

Last part of strategic investment process questions covered the investment practices *per se*. Companies were asked to evaluate again on scale from 1 to 5, how often does the different issues materialize in their organizations. General rationality of decision making and the level of innovativeness of used techniques throughout analysis is evaluated through sum variables (*Rationality* and *Innov_methods*), which were defined earlier in chapter 5.2.

In general, companies do follow a rather rational decision making approach. If the strategic investment does meet the financial return on investment, it is not often declined by intuition of top management. Moreover, if top management is supporting a proposal, board of directors quite rarely interfere. The process follows in general a formal planning process, instead of putting forth a division wise capital investment plan without taking corporate level guidelines into account. Interesting differences are again observed between the contextual categories. Value creators are less eager to reject projects that meet the financial return, although it wouldn't satisfy the intuition of top management. Market creators and refocusers are

rejecting these types of project more often. The boards of directors of market creators and refocusers also reject projects, which are supported by top management more often than the ones in value creator companies.

When looking at the level of innovativeness in the used financial, risk, cost of capital and strategy analysis techqniques, as well as the criteria in SIDs, value creators do use their own methods the most. Refocusers are using these methods much less frequently, as does the market creators. Restructurers are more indecisive on their own methods than other groups.

These findings around rationality and innovativeness are rather surprising. In general, the rationality seems to be very high and the critique put forth by the academia (e.g. Adler, 2000; Minzberg & Westley, 2001; Wikman, 1997; Haka, 1987) is not widely noticed by the practice. This might also reflect the quarterly approach to decisions, which in turns emphasize rational decision making. Furthermore, the value creators are the most eager to go forward with project meeting financial targets, although not getting support from top management. This is rather surprising as the expectation would be that the financial returns would be highlighted the most by refocusers and restructurers. Also the innovativeness of the used methods among value creators has been observed throughout this study, and was also one finding by Carr *et al.* (2010). Thus the research results on this aspect are not that surprising. The fundamentals behind the usage of own methods by value creators, is an interesting question. One key note is that value creators do use wide range of methods, which again boosts the utilization of all types of techniques. Perhaps the future expectation is worse among this group, as the performance is currently good but the market context is weak, which again puts forth the emphasis on own methods.

5.5. Regression Analysis of the Main Variables

Linear regression provides further support to the correlation matrix and means comparison via t-test to interpret the answers received from the survey. Purpose of this regression analysis is to measure if the contextual model of Carr *et al.* (2010) is able to explain the differences in the different parts of the strategic investment decision making practices. The analyzed parts are selected by the most important findings of in the original study. These include level of sophistication in used financial techniques (*Fina_Soph*), financial weight in strategic

investment decisions (*Fina_weight_sum*), absolute level and change frequency of required rate of return, as well as flexibility of financial targets in SIDs. Regression analysis is done for each of the different sum variables and for selected individual dependent variables. As there is also other potential explanations to the different practices in strategic investment decisions, control variables are included in the equation.

The control variables are selected on the basis of which factors might affect to the practices. As current literature around investments and strategic investments imply that size of the company is a key for decision making practices, the natural logarithm is taken from the individual revenues to dilute the extreme observations. This is important as the revenue range in this study is billions of Euros. Second control variable, which is selected to this regression model, is profit margin %. This is a measure which might be said to reflect the horizontal axis of the model by Carr *et al.* (2010). Performance can be considered as important factor in the behavior of companies, which further supports this selection. Third control variable selected for this regression analysis is P/E-ratio. This might be interpreted to represent to vertical axis of the model, as the differences in P/E-ratios are usually indication on market position and especially expectations on the future success of the company. Optimal control variable would have been market share, but was found hard to be found as the companies are spread among four different local markets and some of them on international markets, which makes the market share prediction rather hard for individual research.

Again, in order to test the regression of the contextual model from two aspects, both two variables, ContextID_2cat and ContextID_4cat are tested separately, as in correlation matrix analysis. The general equation of the regression analysis is as follows:

$$\textit{Dependent variable} = \beta 0 + \beta 1(\textit{ContextID\_2cat/ContextID\_4cat}) + \beta 2(\text{LnRevenue}) + \beta 3(\text{profit margin}) + \beta 4(\text{P/E}) + \varepsilon$$

In this equation, dependent variables are explained through the constant, contextual model (either only via market creators and restructurers *ContextID_2cat* or via all the categories *ContextID_4cat*, as explained in chapter 5.2.) and the control variables of revenue (natural logarithm), profit margin, P/E and error term. The findings of the linear regression analysis for both of the contextual framework aspects can be seen in table 16.

Two dimensioned contextual categorization

	Fina_soph	Fina_wide	Strat_soph	Strat_wide	Fina_weight_sum	Required rate %	SID flexibility
Constant	0,375 0,908	0,562 0,771	6,995* 0,062	5,700** 0,032	0,744*** 0,001	13,836** 0,022	1,238 0,264
ContextID_2cat	0,311 0,850	0,168 0,864	-1,034 0,554	-0,902 0,456	-0,216** 0,033	-2,560 0,479	1,060* 0,074
LnRevenue	0,600** 0,047	0,301* 0,086	-0,199 0,492	-0,135 0,499	0,003 0,828	0,194 0,795	-0,064 0,482
Profit margin	-0,020 0,427	-0,013 0,408	0,420 0,141	0,032 0,104	-0,003* 0,084	-0,040 0,460	0,004 0,655
P/E	0,001 0,954	0,001 0,913	0,000 0,982	-0,003 0,817	0,000 0,843	-0,011 0,615	0,000 0,936
R^2	0,386	0,317	0,247	0,303	0,523	0,349	0,311
Adjusted R^2	0,141	0,044	-0,054	0,024	0,333	-0,172	0,035
F-score	1,574	1,159	0,819	1,086	2,744*	0,67	1,127
n	15	15	15	15	15	10	15

Four dimensioned contextual categorization

	Fina_soph	Fina_wide	Strat_soph	Strat_wide	Fina_weight_sum	Required rate %	SID flexibility
Constant	2,304 0,162	1,919* 0,078	5,672*** 0,003	4,571*** 0,001	0,526*** 0,000	15,378*** 0,000	2,036*** 0,000
ContextID_4cat	-0,081 0,850	-0,039 0,890	-0,697 0,139	-0,471 0,160	-0,056* 0,073	-1,604** 0,010	0,255** 0,048
LnRevenue	0,529** 0,015	0,233* 0,093	0,112 0,615	0,042 0,791	0,005 0,706	0,307 0,348	-0,002 0,967
Profit margin	-0,027 0,120	-0,013 0,258	0,014 0,438	0,009 0,486	0,000 0,774	-0,057** 0,018	-0,005 0,364
P/E	-0,005 0,491	0,000 0,829	-0,008 0,293	0,004 0,404	0,000 0,312	0,003 0,669	0,000 0,805
R^2	0,202	0,108	0,123	0,099	0,133	0,396	0,163
Adjusted R^2	0,088	-0,019	-0,002	-0,030	0,009	0,286	0,043
F-score	1,770	0,848	0,986	0,767	1,076	3,609**	1,362
n	33	33	33	33	33	27	33

Table 16. Results of the regression analysis. Upper figure is the beta and lower figure is the respective p value. Statistical significance is again flagged as follows: *p<0,1, **p<0,05, ***p<0,01.

From this analysis we see that the contextual model does not provide linear explanatory power for the sophistication of the financial techniques used by the companies. Moreover, the significance is extremely low. The factor that does guide the usage of financial methods is the size of the company, as the revenue is the most explaining factor of this model. The bigger the company is the more sophisticated financial methods are used. This is not surprising as there has been ample evidence on this in the previous literature, as mentioned earlier in this thesis. Same issue applies also to the usage of thorough financial analysis. Contextual model does not provide explanation on this, whereas the bigger the company the more wide range of financial analysis methods is used. When looking at the level of sophistication in strategic methods as well as the width of the used techniques, none of the independent variables are explaining these practices with statistical significance.

The regression analysis, however, provides statistically significant evidence on the effect of the contextual framework on financial versus strategic weight, typical required rate of return and flexibility in meeting the financial targets in SIDs. The findings on financial weight

between restructurers and market creators (*ContextID_2cat*) imply that the most significant explaining variable is the contextual category. The regression provides evidence that as we move from restructurers to market creators the financial weight decreases and strategic weight increases. This is in line with the key finding of Carr *et al.* (2010), whose framework indicates that the importance of financial aspects decrease as we move toward higher market orientation and context and performance in relation to shareholder expectations. The same finding is found when observing all the four contextual categories as there is also almost statistically significant evidence on this. Also profit margin seems to affect the weight of financial aspects in SIDs negatively. In other words companies with higher profit margin downplay the importance of financial aspects in their SIDs.

There is also statistically significant evidenced on the typical required rate of return between the four contextual categories. The regression analysis implies that as we move from more financially troubled restructurers and refocusers towards more financially stable value and market creators, the required rate of return decreases. This is also in line with the findings of Carr *et al.* (2010) as one of their findings was that the typical required rate of return is higher among the companies with low performance in relation to shareholder expectations. Again, also profit margin is explaining the difference in required rate of return. Companies with higher profit margin have lower required rate of return. These findings on the typical required rate of return is also logical explanation as the cost of capital and risk is higher among financial distress companies, which in turn increases the required rate of return.

There are also statistically significant findings on the flexibility to meet financial targets in strategic investments. The contextual model shows positive correlation with the level of flexibility in such manner that as we move either from restructurers to market creators or through all the four contextual categories, the flexibility to meet the typical financial targets is increasing. This is again as expected as companies in financial distress do emphasize the financial aspects and hence also are not eager to be flexible in general targets either. This strengthens the findings of Carr *et al.* (2010), as they found that restructurers have very tight financial targets and market creators are flexible in their targets. This thesis strengthens the validity of this analysis by proving that also refocusers and value creators are following this linear approach to the matter.

6 SUMMARY AND CONCLUSIONS

6.1. Summary and the Support to the Findings of Carr *et al.* (2010)

This research has provided empirical evidence on the strategic investment decision making practices in the Nordic countries. The aim of this study has been to test the validity of the contextual framework by Carr *et al.* (2010). Main findings of Carr *et al.* (2010) were summarized earlier in figures 2 and 3.

The analysis of the model has been made on the four contextual categories of *market creators, refocusers, restructurers* and *value creators* from three practical perspectives, financial evaluation, strategic evaluation and overall SID approaches. Three supplementary and different statistical methods, correlation matrix, mean comparison using t-test and regression analysis, were used to test the validity of the framework.

The key findings of this research is presented from two perspectives, first evaluating the findings on the individual contextual categories and then by summarizing the findings related to linear tests of the framework. Carr *et al.* (2010) also analyzed the framework with these two angles: first evaluating decision making approaches of each of the individual contextual categories (figure 3) and after that creating an overall contextual frame for SID making practices (figure 2).

6.1.1. Market Creators

In general, market creators have high emphasis on the strategic considerations when evaluating the strategic investment projects. The overall approach is keener on finding strategically fit projects than simply boosting for certain and instant financial benefits. In addition to weighting strategic aspects explicitly, they also use both sophisticated and unsophisticated financial analysis in their SIDs. DCF-methods are not emphasized and unsophisticated methods such as payback period is not downplayed. As a sum, the financial analysis seems to be rather balanced both in terms of sophistication and on the range of different methods used. Market creators are using risk analysis in their strategic investment

decisions. They have emphasis on the usage of sensitivity analysis in risk evaluations, while not adjusting the calculations by modifying the payback periods or discount rates to account for risk. The sophistication or the use of different methods in strategic evaluation and criteria was not found to be significantly different from other contextual categories. Market creators have low use of required rate targets in SIDs. Almost half of all the market creators did not use any target required rates of return. The companies, who use the target, have low required rate of return. In general market creators do have significant flexibility in meeting financial targets in strategic investments – especially when comparing to restructurers. Table 17 indicates the key findings by Carr *et al.* (2010) regarding market creators (also shown earlier in figure 2), as well as whether the empirical results of this thesis are supporting these characteristics or not.

Market creators		
Findings by Carr *et al.* (2010)	**Findings of this research**	**This thesis' fit to framework***
Strong emphasis on strategic considerations	Strong emphasis on strategic considerations	Good
Strategic targets	Flexibility in financial targets (68% somewhat or very flexible)	Good
Supportive financial analysis	Both financial and strategic analysis and criteria used	Average
Significant flexibility in financial targets	Flexibility in financial targets (68% somewhat or very flexible)	Good
Strict profitability targets considered a growth hindrance	Strategic weight more significant, flexibility in financial targets and low utilization, or low level, of required rate of return.	Good
Sometimes very liberal attitude towards incorporating synergies into calculations		*Not measured*

** evaluated as low, average, good or not measured (in this thesis)*

Table 17. Validity of market creator category in the framework.

The findings related to market creators indicate similar key factors as Carr *et al.* (2010), which steer the strategic investment decision making practices. There is a strong emphasis on strategic considerations among market creators. As mentioned, they weight the strategic aspects in SIDs much more than financial ones. The finding is similar as in the original research – being also one of their fundamental findings. Carr *et al.* (2010) also found that market creators have strategic targets in SIDs. This was not explicitly evaluated in this research, but as there is significant flexibility in meeting financial targets, it indicates that the targets are at least not financial in nature. This again supports the original framework. One finding in the original paper was that financial analysis is in a supportive role among market creators. The findings in this thesis indicated that there is only partial support to this claim. Market creators use both financial and strategic analysis and criteria in their decision making. As the strategic aspects for instance is only slightly more used than financial evaluation in the

early and final choice of investments, it cannot be said that there are explicit implications that financial analysis is in supportive role in market creators' SIDs. There is a significant flexibility in meeting the financial targets by market creators. The findings in Carr *et al.* (2010) and this thesis is tightly in line on this matter. One finding in the original paper was also that strict profitability targets considered as a growth hindrance. This was not explicitly measured in this research, but there is good support for this claim. There is strategic weight in overall SID approaches and significant flexibility in financial targets. Moreover market creators do not use target required rate of return, which imply that profitability targets are seen as growth hindrance. Synergies on the other hand were not measured in this thesis.

6.1.2. Value Creators

Value creators have both financial and strategic appraisal in SIDs. There is however a slight tendency towards strategic aspects. Value creators have rather wide use of *unsophisticated* financial evaluation methods as well as the utilization of financial analysis methods developed by the companies themselves. Value creators have rather low level of utilization of generally accepted risk analysis methods, whereas they use their own techniques also when evaluating the risks of individual strategic investment projects. Value creators have low sophistication in strategic analysis and also in this part they use the methods of their own. They have flexibility in SIDs, which is higher than on the low end parts of the framework – among restructurers. The target required rate of return is rather low, being significantly lower than for instance among refocusers. Table 18 indicates the key findings by Carr *et al.* (2010) regarding value creators (also shown earlier in figure 2). Again the empirical results of this thesis are evaluated against the original research.

Value creators		
Findings by Carr *et al.* (2010)	**Findings of this research**	**This thesis' fit to framework***
Emphasis on both strategic and financial considerations	Emphasis on both strategic and financial considerations - weight slightly on strategic aspects	Good
Thorough strategic and financial analysis	Unsophisticated financial analysis, downplayed strategic analysis. Own methods used in both.	Average
Own strategic analysis tools	Own strategic analysis tools	Good
Flexibility in financial targets	Flexibility in financial targets (67% somewhat or very flexible)	Good
Open attitude towards incorporating synergies into calculations		*Not measured*

** evaluated as low, average, good or not measured (in this thesis)*

Table 18. Validity of value creator category in the framework.

The value creator category seems justified when comparing the key findings of the research by Carr *et al.* (2010). They have emphasis on both strategic and financial considerations. The weight seems to lean slightly towards strategic aspects. This is seen as supportive finding toward the one in the original research. Carr *et al.* (2010) did not categorize the "middle" categories toward strategic and financial aspects. The initial framework suggests that value creators use thorough strategic and financial analysis. The findings from this thesis are that value creators use unsophisticated financial analysis methods and downplay the strategic analysis. They tend to use their own methods in both of these evaluations, which in turn support the argument of thorough analysis. However, the support is seen to be average as the strategic analysis is not seen that important by value creators. Original framework also states that they use their own strategic analysis tools. This is exactly as found in this research. In addition to this, value creators are using their own methods throughout the analyses. Carr *et al.* (2010) found that there is flexibility in financial targets, which is supported by the findings of this research. There is rather flexible attitude towards the targets, being almost as flexible as market creators. Again, synergies were not measured in this research.

6.1.3. Refocusers

Refocusers also note both financial and strategic aspects in SIDs, weighting the analysis slightly towards financial aspects. Refocusers utilize both sophisticated and unsophisticated evaluation methods in SIDs. They do not emphasize their own methods in the evaluations. They use risk analysis methods, with specific weight on the usage of qualitative assessment. They also utilize rather sophisticated methods when conducting the cost of equity capital and strategic analyses. Refocusers also have moderate flexibility in SIDs. Refocusers have high target required rate of return, being significantly higher than among market creators and value creators. Table 19 again presents the findings between the original study and the results from this research, providing also whether the findings are in line or not.

Refocusers		
Findings by Carr *et al.* (2010)	**Findings of this research**	**This thesis' fit to framework***
Emphasis on both financial and strategic considerations	Emphasis on both strategic and financial considerations - weight slightly on financial aspects	Good
Sophisticated financial analysis	Both sophisticated and unsophisticated financial analysis	Average
Emphasis on shareholder value creation	Shareholder wealth not emphasized as criterion in SIDs. Strategic investments not meeting financial targets usually rejected.	Average
Cautious attitude towards synergies		*Not measured*

** evaluated as low, average, good or not measured (in this thesis)*

Table 19. Validity of refocuser category in the framework.

The evidence by Carr *et al.* (2010) is partly valid in the refocuser category. Value creators do have emphasis on both strategic and financial considerations in SIDs. The overall weight is slightly towards financial aspects. This is again in line with the findings by Carr *et al.* (2010). The initial study also indicated that there is sophisticated financial analysis used by refocusers. The findings of this thesis do not provide ample evidence on this matter. The results indicate that refocusers use both sophisticated and unsophisticated methods when evaluation the financial aspects of strategic investment projects. Hence the fit to the framework is evaluated to be average. Third key finding by Carr *et al.* (2010) was that there is high emphasis on shareholder value creation among refocusers. There is not clear indication by this research that this is the case. Refocusers did not emphasize the shareholder wealth creation as SID criterion more than other companies. On the other hand, majority of the investment projects are rejected if they do not meet the minimum requirement set by the company, as well as the fact that cost of equity capital evaluation is the most sophisticated among refocusers does support this claim. Hence the fit is seen to be average. Synergies were not measured in this thesis.

6.1.4. Restructurers

Restructurers have high emphasis on financial considerations. They weight the financial aspects the most among the contextual categories. The financial orientation is observed throughout the survey. They also have low use of risk analysis techniques, which indicates a bit risk taker attitude among the category. They have long change frequency of the target required rate of return – and surprisingly a low required rate of return. This might be explained through used unsophisticated and own cost of equity capital evaluation methods in combination to the financial distress, which increase the weight of external capital used in the

company. On the other hand, the required rate should reflect the risk of the financial distress. This might also be noise in the results, as only six companies were identified as restructurers. Restructurers have tight financial targets and extremely low flexibility in strategic investment projects. Table 20 shows the key findings of Carr *et al.* (2010) in combination with the findings of this research.

Restructurers		
Findings by Carr *et al.* (2010)	**Findings of this research**	**This thesis' fit to framework***
Strong emphasis on financial considerations	Strong emphasis on financial considerations	Good
Very tight financial targets	Extremely low flexibility in financial targets (17% somewhat or very flexible)	Good
Very short-term perspective to SIDs	Average time horizon in strategic investment decisions.	Low
Very cautious attitude towards synergies		*Not measured*

** evaluated as low, average, good or not measured (in this thesis)*

Table 20. Validity of restructurer category in the framework.

One key finding by Carr *et al.* (2010) was that restructurers have high emphasis on financial considerations. This is exactly as found in this research. From almost all aspects of the survey the financial emphasis can be seen in restructurers. Thus the fit to the original framework is good. Restructurers also are found to have very tight financial targets both in the initial study and this thesis. They are significantly stricter in meeting the targets than other contextual categories. The finding of the initial research that cannot be said to be support by this thesis is the short-term perspective towards SIDs. The findings of this research are that there are no differences between the time horizons of the different contextual categories, and moreover even the indicative results do not imply that restructurers would have short time horizon. On the contrary, refocusers have the longest average time horizon and restructurers an average one. This indicates that the companies with higher financial distress do evaluate to retrieve cash flows longer than the companies in better financial position. This is a logical explanation, when evaluated together with tight financial targets, as companies might seek longer time horizons to make the financial evaluation to meet the expected returns. However, this finding is purely indicative and does not have statistical significance as evidence.

As a summary, a revised contextual framework in the light of individual contextual categories is presented in figure 6. This table combines the supported findings of the initial study together with new significant evidence found from the categories.

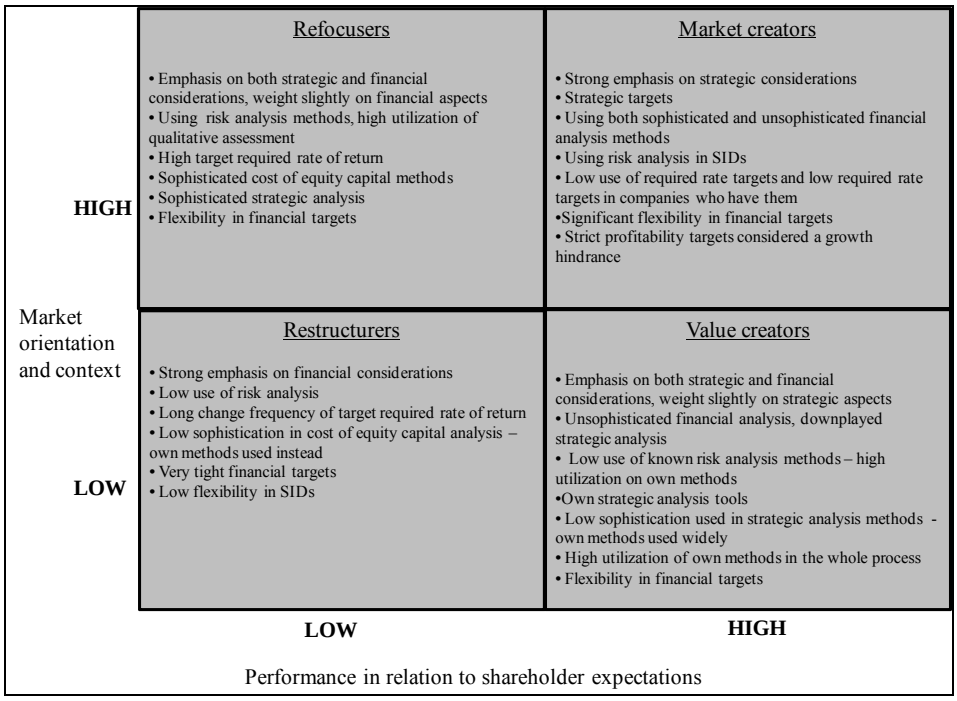

Figure 6. Revised contextual SID making practices by contextual categories.

6.2. Validity of the Contextual Framework

The purpose of this research was to test the validity of the contextual framework by Carr *et al.* (2010). The original framework was based on a field study of 14 companies, operating in US, UK and Japan. The contextual framework consists of four archetypes of companies: market creators, refocusers, value creators and restructurers. The positioning was made relative to their market context and orientation and performance in relation to shareholder influence. The validity of the contextual framework proved to be relatively good. The contextual positions on the market orientation and context and performance in relation to shareholder expectations seem to explain the differences in strategic investment decision making practices rather well. As a proof of the concept, the larger lines of the original research can be seen also through this research.

There are no clear differences in the utilization of the sophisticated financial evaluation techniques of different contextual categories. This was also found in the study by Carr *et al.* (2010). The explanatory power of this model is hence not applicable for the analysis on the utilized methods. In fact, the findings of earlier studies that DCF methods are more utilized in investment by larger than smaller companies (Graham & Harvey, 2001; Farragher *et al.*,

1999; Pike, 1996) is supported by the findings of this research, although these papers studied investments as a whole and not only strategic investments. The larger companies utilize NPV and IRR the most, compared to the wide use of e.g. payback period by smaller companies, which was found in the regression analysis of this thesis. As a sum, the explanatory power on differences in the utilization of financial evaluation techniques through the contextual categories cannot be provided. The more traditional justifications, such as size, can be verified.

The prime validation of the model of Carr *et al.* (2010) can be given in financial versus strategic orientation of different contextual categories. The strategic orientation toward SIDs is growing as we move from restructurers and refocusers to value and market creators. This was found to be statistically significant in all three statistical tests; correlation analysis, t-tests and regression analysis. The implication is obvious and can be observed through several aspects, such as utilization of strategic techniques, criteria of SIDs in strategic versus financial terms and simply by the financial weight that companies are putting on SIDs. The reason for this is also evident. Companies who are in financial distress highlight the financial aspects more in order to survive and not go bankrupt. Strategic aspects, in other words future orientation in achieving the financial benefits, come important when companies do not need to stress instant and short-term benefits.

Although the absolute average hurdle rate among restructurers is not the highest, there is still empirical evidence that the contextual framework is explaining the typical required rate of returns used by the companies. Based on this study, restructurers have low required rate of return, although the framework suggests that it ought to be the highest and higher to the one of value creators. On the other hand, when observing refocusers and market creators with each other, the findings are in line with Carr *et al.* (2010). Mean comparison via t-test did not provide statistical evidence that restructurers would vary from other contextual groups than refocusers. One problematic issue in the collected data, which is explaining this, is the handling of inflation in required rate of return. Majority of restructures are not taking inflation in to account, whereas almost all market creators calculate IRR's with inflation. The initial purpose of this research was to straighten the IRR's for inflation, but it proves to be hard since 2009 was very special year in terms of inflation. Hence, no clear implication on the IRR's can be thus given. Regression analysis was also conducted to test the validity of the overall framework. In this analysis, there is a statistically significant explanatory power in target

required rate of return. As we move along the framework from restructurers and refocusers to value and market creators, the typical required rate of return is decreasing.

The overall flexibility in meeting financial targets in strategic investments is also found to be explained by the contextual framework. As we move from restructurers to market creators, or through the whole model, the flexibility is increasing. Hence this is also a key finding of this thesis to supplement the original framework. This finding is supported by both the t-test and regression analysis presented earlier.

One problem of the contextual categories is positioning the companies in to the axes. It seems that the model is dominant to position companies toward higher market context and orientation whereas the horizontal axis of performance in relation to shareholder expectation proves to be very functioning. Despite this, the explanatory power of the vertical axis seems to be better than on the horizontal axis. It might also be that some of the operationalizations of this research were not the optimal ones to position companies in to the framework.

As a sum of this thesis, the overall validity of the framework by Carr *et al.* (2010) can be seen to be good. In addition to validating the current framework, the characteristics of different categories are suggested to be slightly modified, as there is now larger sample of data to identify differences. This is provided especially in the refocuser and also in the restructurer categories, as the initial research consisted of only two sample companies each. In this research, there are 19 refocusers and 6 restructurers to analyze. The supplements to the current framework are hence discussed next.

6.3. Supplements to the Current Framework

As mentioned earlier, the biggest similarities between this study and the one by Carr *et al.* (2010) were find among financial versus strategic orientation, target required rates of return and flexibility in financial targets of companies – in other words among overall SID approaches. No clear support was provided to the utilization of financial techniques, whereas strategic analysis seems to be rather accurate. In addition to this, there are several new findings on the contextual categories, such as risk analysis approaches and innovativeness in

used techniques. It also seems that the differences among vertical axis are more prominent than in horizontal axis.

This research provides supplementary evidence in the sense of risk analysis techniques. Not surprisingly, contextual categories who have low market context and orientation, utilize less thorough risk analysis. This is rather as expected, as restructurers can also be viewed as risk takers as they will need to accomplish some actions to improve short-term and long-term financial performance, and thus risks are taken. On the other hand, value creators have high performance in relation to shareholder expectations, which might make them indifferent toward risks. This is justified as the value creators are performing moderately well, although they have low position in the markets. On the contrary, market creators and refocusers evaluate risks more widely, and use some risk analysis methods frequently in order to maintain their market position through successful SIDs.

The innovativeness in used techniques, meaning mainly the analysis methods created by the companies, is higher as we move towards higher performance in relation to shareholder expectation and from high to low market orientation and context. In other words, value creators use very much their own financial, strategic, risk analysis methods as well as own criteria in strategic investment decisions. This applies also to the other category with low market orientation and context, restructurers. On the other hand, refocusers and market creators are much more relying in the current known methods available for the respective analyses.

Although the horizontal axis provides clear evidence in for example financial versus strategic considerations of the companies, it seems that that part of the model provides to be weaker. On the other hand, this axis is operationalized much more simply, including only two variables, compared to the six on the vertical axis. Further operationalization of the performance in relation to shareholder expectations, and plausibly in the future to be combined with financial performance measures, would provide more insightful differences. The performance in relation to shareholder expectations was originally operationalized by using financial measures. Hence it cannot be said that the framework would be weak in this sense, but rather that the final definitions of the contextual groups are not completed.

The original characteristics of the contextual categories by Carr *et al.* (2010) were presented previously in the figure 3. The following figure 7 is a modified version of the original contextual model, which concludes the main findings of this study.

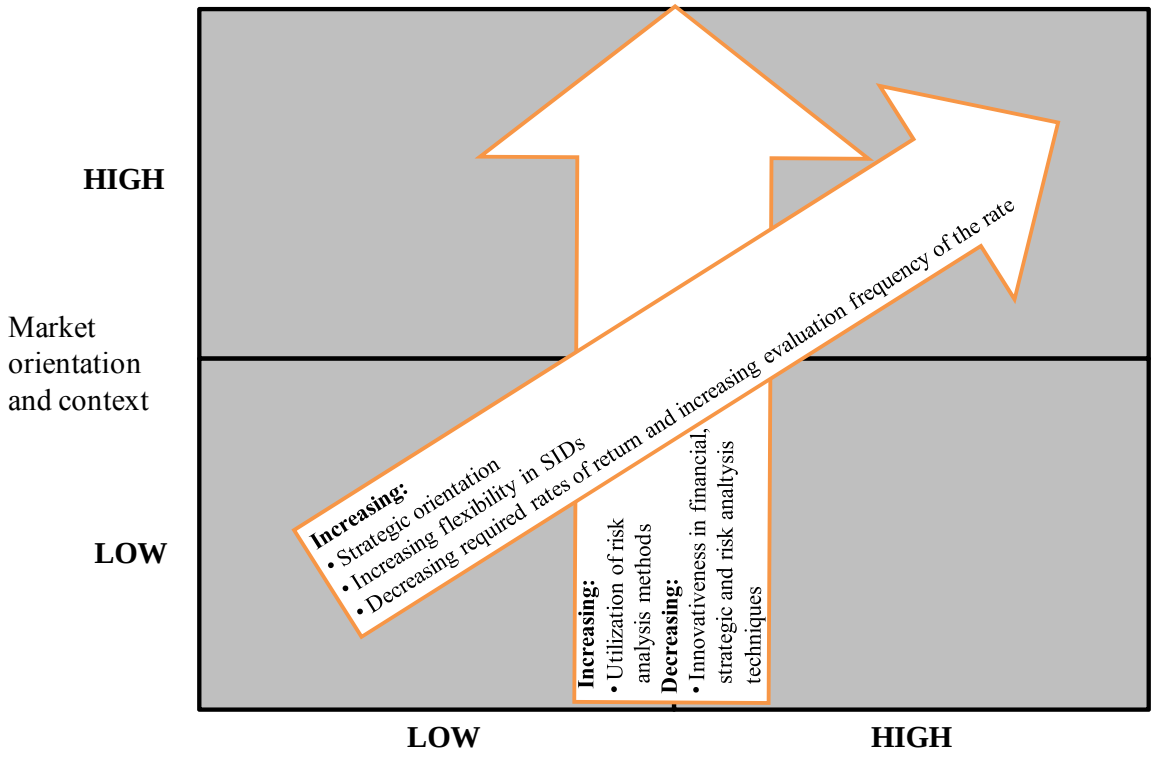

Figure 7. Modified contextual framework for SIDs

6.4. Suggestions for Further Studies

In order to continue the investigation on the effect of contextual settings, further studies in this field is definitely needed. This research has answered to some of the caveats of the original study, but both quantitative and qualitative researches needs to be put forward.

As mentioned, the correct setting of the horizontal axis, performance in relation to shareholder expectations needs to be defined. This can be done via constructing a field study that concentrates more on this aspect of the framework. Although the original study by Carr *et al.* (2010) as well as this study presented difference also between the horizontal categories,

the biggest differences could be identified by moving on the vertical axis and from one extreme contextual category of restructurers to market creators.

Another interesting area of study around the subject is whether companies with high financial weight in their SID's are performing financially better in the future – or vice versa. A longnitudal study should be done to evaluate the usage of financial and strategic weights of the target companies and the financial development of these organisations, in order to clarify this matter.

Also the time horizon approaches of the different contextual categories should be further investigated. This part of the framework provides ambiguous answers between the initial study and this thesis. The question is, do for instance restructurers while experiencing financial distress and tight financial targets have short or long time horizon in strategic investments? Carr *et al.* (2010) claim that they do have short-term view to SIDs, as they'll have to retrieve instant profits from the projects. This thesis found that there is indication that the companies in more financial problems actually have longer time horizons. The reason behind this might be that as there are tight financial targets, these companies extend the time horizon of investment to meet these targets. Expanding the time horizon creates more uncertainty, which in turn might give opportunity to show better expected return than short-term projects.

In addition to these, a quantitative study should be conducted. In this study, the main issue would be to investigate *equal* quantity of the contextual groups. Weakness of both this study and the original one was the uneven distribution of answerers towards high market orientation and context. Also larger sample from several national contexts should be put forth, perhaps emphasizing only some part of the model.

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Appendix 1. Definitions of concepts in questionnaire.

Accounting rate of return: Average return on book value (e.g. ROI, ROA, ROE)

Benchmarking: a process of comparing one's business processes and performance against industry bests, and/or best practices from other industries.

Break-even analysis: an analysis that involves determining the quantity of sales at which the project NPV is just zero.

CAPM/beta-analysis: Capital asset pricing model (CAPM) is an approach to estimating the cost of capital that assumes an equilibrium relationship between an asset's required return and its associated risk. This approach assumes that intelligent and risk-averse investors will seek to diversify their risks. Consequently, the only risk that will be rewarded with a risk premium will be the asset's systematic or unavoidable risk, as measured by the asset's beta coefficient.

Competitive advantage analysis: analysing an investment project's effect on company's competitive advantage.

Cost driver analysis: analysing an investment project's effect on company's cost drivers.

Dividend discount model (DDM): When using a dividend discount model, the cost of equity capital is calculated back out from dividend/earnings model. E.g. Price=dividends/(cost of capital -growth)

Decision trees: A decision support tool that uses a tree-like graph or model of decisions and their possible consequences and probabilities. Decision trees can be used as a descriptive means for calculating conditional probabilities and estimating the value of an investment project.

Discounted payback period: like payback period, but cash flows are discounted

Five forces analysis: A method for analyzing industry structure. The method involves analyzing the intensity of rivalry among industry competitors, the threat of new entrants, the threat of substitutes, and the bargaining power of suppliers and buyers.

Internal rate of return (IRR): The discount rate that sets the present value of the project cash flows equal to the initial investment outlay

Net present value (NPV): The present value of future cash flows discounted at the required rate of return, minus the initial investment

Nominal cash flows: cash flows are estimated without taking into account inflation.

Nominal required rate of return: inflation is not taken into account in the required rate of return.

Payback period: the time necessary to recoup the initial investment from net cash flows.

Profitability index: Profitability index = Present value of future cash flows / Present value of initial investment

Real cash flows: inflation is taken into account in the cash flows.

Real options: Financial option theory based method for estimating the value of an investment in real assets.

Real required rate of return: inflation is taken into account in the required rate of return.

Scenario analysis: A process of analyzing possible future events by considering alternative possible outcomes.

Sensitivity analysis: An analysis method that analyses an investment project's sensitivity for changes in one or more key parameters.

Simulation analysis: An analysis method that enables analyzing the simultaneous effect of several key variables. The analysis entails the identification of key variables and the determination of their probability distributions and potential correlations. The analysis results in a probability distribution of a project's NPV. Simulation analysis is sometimes also called as Monte Carlo analysis.

Strategic portfolio techniques: Examples of strategic portfolio techniques include Boston Consulting Group Matrix and Directional Policy Matrix

Technology roadmap: A framework for organizing and presenting information related to technology investments. Involves projecting the needs of tomorrow's markets, and developing charts and graphs that link technology to the business needs.

Value chain analysis: Analysing an investment project's effect on company's position in the value chain, for example its effect on company's bargaining power towards suppliers and buyers.

Appendix 2. Questionnaire.

Survey on strategic investment decision making practices

Note: All responses will be held in strict confidence. No individual responses will be reported.

When answering the questions, please concentrate on strategic investment decisions. In this survey, strategic investments are defined as **"substantial investments which have a significant effect on the company's long-term performance"**

Typical examples of strategic investments include company acquisitions and mergers, introduction of new major product lines, installation of new manufacturing processes, introduction of advanced manufacturing and business technologies and substantial shifts in production capability.

The questionnaire is divided into two sections. The first section focuses on strategic investment decision making practices - with a particular emphasis on financial and strategic analyses, as well as the process of strategic investment decision making. The second section focuses on company specific questions. The estimated total response time of the questionnaire is ca. 12 minutes.

You can click the underlined items to open an explanatory window. Please note that if you don't close the explanatory window, all definitions open up in the very same window, which is minimized in your taskbar.

1) If you would like to receive a report on the results of the study, please provide your e-mail address below.

I Strategic Investment Decision Making Practices

Financial Analysis

2) How often does your company use the following financial analysis methods when deciding which investment projects to pursue?

	Never 1	Rarely 2	Occasionally 3	Regularly 4	Always 5
Internal rate of return (IRR)	○	○	○	○	○
Net present value (NPV)	○	○	○	○	○
Payback period	○	○	○	○	○
Discounted payback period	○	○	○	○	○
Accounting rate of return	○	○	○	○	○
Sensitivity analysis	○	○	○	○	○
Scenario analysis	○	○	○	○	○
Profitability index	○	○	○	○	○
Decision trees	○	○	○	○	○
Real options approach	○	○	○	○	○
Analysis method developed by your company	○	○	○	○	○

3) How often does your company use the following risk analysis methods when deciding which strategic investment projects to pursue?

	Never 1	Rarely 2	Occasionally 3	Regularly 4	Always 5
Sensitivity analysis	○	○	○	○	○
Scenario analysis	○	○	○	○	○
Simulation analysis	○	○	○	○	○
CAPM/beta-analysis	○	○	○	○	○

Appendix 2. Questionnaire.

Break-even analysis	○	○	○	○	○
Adjust cash flows to allow for risk	○	○	○	○	○
Adjust required payback period to allow for risk	○	○	○	○	○
Adjust discount rate to allow for risk	○	○	○	○	○
Adjust required return on investment to allow for risk	○	○	○	○	○
Qualitative assessment	○	○	○	○	○
Analysis method developed by your company	○	○	○	○	○

4) What is the typical required rate of return for strategic investments in your company?

- Select from this list -

5) How often does it change?

- Select from this list -

6) How is inflation taken into account in the cash flows and the required rate of return?

Cash flows	Required rate of return
○ Cash flows are real	○ Required rate of return is real
○ Cash flows are nominal	○ Required rate of return is nominal

7) How often does your company evaluate the cost of equity capital?

- Select from this list -

8) How do you estimate the cost of equity capital?

	Never 1	Rarely 2	Occasionally 3	Regularly 4	Always 5
Using CAPM/beta-analysis	○	○	○	○	○
Using CAPM but including some extra risk factors	○	○	○	○	○
Using dividend discount model (DDM)	○	○	○	○	○
With average historical returns on common stock	○	○	○	○	○
Based on investors' expectations	○	○	○	○	○
By regulatory decisions	○	○	○	○	○
An approach developed by your company	○	○	○	○	○

9) Relative to your company's total cost of capital, what is the approximate premium when setting target IRRs or discount factors?

- Select from this list -

10) What is the typical payback target for strategic investments in your company?

- Select from this list -

11) What is the typical time horizon of investment calculations in your company?

- Select from this list -

12) When analysing strategic investment projects, how flexible are you in meeting required financial targets?

Not at all flexible 1	Slightly flexible 2	Somewhat flexible 3	Very flexible 4
○	○	○	○

Strategic Analysis

13) How often does your company use the following strategic analysis methods when deciding which strategic investment projects to pursue?

	Never 1	Rarely 2	Occasionally 3	Regularly 4	Always 5
Benchmarking	○	○	○	○	○
Strategic portfolio technique	○	○	○	○	○
Market analysis	○	○	○	○	○
Competitor analysis	○	○	○	○	○
Competitive advantage analysis	○	○	○	○	○
Value chain analysis	○	○	○	○	○
Cost driver analysis	○	○	○	○	○
Five forces analysis	○	○	○	○	○
Balanced scorecard	○	○	○	○	○
Real options approach	○	○	○	○	○
Technology roadmap	○	○	○	○	○
Analysis method developed by your company	○	○	○	○	○

14) How often does your company use the following criteria when deciding which strategic investment projects to pursue?

	Never 1	Rarely 2	Occasionally 3	Regularly 4	Always 5
Short-term profitability (net profits)	○	○	○	○	○
Long-term profitability (net profits)	○	○	○	○	○
Efficiency (low costs)	○	○	○	○	○
Economic value added (EVA)	○	○	○	○	○
Shareholder wealth (EPS growth rate plus stock price appreciation)	○	○	○	○	○
Growth (increase in total assets/sales)	○	○	○	○	○
Market leadership (market share)	○	○	○	○	○
Technological leadership (innovation/creativity)	○	○	○	○	○
Quality	○	○	○	○	○
Utilisation of resources (ROI)	○	○	○	○	○
Survival (avoiding bankcruptcy)	○	○	○	○	○
Other criteria	○	○	○	○	○

Strategic investment decision making process

15) How often do the following statements materialize in your company?

	Never 1	Rarely 2	Occasionally 3	Regularly 4	Always 5
Strategic investment decisions emerge through the formal planning process of the firm	○	○	○	○	○
Corporate headquarters issue broad guidelines and each division produces its own capital investment	○	○	○	○	○

plan					
Each division produces its own capital investment plan without taking into account any corporate-level guidelines					
Financial evaluation techniques are used in the early analysis of investments					
Financial evaluation techniques are used in the final choice of investments					
Strategic analyses are used in the early analysis of investments					
Strategic analyses are used in the final choice of investments					
Strategic investment proposal is rejected if its expected financial return does not meet the minimum requirements of return on investment					
Strategic investment proposal whose expected financial return meets the minimum requirements is rejected if it is not in alignment with the firm's competitive strategy					
Strategic investment proposal whose expected financial return meets the minimum requirements is rejected if it does not satisfy the expectations and intuition of top management					
Strategic investment proposal, which is supported by the top management, is rejected by the board of directors if it doesn't satisfy their expectations and intuition					

16) When making strategic investment decisions, how much weight do you put on financial versus strategic considerations?

- Select from this list -

II Background questions

Company performance

17) Please estimate your company's performance relative to other companies in your industry during the last three years

	Very poor 1	Poor 2	Moderately poor 3	Neutral 4	Moderately good 5	Good 6	Very good 7
Long-term financial performance							
Market position							
Sales growth							

Industry characteristics

18) Please estimate the future prospects of your industry

	Very low 1	Low 2	Moderately low 3	Neither low nor high 4	Moderately high 5	High 6	Very high 7
Growth potential							
Profitability							
Uncertainty							

19) Over the past three years, how predictable or unpredictable has your external environment been?

Appendix 2. Questionnaire.

	Very predictable 1	Somewhat predictable 2	Slightly predictable 3	Neither predictable nor unpredictable 4	Slightly unpredictable 5	Somewhat unpredictable 6	Very unpredictable 7
Customers							
Suppliers							
Competitors							
Technology							
Economy							
Regulation							
Overall business environment							

20) Over the past three years, how many changes have occurred in your external environment that have had a material impact on your business?

	Very few changes 1	Few changes 2	Quite few changes 3	Neither few nor many changes 4	Quite many changes 5	Many changes 6	Very many changes 7
Customers							
Suppliers							
Competitors							
Technology							
Economy							
Regulation							
Overall business environment							

Shareholder influence

21) Please state to what extent you agree with the following statements

	Strongly disagree 1	Somewhat disagree 2	Slightly disagree 3	Neither disagree nor agree 4	Slightly agree 5	Somewhat agree 6	Strongly agree 7
We pay strong attention to meeting shareholder expectations on a quarterly basis in our company							
We pay strong attention to shareholder value creation in our decision making							

Strategic orientation

22) Please position your company relative to your leading competitors

	Significantly lower 1	Somewhat lower 2	Slightly lower 3	Neither lower nor higher	Slightly higher 5	Somewhat higher 6	Significantly higher 7

				4			
Emphasis on gathering market data in order to better understand customers' current and future needs	○	○	○	○	○	○	○
Developing products/services that meet customers' future needs	○	○	○	○	○	○	○
R&D investment in developing products/services that will meet customers' future needs	○	○	○	○	○	○	○
Emphasis on improving internal processes to better meet customer demands	○	○	○	○	○	○	○
Overall market orientation	○	○	○	○	○	○	○

23) Please position your products or services relative to those of your leading competitors

	Significantly lower 1	Somewhat lower 2	Slightly lower 3	Neither lower nor higher 4	Slighly higher 5	Somewhat higher 6	Significantly higher 7
Product selling price	○	○	○	○	○	○	○
Percent of sales spent on research and development	○	○	○	○	○	○	○
Percent of sales spent on marketing expenses	○	○	○	○	○	○	○
Product quality	○	○	○	○	○	○	○
Product features	○	○	○	○	○	○	○

Company characteristics

Finally, please answer the following two questions by stating which of the following descriptions best describes your company. Please note that none of the types is inherently "good" or "bad".

24) Management style

Firm A
- In Firm A strategic decision making is largely delegated to business level.
- Corporate management of Firm A exerts influence on businesses mainly through the budget process.
- Not meeting profit targets in Firm A can result in severe consequences.

Firm B
- In firm B strategic decision making is also largely delegated to a business level, but plans are reviewed by corporate management.
- Firm B sets targets both for strategic objectives as well as for financial performance, and managers are expected to meet the targets.

Firm C
- In firm C corporate management is strongly involved in strategic decision making.
- Performance targets are set in strategic terms
- Firm C sees annual financial targets as less important than longer term strategic objectives.

Please state which of the above descriptions best describes your company.

○ A ○ B ○ C

25) Strategic configuration

Firm A	• Firm A maintains a “niche” within its market by offering a relatively stable set of products/services. • Generally Firm A is not at the forefront of new service/product market developments. • Firm A tends to ignore changes that have no direct impact on current areas of operation and concentrates instead on doing the best job possible in its existing arena
Firm B	• Firm B maintains a relatively stable base of products/services while at the same time moving to meet selected, promising new product/service market developments. • Firm B is seldom “first in” with new products/services. • However, by carefully monitoring the actions of institutions like Firm C (below), Firm B attempts to follow with a more cost-efficient or well-conceived product/service.
Firm C	• Firm C makes relatively frequent changes (especially additions) to its set of products/services. • Firm C consistently attempts to pioneer by being “first in” in new areas of market activity, even if not all of these efforts ultimately prove to be highly successful. • Firm C responds rapidly to early signals of market needs or opportunities.
Firm D	• Firm D cannot be clearly characterised in terms of its approach to changing its products/services or markets. • It doesn’t have a consistent pattern on this dimension. • Sometimes Firm D will be an early entrant into new fields of opportunity, sometimes it will move into new fields only after considerable evidence of potential success, sometimes it will not make product/service or market changes unless forced to by external changes.

Please state which of the above descriptions best describes your company.

○ A ○ B ○ C ○ D

26) Were there any questions in this questionnaire that were in some way unclear or otherwise difficult to answer?

The purpose of this question is to assist in estimating the validity and reliability of the answers.

Thank you very much for taking your time to answer these questions!
When you are ready to submit your answers, please click the box below and press the submit button.

☐ I'm ready to submit the responses. (You can also submit an unfinished questionnaire, and use the link in the e-mail to return later to finish your responses.)

Submit