



UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

R&D accounting practice in Swedish public IT-groups

Bachelor's essay in Business administration
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Supervisor: Professor Thomas Polesie

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ABSTRACT

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Background: Companies applying the International Financial Reporting Standards (IFRS) in their accounting, e. g. all public groups in the European Union, face several items for assessment when accounting for their research and development expenses. Research expenses are to be treated directly as costs, but development expenses are to be capitalised as assets if they are assessed to meet certain requirements. These judgements affect the financial reports and the image conveyed to their users, such as investors.

Purpose: The purpose of the study is to describe the development of R&D accounting practice in Swedish public IT-groups since the implementation of IFRS in 2005, and also discuss causes and consequences of said accounting practice.

Demarcation: The study has been limited to Swedish groups listed in the IT-category of the Nasdaq OMX Stockholm stock exchange in April 2012. Groups that do not have any R&D expenses or have not applied the IFRS for five years or more have been excluded.

Method: A combination of quantitative and qualitative research has been used. Quantitative data regarding the companies' R&D expenses has been collected from annual reports and summarised in tables and charts. Then, a more qualitative approach has been applied to analyse and discuss the data, to try to find causes and consequences of the accounting practices. While analysing causes, we have studied four companies more deeply.

Findings and conclusions: Our study indicates there is a large spread in R&D accounting practice in the Swedish IT-industry. Although the IFRS provides regulation on how to manage R&D expenses, companies apply these rules in very different ways. We also theorise that companies with a high equity ratio tend to use the immediate expensing method to avoid disclosure of information to competitors as they can afford it. In addition, we argue that the quality of the financial reports is reduced by the differing accounting practices, with comparability between companies being the main issue.

Suggestions for further research: We would like to study closer if the familiarisation of the IFRS has led to a downgrade in comparability between companies and if a rule-based regulation on R&D would be better. We would also like to know how R&D accounting was applied in the IT-industry before the familiarisation of the IFRS and compare it to our study. Additionally, we would find it interesting to see how R&D is treated in other industries besides IT.

Keywords: Accounting, capitalisation, IFRS, information technology, research and development

PREFACE

Firstly, we would like to thank our supervisor professor Thomas Polesie for support in our study. His encouragement has been invaluable in helping us through difficulties and problems during our work. The professor has always been available for guidance and discussion in times of need.

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CONCEPTS

Development – According to IFRS: “The application of research findings or other knowledge to a plan or design for the production of new or substantially improved materials, devices, products, processes, systems or services before the start of commercial production or use.”

IAS – International Accounting Standards. Standards issued by the predecessor of IASB. Most of them are still valid today by being acknowledged by IASB, and are thus a part of the IFRS.

IAS 38 – The specific IAS regulating intangible assets, and consequently research and development.

IASB – International Accounting Standards Board, an independent accounting standard-setting body consisting of accounting experts.

IFRS – International Financing Reporting Standards. Accounting standards issued by the IASB, must be applied by all public groups in the European Union.

Intangible asset – According to IFRS: “An identifiable nonmonetary asset without physical substance”

R&D – Research and development.

Research – According to IFRS: “Original and planned investigation undertaken with the prospect of gaining new scientific or technical knowledge and understanding.

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SECTION 1: INTRODUCTION

THIS SECTION STATES THE BACKGROUND TO OUR STUDY AND ITS PURPOSE. OUR RESEARCH QUESTIONS ARE PRESENTED AND EXPANDED UPON.

1.1. BACKGROUND

Since long, the European Union has tried to achieve a higher degree of harmonisation among accounting practice in its member countries. Previously, the union tried to do this by issuing so called EU-directives. However, this was viewed as a failure because of bureaucracy and changes taking too long and member countries interpreting and implementing the rules in different ways. Because of this, the EU looked for new possible ways to create harmonisation. Finally, the EU turned to the International Accounting Standards Board, IASB (Former IASC)¹.

The IASB was founded in 2001 by a great restructuring of the former standard setter IASC. The new board included a larger representation of experts, instead of only auditors as in IASC. Another goal of IASB was higher degrees of independence and transparency. IASB issues accounting standards called the International Financial Reports Standards (IFRS). Many standards issued by IASC, called International Accounting Standards (IAS), are still approved by IASB².

In 2002, the European Union finally decided that all public companies in the union were to apply the IFRS in their group accounting, to achieve a higher degree of harmonisation among accounting practices. As a member country, this also applied to Swedish companies. Swedish non-public groups can choose to apply the IFRS as well³.

In Sweden, only the groups are to apply the IFRS, the individual companies are still restricted by the Swedish annual reports act and the Swedish general accepted accounting principles. The reason for this is the strong connection between accounting and taxation that still exists for Swedish individual companies. Swedish IFRS-groups must also comply with RFR 1 Kompletterande redovisningsregler för koncerner ("Complementary accounting rules for groups"), as issued by Rådet för finansiell rapportering ("Council of financial reporting"). Besides this, the IFRS as issued by the European Union is fully applied. The customary regulations in the Swedish annual reports act and the Swedish general accepted accounting principles are not complied with⁴.

The changeover was put into practice in January 1st 2005. This has undoubtedly led to changes in accounting practices for Swedish groups. Because of Sweden being a research-intensive country, one notable area that has led to changes in accounting practice for Swedish companies is the accounting for research and development.

¹ Marton et al (2010) *IFRS - i teori och praktik*

² Ibid.

³ Ibid.

⁴ Ibid.

1.2. PROBLEM DISCUSSION

Research and development (R&D) expenses have traditionally been treated as costs directly through the income statement in Sweden⁵, like the current recommendations in the US GAAP⁶. This is justified by the difficulties of identifying and valuing future economic benefits in a reliable way⁷.

With the familiarization of the IFRS, more specifically the standard IAS 38 Intangible assets which contains regulations regarding R&D accounting, for Swedish public groups, the possibilities when reporting R&D expenses have expanded significantly. Companies still have some possibility to immediately expense R&D expenses when they arise, but are also allowed to capitalise their development expenses as intangible assets⁸. These assets are then depreciated during the remaining period of use. This method is still consistent with Swedish law⁹, as well as the Swedish generally accepted accounting principles for individual companies¹⁰.

However, IAS 38 does not come without ambiguities. Firstly, problems do occur when companies are to delimit which expenses are research and which are development. According to IAS 38 (and the Swedish generally accepted accounting principles through RR 15), capitalisation of research expenses as intangible assets are strictly forbidden¹¹, and development expenses are only to be capitalised if they meet specific requirements. This is justified by the fact that research expenses are being viewed as not compatible with the definition of assets and the recognition criteria in the IFRS framework¹², more specifically they are not considered to be likely to yield future financial advantages. Though IAS 38 exemplifies expenses which are to be classified as research and development, respectively, this sometimes becomes an item for the company's own judgment.

Thus, companies have to assess which expenses to attribute to research and which to attribute to development. Secondly, they must decide whether to capitalise the development expenses on the balance sheet as intangibles, or to report them as costs directly through the income statement. IAS 38 clearly states how to manage the R&D expenses; however as the companies themselves are to evaluate whether their development expenses meet the capitalisation criteria in IAS 38, this may become an item for assessment in practice. Naturally, the decision made by the company affects financial ratios and the image conveyed to external stakeholders, and because of this companies may have incentives to manage R&D expenses in a way coherent with their financial goals. These somewhat subjective judgments may also affect the overall quality of the financial reports.

We have chosen to research this topic further. Since the IFRS has now been applied in Sweden for a number of years, we wish to study R&D accounting in practice since its implementation. As mentioned, the practice may affect the overall quality of the financial reports, therefore we also wish to analyse its' consequences and causes.

⁵ Bokföringsnämndens allmänna råd, BFNR1

⁶ Smith (2006) *Redovisningens språk*

⁷ Bokföringsnämndens allmänna råd, BFNR1

⁸ IAS 38 *Intangible assets*

⁹ Årsredovisningslagen (Swedish Annual Accounts Act), 4 chap 2 §

¹⁰ Redovisningsrådet (Former Swedish Accounting Standards Board), RR 15

¹¹ IAS 38

¹² IFRS Framework



1.3. DEMARCATION

Sweden is a research-intensive country. According to Statistics Sweden, the information technology-industry is one of the most R&D-intensive industries in Sweden, together with the medical and the manufacturing industries¹³. During our pre-study, we found the IT-industry to be less frequently studied regarding its R&D accounting-practices, compared with the other two. We therefore wish to contribute with new research regarding this specific industry. Moreover, most companies that apply the IFRS in their accounting are public groups. Because of this we have chosen to limit our study to Swedish public IT-groups.

1.4. PURPOSE OF THE STUDY

The purpose of this study is to describe the development of R&D accounting practice in Swedish public IT-groups since the implementation of IFRS in 2005. We aim to find out how the companies practice IAS 38 and if there are tendencies towards more capitalisations or immediate expensing. In addition, we are to discuss how this affects the overall quality of the financial reports by applying the qualitative characteristics stated in the IFRS and accounting principles. We also wish to emphasize the back factors for the choices made by companies when accounting for R&D expenses and try to find connections with for example profitability and capital structure.

1.5. RESEARCH QUESTIONS

In other words, we wish to study the historical and current situation, its causes and its consequences. Accordingly, our purpose can be summed up in our research questions:

- *How have Swedish public IT-groups accounted for their research and development expenses since the implementation of IFRS in 2005?*
- *How do these R&D accounting practices affect the overall quality of the financial reports?*
- *Can the choices made by the companies when accounting for R&D be explained by factors such as profitability and capital structure?*

The first question is intended to **describe the development** of R&D accounting practice since 2005 in the examined IT-groups. We mean to do this by collecting data from annual reports and discuss and analyse it.

The second question is intended to **discuss the consequences** of the eventual results of the first question. The focal point is the quality of the financial reports, with “quality” being represented by the qualitative characteristics stated in the IFRS and the general accounting principles.

The third question **tries to find causes** for the individual, yearly data. We wish to see if a correlation can be found between choice of accounting method and factors such as profit, profitability and leverage.

¹³ Statistiska centralbyrån (Statistics Sweden)



1.6. CHAPTER OUTLINE

Section 1: Introduction

This section states the background to our study and its purpose. Our research questions are presented and expanded upon.

Section 2: Method

This section describes different approaches when choosing research methods, and which of them we have chosen to apply in our own study. A description on how we proceed with our study is included. We describe how we achieve the requirements of reliability, validity and source criticism.

Section 3: Theory

The underlying theories are presented. The section includes a description of the IFRS standards of interest, definitions of concepts used in our analysis and evaluation of the different alternatives when accounting for R&D.

Section 4: Findings

The companies included in the study are featured in this section. Each group is briefly introduced and summarised data regarding their accounting for R&D expenses is presented. Research question one, about the current situation, is answered.

Section 5: Discussion

The data found is analysed and discussed. We discuss the causes and consequences of the accounting practices and answer research questions two and three.

Section 6: Conclusions

Finally, the results of our study are summarised. Possible suggestions of further research are presented.

Appendix 1

Detailed data on the companies' R&D expenses and other complementary data is presented.

Appendix 2

More detailed versions of the square models analysed in Section 5 are presented.

Appendix 3

Presentations of companies excluded from further study.



SECTION 2: METHOD

THIS SECTION DESCRIBES DIFFERENT APPROACHES WHEN CHOOSING RESEARCH METHODS, AND WHICH OF THEM WE HAVE CHOSEN TO APPLY IN OUR OWN STUDY. A DESCRIPTION ON HOW WE PROCEED WITH OUR STUDY IS INCLUDED. WE DESCRIBE HOW WE ACHIEVE THE REQUIREMENTS OF RELIABILITY, VALIDITY AND SOURCE CRITICISM.

2.1. APPROACH

In social sciences such as business administration and accounting, there are two general approaches: Quantitative and qualitative research¹⁴.

2.1.1. QUANTITATIVE RESEARCH

Quantitative research is characterised by formality and a clear structure. The method is marked by the researcher's high degree of control. Advantages of this method include information which is easy to collect and process, because of its standardised nature. Furthermore, this information enables generalisations¹⁵. Disadvantages include risk of a more shallow study, as the information collected often does not enable deeper research¹⁶.

2.1.2. QUALITATIVE RESEARCH

Unlike quantitative research, *qualitative research* involves a lower degree of formalities. This method is characterised by its flexible form as the main purpose is to create a deeper understanding of a subject. The focal point is to, in different ways, collect information which is necessary to gain this understanding. As such, it does not follow a standardised form regarding how to collect and process the information¹⁷. Advantages include a high degree of openness, and results which are not given beforehand. Disadvantages include a high demand of resources and a high degree of complexity. Furthermore, generalisations are hard to find while using the qualitative method¹⁸.

2.1.3. CHOICE OF METHOD

The choice of research method is to be done from the problem statement which has been created for the study. One can also choose to combine quantitative and qualitative research to eliminate their respective strengths and weaknesses¹⁹.

We have chosen to approach our problem statement with a combination of quantitative and qualitative research. To answer our research questions, a quantitative method is required to collect

¹⁴ Holme et al (1997) *Forskningsmetodik: om kvalitativa och kvantitativa metoder*

¹⁵ Ibid

¹⁶ Jacobsen (2002) *Vad, hur och varför: om metodval i företagsekonomi och andra samhällsvetenskapliga ämnen*

¹⁷ Holme et al (1997) *Forskningsmetodik: om kvalitativa och kvantitativa metoder*

¹⁸ Jacobsen(2002) *Vad, hur och varför: om metodval i företagsekonomi och andra samhällsvetenskapliga ämnen*

¹⁹ Holme et al (1997) *Forskningsmetodik: om kvalitativa och kvantitativa metoder*



numerical data from the annual reports of all entities and to be able to draw somewhat general conclusions about R&D accounting practice in Swedish public IT-groups. Subsequently, to perform a deeper research and analyse the causes and consequences of this accounting practice, we have chosen to apply a more qualitative method. We have chosen to perform a deeper analysis of a few companies from the study to create understanding of the back factors of the accounting choices made by these particular companies, by studying other factors such as profit and capital structure.

2.2. COMPANY SELECTION

The purpose of the study is to study the development of R&D accounting in Swedish public IT-groups. The selection of which companies to study is therefore based on companies listed in the IT-category of the NASDAQ OMX Stockholm stock exchange in April 2012. All IT-companies from the Large-, Mid- and Small-cap groups were included in the first selection. Non-Swedish companies listed on the Swedish stock exchange, such as Tieto Oyj, were then excluded. The remaining companies, which are the objects of our further studies, are listed below:

- ✓ **Acando**
- ✓ **Addnode**
- ✓ **Anoto**
- ✓ **Aspiro**
- ✓ **Avega**
- ✓ **Axis**
- ✓ **Connecta**
- ✓ **Cybercom**
- ✓ **Doro**
- ✓ **Enea**
- ✓ **Ericsson**
- ✓ **Formpipe**
- ✓ **HiQ International**
- ✓ **HMS networks**
- ✓ **IAR systems**
- ✓ **IFS**
- ✓ **Jeeves**
- ✓ **Know IT**
- ✓ **Micro Systemation**
- ✓ **MSC Consult**
- ✓ **MultiQ**
- ✓ **Net Insight**
- ✓ **Novotek**
- ✓ **Phonera**
- ✓ **Prevas**
- ✓ **Proact IT**
- ✓ **ReadSoft**
- ✓ **Sigma**
- ✓ **Softronic**
- ✓ **Transmode Holding**
- ✓ **Vitec Software Group**

If any of these companies were later excluded due to e.g. not having any R&D expenses, this is stated in the finding section.

2.3. DATA COLLECTION AND ANALYSIS

During our study we have primarily collected secondary data available to the public. In this case, secondary data regarding our subject has been found in annual reports, scholarly journals, databases, literature and webpages.

Advantages of using secondary data consist of cost- and time-effectiveness, and the fact that the information gathered can be referred to a large range of sources²⁰. Disadvantages of using secondary include the fact that the information may not be correctly used with the purpose of the study as it may have been collected for another purpose to begin with. Caution must also be taken when using secondary data as it may have been manipulated and adjusted for another study, in the form of divisions and categories²¹.

2.3.1. THEORETICAL FRAME OF REFERENCE

For our theory section we have gathered information from databases such as Science Direct, Emerald, Business Source Premier, FAR Komplet, Libris and Gunda. Keywords (in both English and Swedish) such as *research and development, R&D, R&D expenses, IFRS, IAS 38, capitalisation/capitalization, disclosure, the prudence concept, the matching principle and relevance* have been used. By using these databases, we have been able to find literature and scientific articles for using as a basis for our theoretical frame of reference. The theory section mainly consists of accounting theory and accounting principles regarding R&D expenses.

2.3.2. EMPIRICAL FRAME OF REFERENCE

For our findings section, data collected from annual reports/financial statements has been used. Annual reports can be seen as a form of secondary data, although somewhat different from other secondary data. Its primary purpose is to provide stakeholders with information regarding the financial situation of the firm. Because of this, information found in annual reports has been useful for answering our research questions.

We have searched for data in the income statements and the balance sheets of the financial reports to extract information regarding tendencies in R&D accounting during 2005-2011. This has been supplemented by studying the director's reports and the notes regarding R&D and intangible assets, to receive more information on yearly capitalisation of R&D and yearly depreciations on capitalised expenses. Furthermore, for the short presentations of the companies' history and operations, the companies' own websites has been used.

After the data collection, the data has been summarised and abstracted in the form of graphs and text. To improve readability, these briefer graphs and texts are the ones presented in the findings section while more detailed data is presented in Appendix 1.

²⁰ Christensen (2010) *Marknadsundersökning: en handbok*

²¹ Jacobsen (2002) *Vad, hur och varför: om metodval i företagsekonomi och andra samhällsvetenskapliga ämnen*

2.3.3. DISCUSSION

Our study concludes with a discussion regarding back factors and consequences of the R&D accounting practice in the IT-industry, analysed with the theory section as a basis. The discussion on back factors is a deeper analysis of four selected companies. Those have been selected due to them being typical or interesting cases. The discussion on consequences is done by evaluating the accounting practice and how it affects the accounting theory concepts introduced in our theory section.

2.4. CERTAINTY IN THE DATA COLLECTION PROCESS

A high degree of certainty in the data collection process is achieved by examining the trustworthiness of the study, by checking the *reliability* and *validity of the data*²².

2.4.1. RELIABILITY OF DATA

The *reliability of data* shows to what extent the same result can be achieved in repeated measurements, at different times but given identical circumstances. Thus, reliability is a measure of the amount of random errors in a measurement process. Such processes which contain a low amount of random errors are considered having a high reliability. Random errors may arise in when different people interpret the information in different ways²³. To avoid such random errors, several observers must be involved. The observers should agree on how to interpret and evaluate the data beforehand²⁴.

In answering our research questions, we have collected numerical data from annual reports. As researchers we have not been able to affect this data as it has been produced by external parties. Accordingly, the reliability of our study is increased. To avoid false or misinterpreted data, we have used a standard template to collect and summarise information. By using a standardised template, as authors we are able to agree on how to collect and interpret data beforehand, to further improve reliability. Risks in collecting numerical data include typing errors, however we have reduced this risk by reviewing each other's collected material. When additional uncertainties have arisen, we have consulted our supervisor.

In addition, when comparing the groups included in our study, we have used mean values as well as median values to try to create a more fair view by pointing at large spreads in the data material.

2.4.2. VALIDITY OF DATA

The *validity of data* measures how well the data conform to reality, i. e. to what extent the measuring process measure what the researcher intended. The validity of the data deals with collecting information relevant to the problem statement. Because of this, it is important to choose the right instruments that are able to measure the right properties²⁵.

²² Lundahl & Skärvad (1999) *Utredningsmetodik för samhällsvetare och ekonomer*

²³ Gustavsson (2004) *Kunskapande metoder inom samhällsvetenskapen*

²⁴ Patel & Davidson (2011) *Forskningsmetodikens grunder: att planera, genomföra och rapportera en undersökning*

²⁵ Gustavsson (2004) *Kunskapande metoder inom samhällsvetenskapen*



Our study is based on using instruments to measure financial data from annual reports. By using our standard template made for measuring different relations and financial ratios there have not been any difficulties in measuring what we seek. However, the validity may have been affected negatively by companies using different accounting policies, valuations and measurements, which may create differences in accounting between companies. To reduce this risk, we have used generally accepted ratios and relations in our study. In this way our findings are not affected by the companies' own adjustments and the validity is increased.

2.5. SOURCE CRITICISM

The user of information must review the reliability of the chosen sources. As a user, one must judge material by its' objectiveness. It is important to remain critical throughout the data collecting process²⁶

As our primary source of data, the annual reports, are surveyed by professional auditors, it can be viewed as trustworthy. Although the data has been prepared by the companies themselves, and thus are products of their own judgement, it can be seen as relevant: reviewing the actual accounting practices and the assessments made by companies are indeed the purpose of the study. Moreover, financial reports are regulated by legislation and penalties are executed for defects and fraud.

Although the information in the short presentations of the companies in our study is collected from said companies' websites, it does not affect our study significantly. As this information is only meant to provide the reader with minor understanding on the operations of the firms, it does not have any impact on our data analysis, discussion or conclusion.

Other sources used in our study include literature and scientific articles. These sources have been reviewed beforehand have a high degree of reliability. A risk factor may be sources which have been angled by authors and therefore reduce objectivity. Because of this, we have sought several sources connected to the same subject to check if the information differs depending on the author. In addition, we have tried to use the latest edition of all literature to gain access to the latest updated information.

2.6. DEFINITIONS OF CONCEPTS

In the following sections, we use several concepts. Following are our definitions:

Swedish public IT-groups – Sweden-based groups listed in the IT-category of the NASDAQ OMX Stockholm stock exchange in April 2012.

Swedish IT-industry – The companies used in our study.

Asset and intangible asset - The same definitions as used in the IFRS Framework and IAS 38. See section 3.1.1.

Research and development – The same definitions as used in IAS 38. See section 3.1.1.

²⁶ Ejvegård (2010) *Vetenskaplig metod*



Capitalisation of research and development – When we refer to capitalisation of R&D expenses, it is essentially the capitalisation of development expenses as research is never allowed to be capitalised.

Group, company, firm - We use the words “company” and “firm” throughout the essay, however we always use these synonymous to “group”. We refer to group-accounting throughout and never to individual companies unless stated otherwise.

“High” equity ratio – An equity ratio which enables the firm to withstand losses without risk for not being able to pay its liabilities, i. e. more than 50%.



SECTION 3: THEORY

THE UNDERLYING THEORIES ARE PRESENTED. THE SECTION INCLUDES A DESCRIPTION OF THE IFRS STANDARDS OF INTEREST, DEFINITIONS OF CONCEPTS USED IN OUR ANALYSIS AND EVALUATION OF THE DIFFERENT ALTERNATIVES WHEN ACCOUNTING FOR R&D.

3.1. ACCOUNTING FOR RESEARCH AND DEVELOPMENT ACCORDING TO IFRS²⁷

The accounting for research and development expenses in IFRS-companies is regulated primarily by IAS 38 Intangible assets, though some basic definitions can be found in the IFRS Framework:

3.1.1. DEFINITIONS

An *asset* is defined by IFRS as “A resource controlled by the entity as a result of past events and from which future economic benefits are expected to flow to the entity.” Examples of future economic benefits are stated as production opportunities, the possibility to exchange the asset for cash or the possibility to reduce outflow of resources. The requirement for resources to be a result of past events is intended to exclude planned future expenses from the financial reports. The term “control” is not considered the same as legal ownership: A leased resource for which the entity has substantial influence is also viewed as an asset.

In addition to the definition of an asset, the resource must also meet with IFRS’ recognition criteria to be recognized on the balance sheet: “An asset is recognized in the balance sheet when it is probable that the future economic benefits will flow to the entity and the asset has a cost or value that can be measured reliably.” The assessment of the probability of the mentioned future economic benefits is to be made based on the information available on the balance sheet date. A value is considered reliably measured if it meets the requirements for reliability for the financial reporting as a whole, mentioned below. Information must be given if the value cannot be measured reliably but still is substantial.

An intangible asset is defined more specifically as “an identifiable nonmonetary asset without physical substance”. Examples of intangible assets are stated as scientific and technical knowledge, systems and processes, licences, copyrights, market knowledge, customer relationships and brands. The term “identifiable” can be viewed as a keyword of the definition: Unidentifiable resources are not to be treated as assets and are instead treated as costs in the income statement for the period in which they arise. Goodwill from acquisitions is an exception, because of it being unidentifiable by definition.

The creation of internally generated intangible assets is often split into one research- and one development phase:

Research is defined as “original and planned investigation undertaken with the prospect of gaining new scientific or technical knowledge and understanding.” Examples of research are: “ activities

²⁷ Section 3.1 is entirely based on the International Financial Reporting Standards issued by International Accounting Standards Board: *IFRS Framework* and *IAS 38 Intangible assets*.

aimed at obtaining new knowledge; the search for, evaluation and final selection of, applications of research findings or other knowledge; the search for alternatives for materials, devices, products, processes, systems or services; and the formulation, design, evaluation and final selection of possible alternatives for new or improved materials, devices, products, processes, systems or services.”

Development is defined as “the application of research findings or other knowledge to a plan or design for the production of new or substantially improved materials, devices, products, processes, systems or services before the start of commercial production or use.” Examples of development are: “the design, construction and testing of pre-production or pre-use prototypes and models; the design of tools, jigs, moulds and dies involving new technology; the design, construction and operation of a pilot plant that is not of a scale economically feasible for commercial production; and the design, construction and testing of a chosen alternative for new or improved materials, devices, products, processes, systems or services.”

If the expenses cannot be reliably split into research- and development phases, all of them are to be viewed as research expenses.

3.1.2. ACCOUNTING FOR R&D EXPENSES ACCORDING TO IAS 38

Research is not allowed to be recognized as an asset according to IFRS. This is justified by the uncertainty associated with expenses during the research phase of a project: There is too much uncertainty regarding if the research is able to generate future economic benefits. Thus, research expenses are treated as costs immediately.

Regarding *development*, these expenditures are allowed to be capitalised and accounted for as assets, since they are deemed to, in some cases, being able to generate probable future economic benefits. Though, the development expenses have to meet a number of requirements to be treated as an intangible asset:

“The entity must be able to demonstrate all of the following:

- the technical feasibility of completing the intangible asset so that it will be available for use or sale.
- its intention to complete the intangible asset and use or sell it.
- its ability to use or sell the intangible asset.
- how the intangible asset will generate probable future economic benefits. Among other things, the entity can demonstrate the existence of a market for the output of the intangible asset or the intangible asset itself or, if it is to be used internally, the usefulness of the intangible asset.
- the availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset.
- its ability to measure reliably the expenditure attributable to the intangible asset during its development.”

If the company finds the development not to meet any of the criteria above, the expenses are to be treated as costs directly. If all the criteria are met, the expenses are to be capitalised and treated as intangible assets. IFRS principles for these are following.

Intangible assets are initially measured at cost, i.e. the actual expense paid. For internally generated development, this value totals to all direct expenses that arise after the development has met the above criteria for capitalisation. Examples are expenses for material, services, wages and depreciation. Sale-, administration- and other indirect costs, operating losses and education are not included.

At subsequent measurements, the entity must choose one of two methods: The *cost model* or the *revaluation model*. All other assets in the same class of intangible assets must be valued by the same model.

The cost model says the asset is to be valued at the initial cost less amortisation and impairment losses.

The revaluation model says the asset is to be valued to a *revalued amount*, the fair value in an active market on the balance sheet date less amortisation and impairment losses. The reported value is not allowed to differ substantially from market value.

Yearly amortisation is estimated on the basis of remaining life of the asset. If the asset has finite life, the initial cost is to be amortised systematically over this lifetime. If the asset has infinite life, the asset should not be amortised. Instead, the asset should be assessed for impairment yearly and when required.

3.2. QUALITATIVE CHARACTERISTICS

Financial reports contain information which, to variable extent, affects economic decision-making. Users of the reports need information about business transactions when making decisions about investments, financing and the like. Fulfilling this need is the purpose of accounting. Companies must provide their stakeholders with useful information which is able to affect their decisions. As an example, information about a company's research and development expenses can underlie an assessment about the future benefits of an investment. Useful information is often defined by primary qualities:²⁸

3.2.1. RELEVANCE

Information is relevant if it is able to affect a prevailing decision. The information is supposed to help the user reach their predetermined goals in a more effective way, by providing knowledge about something previously not known²⁹. When speaking about relevance, it is often split into two concepts: *Predictive value* and *feedback value*³⁰.

The predictive value of information is its ability to improve the probability of the user's predictions being correct³¹. The contents of the information must reduce uncertainty about the future, and also improve the certainty of expectations³².

²⁸ Hemlin (2005) *Redovisning av utgifter för forskning och utveckling : en metodstudie*

²⁹ Falkman (2000) *Teori för redovisning*

³⁰ Hemlin, (2005) *Redovisning av utgifter för forskning och utveckling : en metodstudie*

³¹ Smith (2006) *Redovisningens språk*

³² Falkman (2000) *Teori för redovisning*

Information has *feedback value* if it gives users the ability to verify previous predictions and expectations³³. The information is supposed to help the user perform follow-ups and check the company's operations. This is done by comparing the historic values presented. By comparing predictions with actual results, the user gains knowledge about the consequences of earlier decisions made. This knowledge is then used as a basis for new, similar decisions³⁴.

Apart from these two aspects of relevance, importance is also often attached to *understandability* and *timeliness*.

For information to be relevant for decision-making, it must also be *understandable*. This means the receiver of the information must be able to understand its meaning, provided he or she has reasonable knowledge of business and accounting³⁵. However, all relevant information must be included in the financial reports. Information concerning complicated issues must not be omitted because it may not be understood by all users³⁶.

Timeliness means the information must be readily available when it is of current interest for decision-making³⁷. The moment of accessibility is critical. If the information is not presented at the same time it's needed, it will lose its relevance. Delayed information does not have any value for future actions. To be able to learn from previous decisions and actions, early feedback is required³⁸, otherwise it loses its ability to make substantial difference for decision-making³⁹.

3.2.2. RELIABILITY

Reliable information refers to such as depicting the economic reality of the company in a reliable way⁴⁰. However, the concept is hard to put into practice because only a few conceptions of accounting have equivalence in reality⁴¹. Concepts associated with reliability are *representational faithfulness* and *verifiability*.

Representational faithfulness means the financial reports must portray reality correctly. The representational faithfulness is strengthened by three requirements: *Neutrality*, "*substance over form*" and *completeness*.

The demand for *neutrality* means the information is to be depicted in the best and most neutral way possible⁴². Personal or collective interests are not allowed to influence the information. The will to reach predetermined goals of the accountant may lead to defects in the financial reports. If this happens, the conveyed image of the company will differ from reality⁴³.

³³ Smith (2006) *Redovisningens språk*

³⁴ Falkman (2000) *Teori för redovisning*

³⁵ Smith (2006) *Redovisningens språk*

³⁶ IFRS Framework

³⁷ Hemlin (2005) *Redovisning av utgifter för forskning och utveckling : en metodstudie*

³⁸ Falkman (2000) *Teori för redovisning*

³⁹ Hemlin (2005) *Redovisning av utgifter för forskning och utveckling : en metodstudie*

⁴⁰ Smith, (2006) *Redovisningens språk*

⁴¹ Falkman (2000) *Teori för redovisning*

⁴² Smith (2006) *Redovisningens språk*

⁴³ Falkman (2000) *Teori för redovisning*

The meaning of *substance over form* is that the financial reports are supposed to reflect the economic and not the legal implication of a business transaction⁴⁴. The economic significance of an event is not always the same as its legal form, and thus the economic significance is a better estimate⁴⁵.

Completeness means all information with substantial value about the business transactions of the current period is to be accounted for in the financial reports, i.e. all information which affects the users decision is to be reported⁴⁶. Incorrect and/or misleading information must be excluded⁴⁷.

The aspect of *verifiability* implies the user must be able to verify the correctness of the financial reports by some sort of evidence⁴⁸. The aim is to improve objectivity, by requiring that all information can be authenticated⁴⁹. If all business transactions can be backed up by verification, a better coupling between financial statements and “reality” can be achieved⁵⁰. In the case of intangible assets, examples of verifications can be harder to find but it could be, for example, an invoice. Sometimes subjective judgements are underlying the information, the degree of verifiability is deemed higher if several, independent assessors make the same judgement⁵¹.

3.2.3. COMPARABILITY

The concept of comparability can be explained by two different aspects. The financial reports must be *comparable between companies* and *comparable over time*⁵².

Financial information becomes more useful if it can be compared with other financial information. Because of this, problems do occur when organisations use different methods of accounting. By reducing the number of methods used by companies, mainly by emitting new standards and recommendation, standard-setters such as IASB aim to achieve a greater *comparability between companies*. Unfortunately, this can also have negative impact on other qualitative characteristics such as the relevance and reliability of the information. Different organisations face different problems and choices when accounting. By forcing these distinct entities to report in the same way, comparability is enhanced, but sometimes at the expense of relevance and reliability for the financial reports of individual companies⁵³.

The financial reports should also be *comparable over time*, if it is to be used as a basis for decision-making. Because of this, it is important to aim to use the same accounting-methods consistently over time, so comparing different periods is possible. When changing accounting-methods, this must be clearly stated in the financial reports⁵⁴.

⁴⁴ Smith (2006) *Redovisningens språk*

⁴⁵ IFRS Framework

⁴⁶ Smith (2006) *Redovisningens språk*

⁴⁷ IFRS Framework

⁴⁸ Smith (2006) *Redovisningens språk*

⁴⁹ Falkman (2000) *Teori för redovisning*

⁵⁰ Ibid.

⁵¹ Smith (2006) *Redovisningens språk*

⁵² Ibid.

⁵³ Falkman (2000) *Teori för redovisning*

⁵⁴ Ibid.

3.2.4. COSTS AND BENEFITS

Production of financial information can be viewed as an activity that usual economic aspects may be applied to, and that is able to create value. Thus, it is able to generate revenues/benefits as well as costs. The benefits include the increased quality for users as a basis for decisions gained by relevant information. The costs are the resources used in producing and communicating the financial statements, such as money, time and staff. Companies need to evaluate said benefits and costs before making decisions regarding whether to produce the particular financial information or not⁵⁵.

3.3. ACCOUNTING PRINCIPLES

3.3.1. THE MATCHING PRINCIPLE

The matching principle is usually formulated as the fact that revenues are to be matched with the costs which arose to generate them. Therefore, the matching principle discusses when revenues are to be recognized in the financial reports, and how to assess which revenues and costs are connected to each other⁵⁶. The procedure often starts with determining the revenue and then matching it with the expenses that helped generate it⁵⁷. It is therefore critical for the matching principle to know when the revenue occurs⁵⁸. To match revenues and costs, two matching problems must be solved: *Matching over time* and *matching over products*⁵⁹.

Matching over time means all expenses which can be linked to a specific period in time are to be matched with the revenues of said period. This means all expenses which generate benefits during a specific period are to be treated as costs during the same period as the revenue arises⁶⁰.

Matching over products means when revenues are matched with an identifiable expense, this expense are to be allocated to a specific good or service⁶¹.

3.3.2. THE PRUDENCE CONCEPT

The prudence concept states that when several alternatives are available when valuing an asset, the lowest value is to be chosen. Regarding liabilities, the opposite is applied; these are to be valued as high as possible. The prudence concept is applied in the income statement as well: Gains are not to be reported until they can be assured, but losses are to be reported as soon as they can be anticipated⁶².

⁵⁵ Smith (2006) *Redovisningens språk*

⁵⁶ Ibid.

⁵⁷ Kam (1990) *Accounting theory*

⁵⁸ Smith (2006) *Redovisningens språk*

⁵⁹ *ibid.*

⁶⁰ Falkman (2000) *Teori för redovisning*

⁶¹ *Ibid.*

⁶² Johansson (2009) *Extern redovisning*

The prudence concept causes an asymmetrical risk-taking regarding over- and undervaluation, as unrealized losses are accounted for, but not unrealized gains⁶³. There are two causes for this: Firstly, business leaders tend to be over-optimistic, and thus accounting needs a more pessimistic basis to offset this. Secondly, users of the financial reports are viewed as less misled by pessimistic estimations than by optimistic ones⁶⁴.

Disfavour of the prudence concept is the risk of a diminishing reliability. Undervalued assets as well as overvalued liabilities lead to undervaluation of equity. Net profit is also diminished when revenues and costs in the income statement are valued too low and high, respectively⁶⁵.

The prudence concept has traditionally been the dominating accounting principle in Sweden due to traditional European accounting practice. Still, the increasing impact of the Anglo-Saxon accounting practice has somewhat diminished the importance of the prudence concept in favour of a larger degree of matching⁶⁶.

3.4. CAPITALISING VERSUS IMMEDIATE EXPENSE – EVALUATION ACCORDING TO THEORY

3.4.1. THE MATCHING PRINCIPLE VERSUS THE PRUDENCE CONCEPT

If the entity deems their development expenses able to generate future economic benefits and thus capitalises them, the amortisations of the asset (costs) are matched with said economic benefits (revenues). Consequently, the entity is applying *the matching principle*⁶⁷.

If the entity instead expenses development immediately through the income statement as costs, it is overvaluing its present costs and undervaluing its assets. Thus, the entity is applying the *prudence concept*. This is a departure from the matching principle because costs are mixed with revenues associated with investments made years ago. This gives rise to a “mismatch”⁶⁸. However, the overvaluing of costs and undervaluing of assets improves the *reliability* of the financial reports⁶⁹.

3.4.2. CAPITALISATION – ADVANTAGES AND DISADVANTAGES

As mentioned above, capitalisation of development expenses leads to a greater matching between costs and revenues in accordance with the matching principle. However, the reliability is worsened when there is a risk the book value of assets become exaggerated due to uncertainty regarding their future economic benefits⁷⁰. Capitalisation of expenses gives rise to costs spread over a longer period. This leads to an equalization of profits during said period. This equalization can be considered to improve the comparability over time and thus lead to a more fair view of the company’s operations.

⁶³ IFRS Framework

⁶⁴ Smith (2006) *Redovisningens språk*

⁶⁵ Johansson (2009) *Extern redovisning*

⁶⁶ Smith (2006) *Redovisningens språk*

⁶⁷ Hemlin (2005) *Redovisning av utgifter för forskning och utveckling : en metodstudie*

⁶⁸ Ibid.

⁶⁹ Smith (2006) *Redovisningens språk*

⁷⁰ Hemlin (2005) *Redovisning av utgifter för forskning och utveckling : en metodstudie*

Stable income is also considered to reduce volatility of stock prices and making it easier to maintain consistent dividend policies⁷¹. On the other hand, as mentioned, the uncertainty regarding future benefits worsens the reliability of the financial reports. This can also be applied to the amount of subjective judgments associated with capitalisation. A high degree of subjectivity leads to reduced comparability between companies.

However, a main disadvantage of capitalisation is the “costs” of the additional information being disclosed to competitors, as capitalising R&D expenses often provides more information regarding the company’s R&D operations⁷².

Scientific studies have been made regarding the relevance of capitalisation of R&D expenses and its effect on stock prices, returns and other economic factors. However, they draw quite different conclusions. Lev and Sougiannis show through a simulation made on a large sample of US public companies that capitalisation of R&D expenses improves relevance, since there is a strong positive correlation between earnings after capitalising R&D and stock prices, thus proving capitalisation to be value-relevant for investors⁷³. A later study made on pharmaceutical firms by Healy, Myers and Howe show similar results: Capitalisation of “successful” development (i. e. development which is assessed probable of yielding future economic benefits) has a stronger correlation with economic returns and values than immediate expensing and is thus more relevant, at least in the case of the medical industry, although the authors argue it’s the ideal setting for studies of R&D accounting.⁷⁴

However, a study made by Cazavan-Jeny and Jeanjean reaches the opposite conclusion: There is a negative correlation between R&D capitalisation and stock prices, and therefore capitalisation is less relevant. According to the study, investors tend to view capitalised R&D as negative and thus push stock prices downward. This study is made on French public companies, which unlike the American companies practice IFRS and thus are able to capitalise development in practice. That is to say this study is not based on simulations⁷⁵.

3.4.3. IMMEDIATE EXPENSE – ADVANTAGES AND DISADVANTAGES

Naturally, the method of immediate expense leads to opposite situation regarding the matching- and prudence concepts. The matching worsens because of possible revenues not being associated with their corresponding costs. The prudence concept is strengthened because of costs being accounted for early and assets valued as low as possible⁷⁶. Immediate expense gives rise to less subjective judgments and less uncertainty regarding future economic benefits, improving reliability⁷⁷. However, it also leads to diminishing short-term profits when all costs are accounted for during one period, and thus a reduced equity. This worsens comparability between periods⁷⁸.

⁷¹ Batty (1988) *Accounting for research and development*

⁷² Smith, Percy & Richardson (2001) *Discretionary capitalization of R&D: Evidence on the usefulness in an Australian and Canadian context*

⁷³ Lev & Sougiannis (1996) *The capitalization, amortization, and value-relevance of R&D*

⁷⁴ Healy, Myers & Howe (2002) *R&D accounting and the tradeoff between relevance and objectivity*

⁷⁵ Cazavan-Jeny & Jeanjean *The negative impact of R&D capitalization: A value relevance approach*

⁷⁶ Hemlin (2005) *Redovisning av utgifter för forskning och utveckling : en metodstudie*

⁷⁷ Batty (1988) *Accounting for research and development*

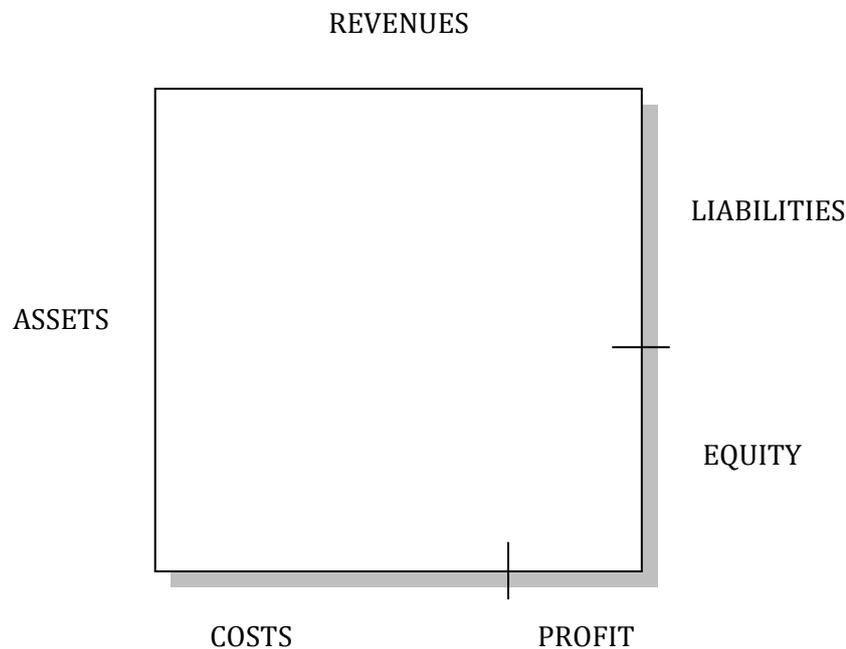
⁷⁸ Ibid.

Another important benefit of the immediate expensing method is the fact that it provides competitors with less information regarding R&D expenses than the capitalisation method⁷⁹.

The scientific studies mentioned in the section about capitalisation can naturally be applied to immediate expense as well: Cazavan-Jeny and Jeanjean's study favours immediate expense while Lev and Sougiannis and Healy, Myers and Howe disfavours.

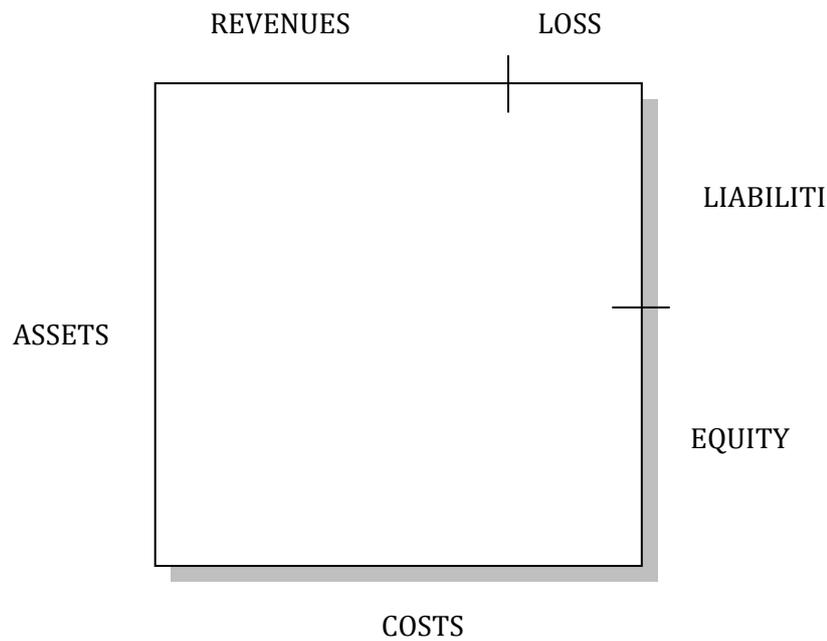
3.5. THE SQUARE MODEL⁸⁰

The square model is a way to visualize the financial state of an entity. It is made up by a rectangle with its' four sides representing different parts of a business: The left side shows assets, the right side shows liabilities and equity, the upper side shows revenues and the lower side shows costs. The difference between revenues and costs, profit or loss, can be on the upper or lower side depending on which is the largest.



⁷⁹ Smith, Percy & Richardson (2001) *Discretionary capitalization of R&D: Evidence on the usefulness in an Australian and Canadian context*

⁸⁰ Polesie (1989) *Att beskriva företags ekonomi*



The shape of the rectangle can be analysed to get a better understanding of what type of business the company is running and how it changes over time. A high rectangle means the firm has a large amount of assets compared to its' operations (revenues and costs), and thus is capital-intensive like for example companies in the manufacturing or energy industries. A wide rectangle indicates the opposite: A small amount of assets to run the operations, which means the company is probably more targeted on providing services. The square model can also be used to analyse the capital structure of the firm, whether it's financed mainly by debt or equity.

SECTION 4: FINDINGS

THE COMPANIES INCLUDED IN THE STUDY ARE FEATURED IN THIS SECTION. EACH GROUP IS BRIEFLY INTRODUCED AND DATA REGARDING THEIR ACCOUNTING FOR R&D EXPENSES IS PRESENTED. RESEARCH QUESTION ONE, ABOUT THE CURRENT SITUATION, IS ANSWERED.

This section presents the findings of our study. The companies included (listed earlier in section 2) are presented in alphabetical order. The business and history of every company is first briefly presented. Statistics of the companies' R&D accounting are then presented as we answer research question number one. More detailed data and information regarding where to find the data in the latest annual report, 2011, can be found in the appendix. If the company does not have any R&D expenses, or enough information about those has not been able to be found, this is clearly stated.

4.1. FEATURED IT-GROUPS INCLUDED IN FURTHER STUDY

ADDNODE

(Small Cap)

The Addnode group was formed in 2003. The group sells "business-critical IT solutions to selected target groups". Acquisition of entrepreneur-companies is an important part of Addnode's strategy. Main markets are the Nordic countries, the US and Serbia. The group has approximately 800 employees⁸¹.

ANOTO

(Small Cap)

The Anoto group was founded in 1999. Its' products are digital pens for transmitting handwritten text or illustration into digital format. The group relies heavily on research and development as it has nearly 400 patents. The market is global. Approximately 100 people are employed⁸².

AXIS COMMUNICATIONS

(Mid Cap)

The Axis group was founded in 1984, and sells network video solutions used mainly for security surveillance or remote controlling. Axis is a global company and one of the market leaders, and has a large customer range. Research and development is a "highly prioritized area". Axis has around 1100 employees worldwide⁸³.

⁸¹ addnode.se

⁸² anoto.com

⁸³ axis.com



ENE A

(Small Cap)

The Enea group operates in two branches: development of real-time operating systems and IT-consulting services. Its' customers are companies in the telecom, medicine, car and aeronautics industries. Enea has around 620 employees.

(In December 2011, the consulting operations in the Nordic countries were liquidated and Enea is now mainly a software developer.)⁸⁴

ERICSSON

(Large Cap)

Founded in 1876, Ericsson is a world-leading provider of telecommunication systems and one of Sweden's largest corporations. The company provides end-to-end solutions and is R&D-intensive. The Ericsson group has over 100 000 employees worldwide⁸⁵.

HMS NETWORKS

(Small Cap)

HMS was started in 1988. The company develops, produces and markets solutions for connecting manufacturing equipment with industrial networks (so-called network technology). The main strategy is organic growth. The most important markets are Germany, the US, Japan and the Nordic countries. HMS has approximately 200 employees⁸⁶.

HMS Networks has applied the IFRS since 2006.

IFS

(Mid Cap)

The IFS group was founded in 1983 and develops and sells Enterprise Resource Planning Systems. The company is one of the world-leading developers and suppliers of ERP systems. Customers include leading companies in many industries and more than 50 countries. IFS has 2700 employees⁸⁷.

⁸⁴ enea.se

⁸⁵ ericsson.com

⁸⁶ hms.se

⁸⁷ ifsworld.com

JEEVES

(Small Cap)

Jeeves develops and markets Enterprise Resource Planning Systems aimed at small and middle-sized companies. Operations were started in 1992. Acquisitions are an important part of the strategy. The number of employees is around 120⁸⁸.

MULTIQ

(Small Cap)

MultiQ develops and produces monitor solutions made especially for digital advertising. The main customers are large and middle-sized companies in sectors such as retail, gaming, education and transport. MultiQ has around 25 employees⁸⁹.

NET INSIGHT

(Mid Cap)

Net Insight develops platforms for advanced video and multimedia transport. The customers include broadcasters and other media companies, telecom operators, satellite operators and cable-TV providers. The products are used in various major live events such as the Olympics and Athletics world championships. The company was founded in 1997 and has around 150 employees⁹⁰.

READSOFT

(Small Cap)

ReadSoft develops and sells software for managing of digital documents, for example invoices. Customers include large corporations. The market is global, but mostly situated in Western Europe, the US and Australia. The company has around 470 employees and was founded in 1991⁹¹.

TRANSMODE

(Mid Cap)

The Transmode group is a provider of optical network solutions used in fixed and mobile networks. The strategy is to mainly grow organically, but acquisitions may be considered. Low costs are high priority. Customers are mobile/telecom operators, cable-TV operators and such, and are mostly situated in Western Europe, the US and Australia. The Transmode group has approximately 230 employees⁹². Transmode has applied the IFRS since 2007.

⁸⁸ jeeves.se

⁸⁹ multiq.com

⁹⁰ netinsight.net

⁹¹ readsoft.se

⁹² transmode.com



4.2. IT-GROUPS EXCLUDED FROM FURTHER STUDY

Of all 31 companies initially included in the study, eight were excluded due to not having any R&D expenses, or not having applied the IFRS for enough time. However, eleven companies have not been able to be studied due to insufficient amounts of data. When enough data regarding R&D expenditure have not been provided in the annual reports, the companies have been contacted in the hope of receiving clarifications, but the majority of those have not given us sufficient answers. Following are the companies excluded due to said reasons:

(For presentations of the companies that did not provide us with sufficient data, see appendix 3)

ACANDO

(Small Cap)

Acando does not provide sufficient information regarding R&D costs and has not been able to provide us with complementary data.

ASPIRO

(Small Cap)

Aspiro does not provide sufficient information regarding the capitalisation of R&D and the R&D expenses and has not been able to provide us with complementary data.

AVEGA

(Small Cap)

The Avega group has only applied the IFRS in their accounting for a short time (2009-2011)⁹³ and has therefore been excluded from further study.

CONNECTA

(Small Cap)

The Connecta group does not have any R&D expenses in any of the years studied⁹⁴ and is thus excluded from further study.

⁹³ Avega Annual reports 2005-2011

⁹⁴ Connecta Annual Reports 2005-2011



CYBERCOM

(Small Cap)

Cybercom has very limited R&D operations and does not provide sufficient information regarding R&D expenses. The company has not been able to provide us with complementary data.

DORO

(Small Cap)

Doro does not provide sufficient information regarding R&D costs and has not been able to provide us with complementary data.

FORMPIPE SOFTWARE

(Small Cap)

Formpipe does not provide sufficient information regarding R&D costs and has not been able to provide us with complementary data.

HIQ INTERNATIONAL

(Mid Cap)

The HiQ International group does not have any R&D expenses in any of the years studied⁹⁵ and is thus excluded from further study.

IAR SYSTEMS

(Small Cap)

IAR does not provide sufficient information regarding R&D expenses and has not been able to provide us with complementary data.

KNOW IT

(Small Cap)

The Know IT group does not have any R&D expenses in any of the years studied except for a small amount in 2005⁹⁶, and is thus excluded from further study.

⁹⁵ HIQ International Annual Reports 2005-2011

⁹⁶Know IT Annual reports 2005-2011



MICRO SYSTEMATION

(Small Cap)

Micro Systemation does not provide sufficient information regarding R&D costs as well as not distinguishing capitalised R&D from other intangible assets. The company has not been able to provide us with complementary data. Furthermore, Micro Systemation has only applied the IFRS since 2008.

MSC KONSULT

(Small Cap)

The MSC Konsult group does not have any R&D expenses in any of the years studied⁹⁷ and is thus excluded from further study.

NOVOTEK

(Small Cap)

Novotek does not provide sufficient information regarding R&D costs and has not been able to provide us with complementary data.

PHONERA

(Small Cap)

The Phonera group does not have any R&D expenses of substantial value in any of the years studied⁹⁸ and is thus excluded from further study.

PREVAS

(Small Cap)

Prevas does not provide sufficient information regarding R&D costs and has not been able to provide us with complementary data.

PROACT IT

(Small Cap)

The Proact IT group does not have any R&D expenses in any of the years studied⁹⁹ and is thus excluded from further study.

⁹⁷ MSC Konsult Annual reports 2005-2011

⁹⁸ Phonera Annual reports 2005-2011

⁹⁹ Proact IT Annual reports 2005-2011



SIGMA

(Small Cap)

We have not been able to find the yearly R&D cost nor the yearly immediate expense of R&D. When contacting Sigma, they answer they do not have enough information themselves to present yearly R&D in their financial statements.

SOFTRONIC

(Small Cap)

The Softronic group does not have any R&D expenses in any of the years studied¹⁰⁰ and is thus excluded from further study.

VITEC SOFTWARE GROUP

(Small Cap)

Vitec does not provide sufficient information regarding R&D costs and has not been able to provide us with complementary data.

4.3. DEFINITIONS

See appendix 1 for more detailed definitions.

Proportion of total R&D expense capitalised – The share of the total research and development expense that was capitalised the current year. (Capitalised R&D / Total R&D expense)

Total R&D expense / Net sales – The share of net sales spent on R&D.

Total R&D on balance sheet / Total assets – The share of the company's total assets that are capitalised development expenses.

Return on assets – See appendix 1.

Return on equity – See appendix 1.

Equity ratio – See appendix 1.

¹⁰⁰ Softronic Annual reports 2005-2011

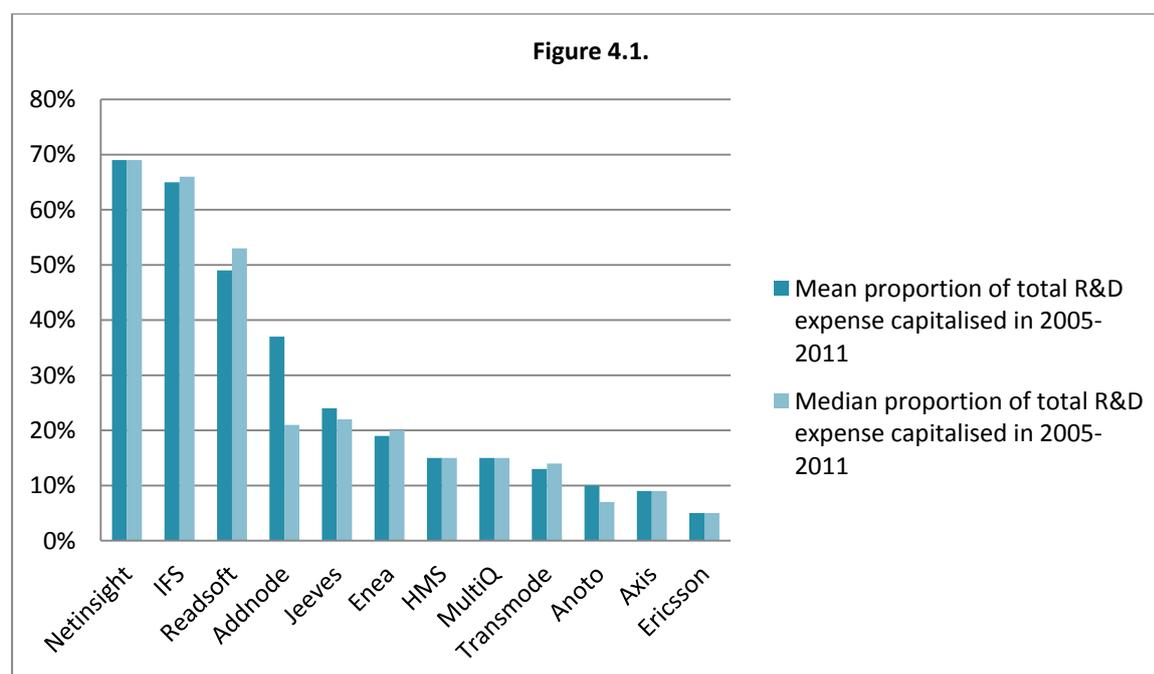
4.4. R&D ACCOUNTING IN PRACTICE

How have Swedish public IT-groups accounted for their research and development expenses since the implementation of IFRS in 2005?

When studying the empirical data of the twelve companies for which we have been able to receive complete information on their R&D expenses, it is hard to draw any general conclusions for the IT-industry as a whole. For example, the companies studied capitalise their expenses to very different degrees, ranging from around 0% of total expenses to over 80% in individual financial years. The same is true for the proportion of capitalised R&D on the balance sheet: some companies show a steady increase in R&D as a share of total assets, while others are decreasing.

Because of this, we do not wish to try to draw any general conclusions based on statistics, as the spread is too large. Instead, we summarise the data and describe our findings.

4.4.1. PROPORTION OF TOTAL R&D EXPENSE CAPITALISED



According to the chart above, Net insight, IFS and Readsoft clearly has the largest share of capitalisation among the companies, with an average share of over 50% capitalised. The three companies with the lowest degree of capitalisation, Anoto, Axis and Ericsson, have all capitalised less than 10% of their total R&D expenses. The rest of the companies capitalise approximately 15% to 20% of their R&D expenses on average. However, notice the large difference between the mean and median of Addnode: This indicates a large volatility in yearly data; Addnode's capitalisation ranges from 70% to 80% in 2005-2006 and 2011, to zero capitalisation in 2008-2010. (The capitalisation in 2007 is 21% which is the median for Addnode.)

As evident in the chart above, spread in the degree of capitalisation is quite large. This indicates large differences in accounting practice between companies. Therefore we do not find it relevant to

present a mean for the industry as a whole as the standard deviation would be too large (A mean of 28 % with a standard deviation of 25 percentage points). This indicates a large divergence in capitalisation practice among Swedish IT-companies. Nevertheless, as only three companies capitalise more than 50% of their total R&D expenses, **the conclusion could be drawn that most Swedish public groups immediately expense the majority of their R&D expenses**. Perhaps this could indicate that immediate expensing is the dominating method. Although, as research expenses are not allowed to be capitalised, immediate expensing is basically given to be the most used method.

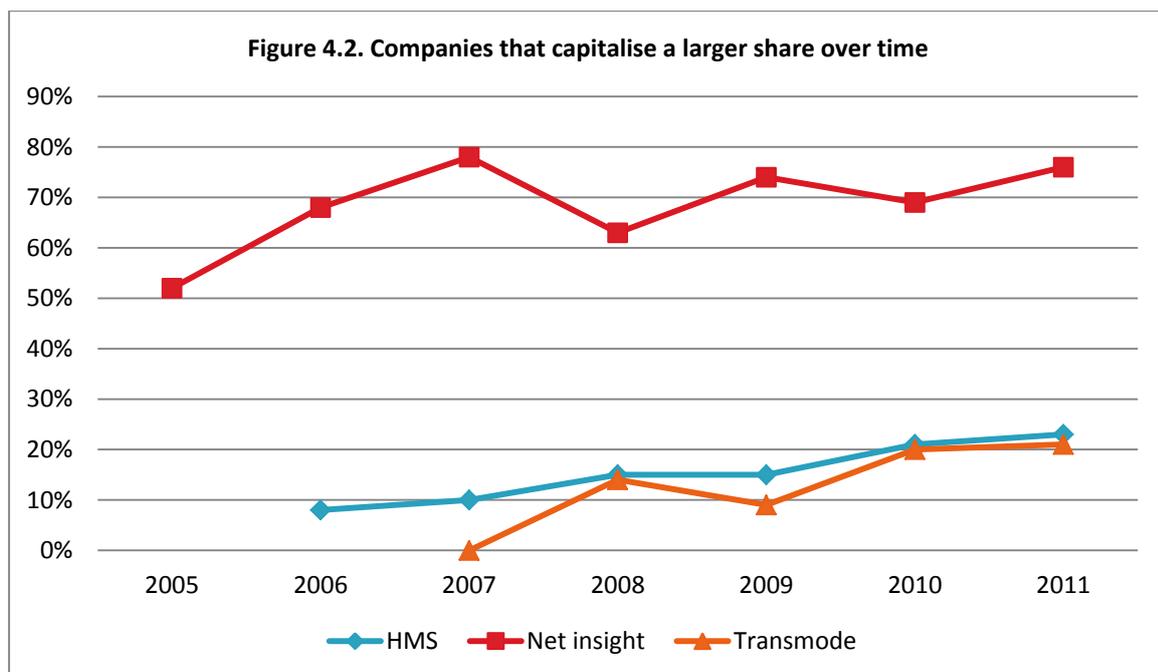
While studying overall development in accounting practice over time, we have divided the companies into groups based on possible trends towards more or less capitalisation:

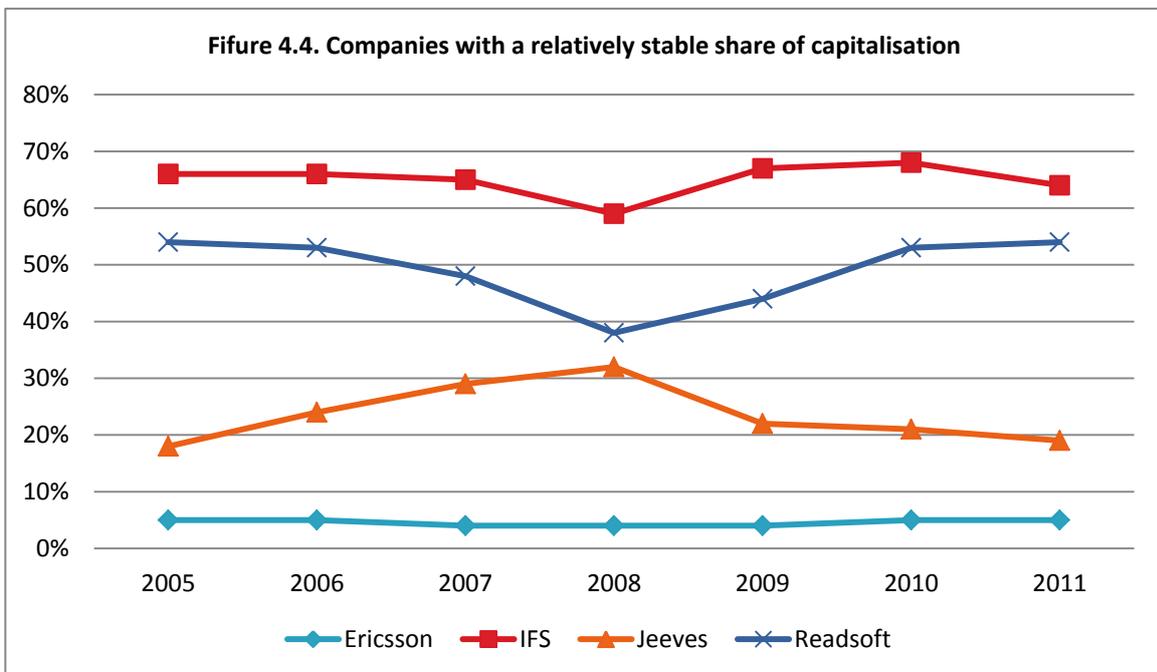
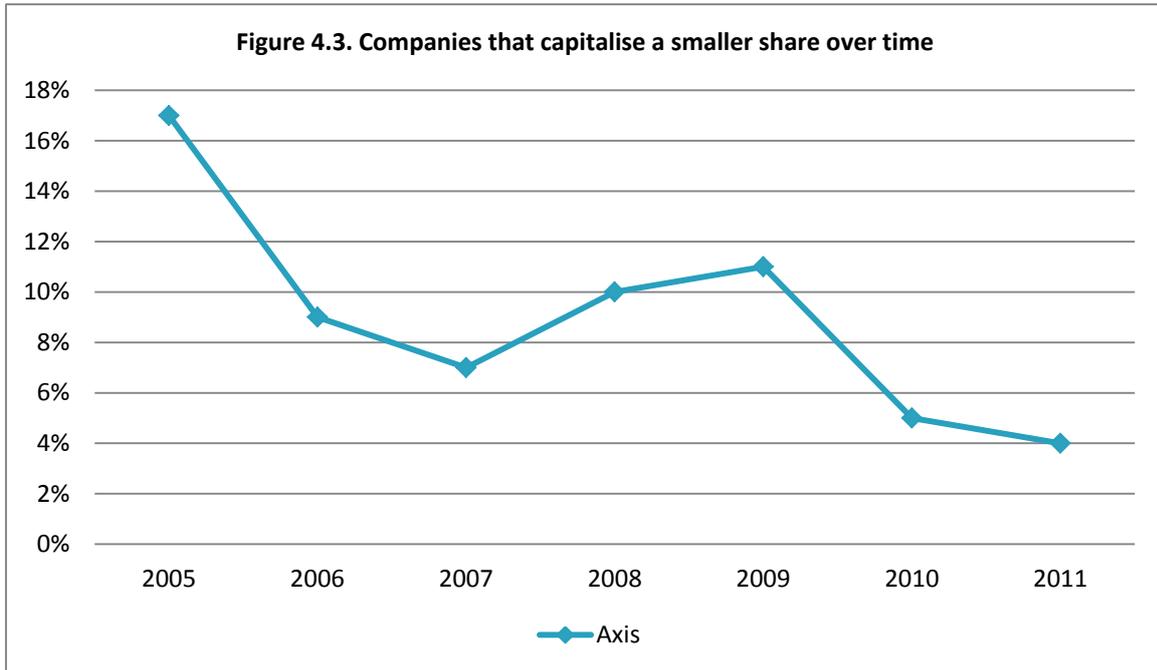
Companies which capitalise a larger share over time: HMS, Net insight, Transmode,

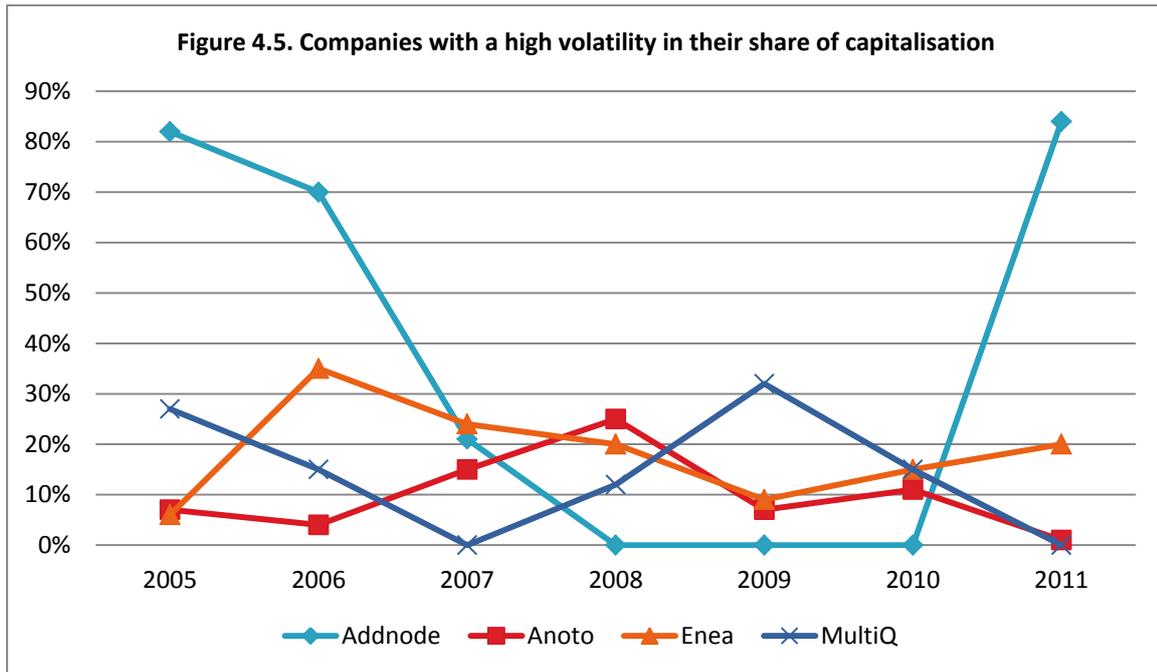
Companies which capitalise a smaller share over time: Axis

Companies with a relatively stable share of capitalisation: Ericsson, IFS, Jeeves, Readsoft

Companies with a high volatility in their share of capitalisation: Addnode, Anoto, Enea, MultiQ







The graphs above shows the majority of the companies studied have increasing or stable shares of capitalisation, and only one is clearly decreasing its' share. **Thus, the study does not show any signs of a diminishing rate of capitalisation in the IT-industry.** However, four of the companies show a high volatility in their share of capitalisation. Four of the companies show a relatively stable share of capitalisation. Ericsson, undoubtedly the largest and most experienced company in our study, seems to be most stable regarding capitalisation of R&D, capitalising 4% - 5% every year.

4.4.2. TOTAL R&D EXPENSE IN RELATION TO NET SALES

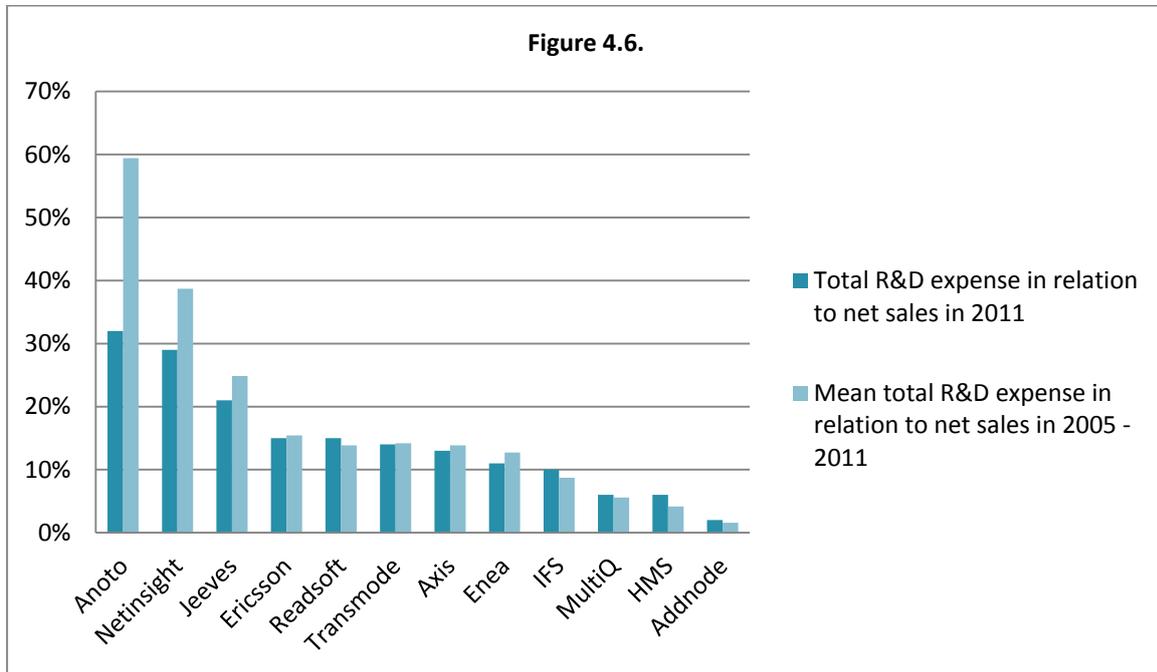
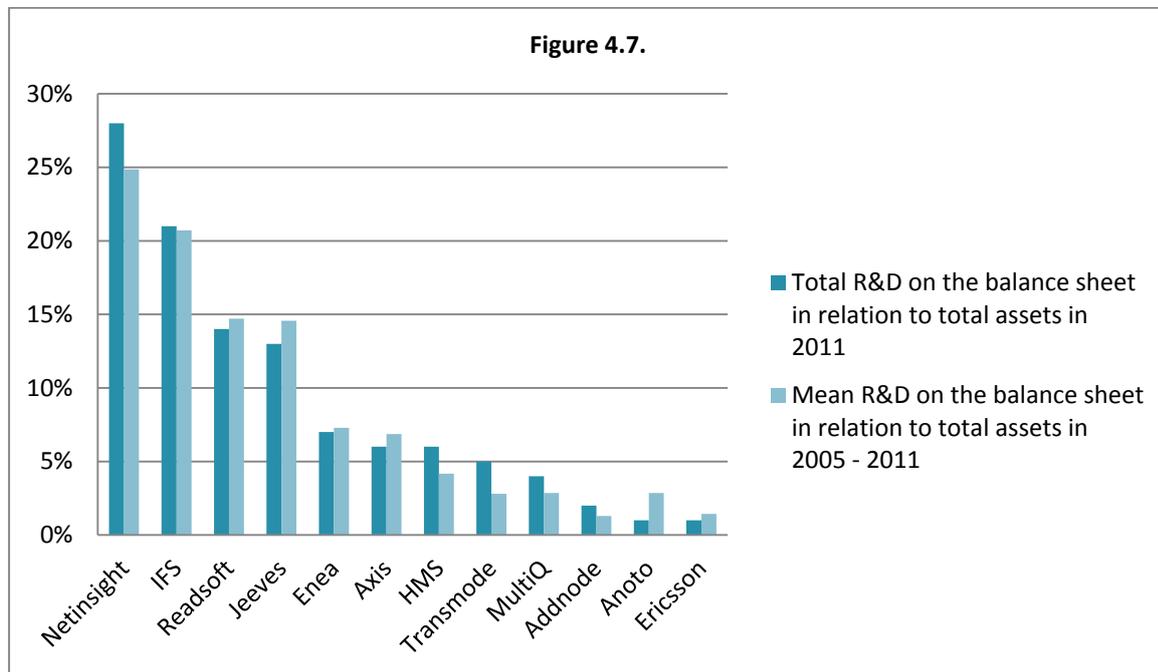


Figure 4.6. shows the total R&D expenses (i. e. the yearly investment) in relation to net sales of the current year. Anoto, Net insight and Jeeves are the companies which invest the largest share of their revenues in R&D. Although, Anoto may be viewed as an outlier as they have extremely high R&D expenses in some years, e. g. investing over 100% of their net sales in years 2005 and 2006 (The mean for 2007-2011 is a more moderate 38%, placing it behind Net Insight). **The majority of the companies seem to invest roughly 10% - 15% of their yearly revenues into R&D.**

4.4.3. TOTAL R&D ON THE BALANCE SHEET IN RELATION TO TOTAL ASSETS



The chart above indicates a large spread in capitalised R&D as a share of total assets. Naturally, the three companies which have the largest degree of capitalisation, Net insight, IFS and Readsoft, also have the largest shares. Because of the large spread, a mean for the industry as a whole may seem irrelevant, **but for most companies, capitalised R&D account for 7% or less of total assets. However, capitalised R&D on the balance sheet differs greatly in importance between firms.**

4.4.4. DISCLOSURE

The degree of disclosure regarding R&D seems to be relatively low in the IT-industry as we were not able to collect sufficient data from eleven out of the 31 companies included in the study.

Concerning the companies that disclose their R&D expenditure fully, **the actual information can be found in a variety of places in the annual reports**, e.g. the director's report, the financial statements or the notes. (See appendix 1 for more information regarding specific companies)

SECTION 5: DISCUSSION

THE DATA FOUND IS ANALYSED AND DISCUSSED. WE DISCUSS THE CAUSES AND CONSEQUENCES OF THE ACCOUNTING PRACTICES AND ANSWER RESEARCH QUESTIONS TWO AND THREE.

5.1. R&D ACCOUNTING IN PRACTICE'S IMPACT ON QUALITY

How do the R&D accounting practices in the Swedish IT-industry affect the overall quality of the financial reports?

As mentioned in the theory section, even scientific research on capitalisation and immediate expensing is ambiguous. Each methods has its' own advantages and disadvantages on different qualitative characteristics and accounting principles. Furthermore, some research favours capitalisation while other favours immediate expensing. In this section, we aim to discuss how the different accounting practices identified in our study may affect the overall quality of financial statements. However, we do not aim to find substantial answers to questions that have not been able to be answered even by more qualified research.

5.1.1. RELEVANCE

The companies in our study all combine capitalisation and immediate expensing, although to very different extents. The *relevance* of the financial statements for decision-making may improve when companies apply a combination of capitalisation and immediate expensing, as investors and other stakeholders are informed of to what degree the development expenses are assessed to yield future economic benefits. Simply expensing all development expenses may conceal critical information from users and thus worsen relevance.

Regarding the non-responses in our study, lack of information about R&D expenses clearly worsens the relevance of the financial reports. More specifically: If no data on R&D is provided the *predictive value* of the reports diminishes, as users will not be able to estimate future R&D activities, and possibly neither future economic performance. Lack of information can also mean users are not able to check their previous decisions. This means the relevance is worsened as *feedback value* is another aspect of relevance. Whether the expenses are capitalised or immediately expensed does not matter in these cases, as both methods provide relevant information.

5.1.2. RELIABILITY

Unless companies choose a policy to solely expense or (although not coherent with IAS 38) capitalise their R&D expenses, items for assessment will arise. Such items could worsen the *neutrality* of the financial information as part of the R&D accounting could become an item for the company's own judgement.

Although, the fact is that for most companies in the study capitalised R&D account for only a small proportion of total assets. This means the *reliability* of the balance sheet of these companies seem to be influenced less.

Nevertheless, as evident in our study, R&D costs and total R&D expenses sometimes account for a significant part of IT-companies' income statements. When the income statement includes items for



assessment the reliability of net income, and thus as well some financial ratios, as measurements decreases.

Capitalisation can be viewed as a less reliable option as it to an extent conflicts with the prudence concept, which is closely connected to the concept of reliability. This would imply companies with a high degree of capitalisation have a lower reliability of their financial statements.

The fact that capitalisation does not seem to decrease over time does indeed mean the reliability of the financial reports may have worsened. However, immediate expensing still seems to be the dominating practice regarding R&D expenses and thus reliability is strengthened.

An aspect of reliability is said to be *completeness*. As evident when observing the amount of non-responses in our study, a large amount of companies does not fully achieve completeness as information regarding R&D, which must be viewed as important for decision-making, is left out. Thus, the *representational faithfulness* and, accordingly, the reliability of many of the studied financial statements is reduced.

5.1.3. COMPARABILITY

The main conclusion when studying the data in our study is the large spread in accounting practice. The fact that the R&D accounting practice differs substantially between the companies indicates a lower degree of *comparability between companies* regarding R&D in the Swedish IT-industry. Naturally, comparing companies is only possible if the companies differ. However, comparability is worsened when differences arise due to a wide scope of interpretation, as seems to be the case for the IT-industry due to the large hazard and spread. When there is room for assessment, there is a risk two basically identical companies disclose differing images. When assumptions made by companies differ, comparing the financial reports of these companies becomes increasingly difficult. Examples of possible differences could be assessments regarding what is research and what is development or whether development meet the requirements of capitalisation.

However, since the operations of the companies in Nasdaq OMX Nordic's IT-category differs to a high degree (as evident in the short presentations in section four), differences in accounting practice may be viewed as somewhat more legitimate.

Four of the companies in the study show a high volatility in their R&D accounting. This clearly reduces the *comparability over time*, as stable accounting practices are preferable. As most companies seem to have some sort of policy or plan for their R&D accounting, this does not seem to be a problem for the industry as a whole.

In the data collection process, it became clear that the information on R&D expenses can be found in several places in the annual reports. This also decreases the degree of comparability between companies, as comparing information on companies becomes increasingly harder if said information is hard to find or found in different places.

To summarise, comparability seems to be the qualitative characteristic most affected by the R&D accounting practice in the IT-industry.



5.1.4. THE MATCHING PRINCIPLE AND THE PRUDENCE CONCEPT

The immediate expensing method seems to be the dominating practice in Swedish public IT-groups. As mentioned in section 3.5., immediate expensing favours the prudence concept in favour of matching. This would implicate the prudence concept is still the leading principle in R&D accounting, despite the suspected increase in the importance of matching in Swedish accounting practice.

Still, the large spread in our study means there are also companies who seem to favour matching to a greater extent, in this case e. g. Net Insight and IFS. Thus, matching is also an important factor in accounting in Swedish IT-firms.

The fact that only a small proportion of total assets in the companies studied is also a sign of a higher degree of prudence. Undervaluing of uncertain assets is coherent with the prudence concept and this seems to be the case for most companies.

5.1.5. COSTS AND BENEFITS

A possible reason for differences in disclosure and accounting practices between the companies in our study could be differing results in their evaluation of costs and benefits. Companies that did not meet our requirements because of lack of information may have reached the conclusion that producing the additional information on R&D expenditure would bring costs which exceeded the benefits in this particular case. Information regarding R&D may be of great value for stakeholders, but the companies may view this value as below the costs occurring through competitors gaining insight into the company's R&D operations.

5.2. BACK FACTORS FOR R&D ACCOUNTING IN PRACTICE

Can the choices made by the companies when accounting for R&D be explained by factors such as profitability and capital structure?

It is hard to draw any statistical conclusions on back factors due to the large spread in our data material. Because of this, this section includes a deeper analysis of four companies which we find especially relevant, characteristic and/or interesting. These companies are Anoto, Axis, Ericsson and IFS.

Anoto has been chosen due to being a company in decline, which has shown zero or negative net income during every year of our study. It also has a very high R&D expenditure.

Axis is a progressively growing company with satisfying profitability, and has also steadily diminished its capitalisation of R&D over time.

Ericsson is a large, experienced and stable company. However, it shows a diminishing return. It also has the lowest degree of capitalisation in our study.

IFS has one of the highest degrees of capitalisation in our study. It is a stable company with stable returns and has greatly improved its equity ratio over time.

We discuss possible causes of the companies' chosen R&D accounting practices and try to find connections with their financial positions. The discussion begins with an overview of the companies' financial positions by applying the square model introduced in section 3. We then describe the companies' development over time and if this can explain how they account for R&D.

For more detailed data and square models, see appendix 1 and 2 respectively.

5.2.1. ANOTO

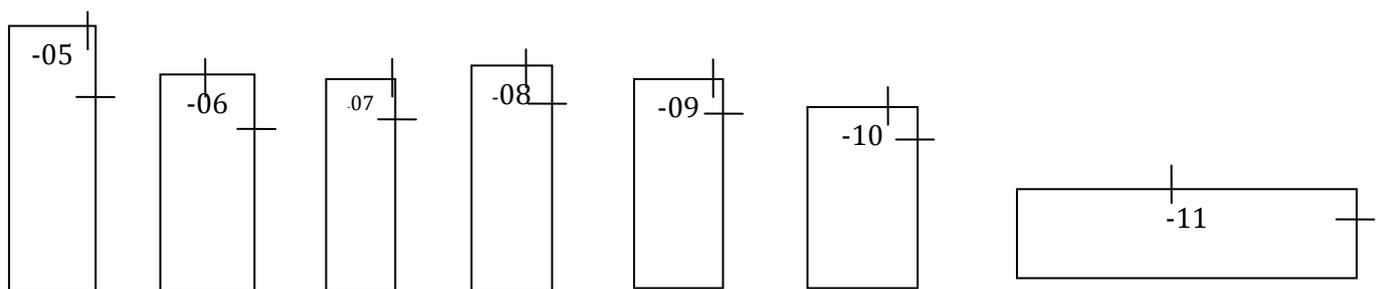
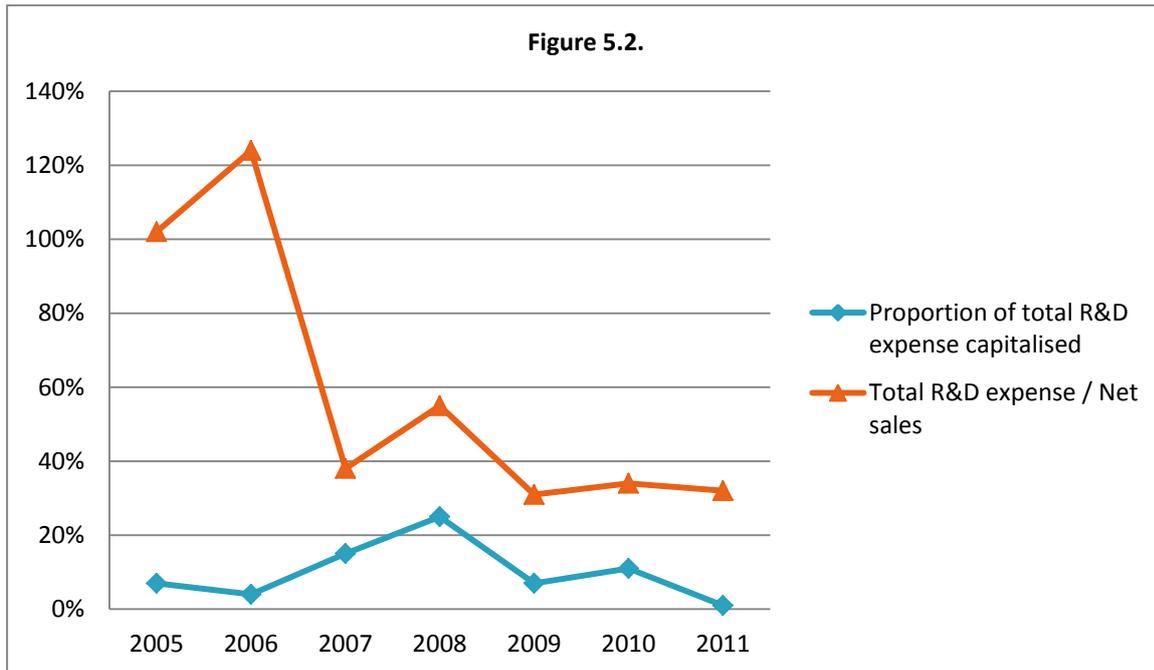


Figure 5.1. The square model. Scale 1 cm = 200 Mkr

By looking at figure 5.1., one can see that Anoto have been showing negative net incomes since 2005, and thus the balance sheet total has diminished over time. However, the equity ratio has been stable over time at around 80% which indicates Anoto has amortised their liabilities at the same pace as the diminishing of equity. However, in 2011 the equity ratio drops to 65%.



Anoto has a relatively low proportion of capitalisation but with a high volatility. The proportion ranges from 0% to 25%. The R&D expenses has been high in relation to net sales (over 100% in 2005-2006), but has dropped and is now 33%, although still higher than most other companies in our study. In their annual report, Anoto says their R&D expenditure is aimed at developing and integrating new hard- and software for their digital pens¹⁰¹.

The fact that a company like Anoto mainly chooses to capitalise a small proportion of their R&D expenses is something that we find interesting. As mentioned, in 2005 and 2006 Anoto's total R&D expenses were 111% and 137% of their net sales. This means they spent more money on R&D than what they were able to gain in revenue. During these years, capitalisation was 7% and 4%, respectively. With such an effort made on product development of existing products, Anoto would probably assess their investments to yield some future economic benefits. Thus, one could think a higher degree of the expenses would meet the capitalisation requirements of the IFRS. A possible reason could be that most of the expenses were spent on research, though we have not been able to find information on this in the annual reports.

As the square model shows, Anoto has had negative income every year of our study. We find this interesting as their low degree of capitalisation means their income is worsened even more in individual years by large amounts of costs. A higher degree of capitalisation would smooth their net income and perhaps yield a higher degree of representational faithfulness.

The reason that Anoto still expenses most of their R&D immediately could be lack of belief in future economic benefits of their products. As an example, in 2011 Anoto made a large impairment of their goodwill item on the balance sheet. As goodwill essentially represents assessed future profits, this may indicate Anoto do not predict their products to yield future cash flows. In fact, their low degree of capitalisation may be due to this fact.

¹⁰¹ Anoto annual reports 2005-2011

Because of their losses and diminishing capital, Anoto has issued new equity. Perhaps another alternative could be to capitalise a larger proportion of their R&D expenses to show the public that they expect future revenues, if they do. This could lead to a possibility of receiving more profitable loans instead of turning to the shareholders for more equity. However, as argued above, Anoto does not seem to estimate future economic benefits.

Looking at the equity ratio of Anoto, one can see it is above the average of the companies in our study and can therefore be viewed as relatively high. As the equity ratio can be a measure of the ability to withstand future losses, Anoto still has room for more expensing of R&D as costs, at least if only the equity ratio is taken into account. As capitalisation provides the public with more information regarding a company's R&D operations, it could be preferable to write off all expenses as costs to hide information from industry-competitors. The fact that Anoto still has enough equity to afford to do so could be a cause for their low capitalisation.

To summarise: It seems Anoto consistently favours the prudence concept in their accounting and applies immediate expensing. The question is whether this is fully appropriate considering their financial situation. Possible causes may be that they still maintain enough equity to afford immediate expensing and thus avoid disclosure of information, or that their expenses simply are to a higher degree research than development.

5.2.2. AXIS

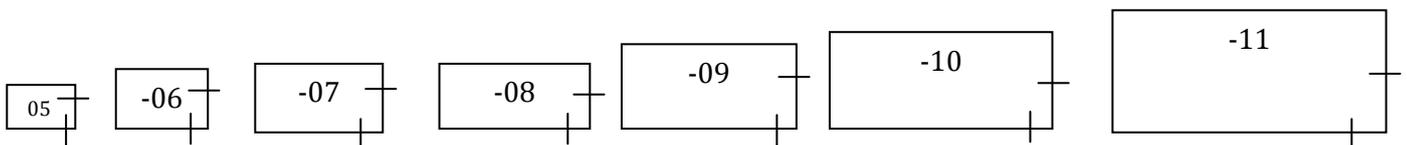
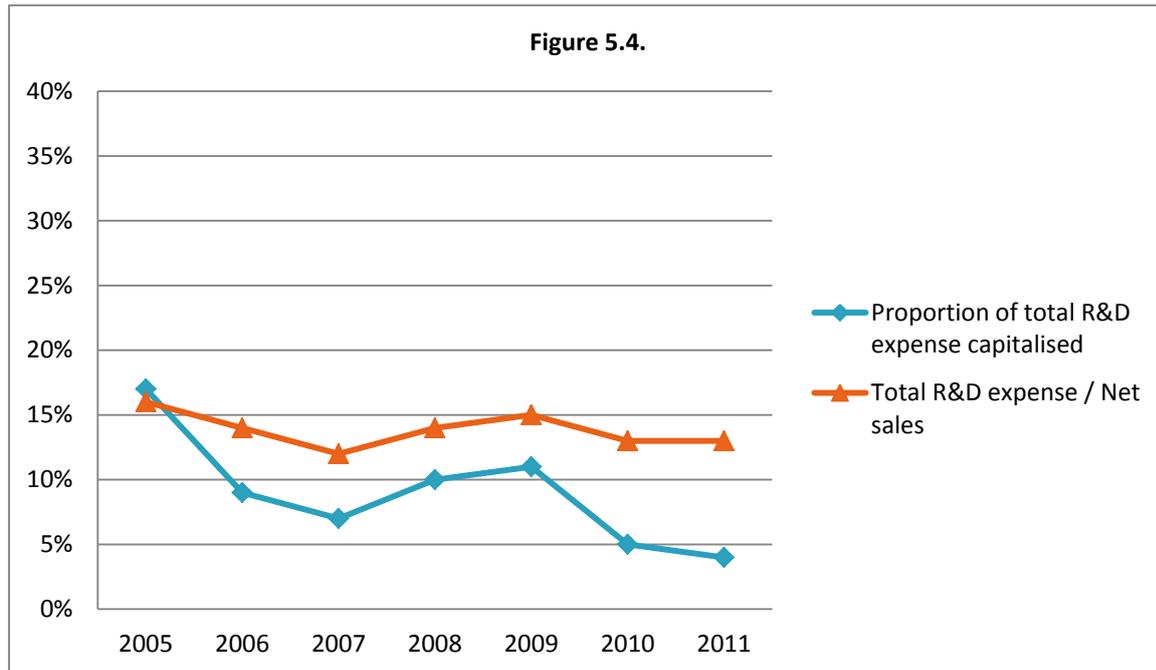


Figure 5.3. The square model. Scale 1 cm = 1 000 Mkr

The square model shows Axis has had a growing net income over time. The balance sheet total and the revenues have increased as well. Revenues have increased most rapidly, and have grown by over 400% since 2005. This has led to a wide, rectangular shape of the model, which indicates an increased asset turnover. The increase in balance sheet total is mainly financed by leverage as the equity ratio drops from approximately 70% in 2005 to slightly below 50% in 2011.



Axis's R&D expenses are stable at approximately 14% of net sales. The proportion capitalised has decreased over time: From 17% to 4%.

Axis states in their annual report that their goal is to retain an optimum capital structure that can generate returns for the shareholders as well as creating security for future operations. They also portray themselves as market-leaders and describe that their product development continues at a higher pace due to increased demand¹⁰².

What we find most interesting is the fact that the proportion capitalised has diminished while the relation between R&D expenses and net sales has stayed the same. We theorise this might be connected to Axis's goal of reaching an "optimum capital structure" to generate higher returns to shareholders. By reducing capitalisation of R&D, short-term net income is reduced and consequently equity is reduced. The reduced equity ratio boosts the leverage effect (see appendix 1) and yields a higher return on equity, as evident in the case of Axis where the return on equity has grown significantly over time (See appendix 1).

Axis has grown significantly over time and their future still looks bright. This may have affected their R&D accounting practice as well. As an increasingly prosperous company, Axis is more likely to be exposed to competitors and benchmarking. This creates an incentive to avoid disclosure. As Axis has become a company with stable growth and satisfactory profit and profitability, they can afford to avoid such disclosure by using the immediate expensing method.

One could argue that Axis's capitalisation should be higher than it currently is as the company is a market leader with an increasing demand, and thus will probably receive economic benefits in the future. Therefore, one could argue a larger share of Axis's expenses could be viewed as assets. Further stable investments in R&D would possibly keep capitalisation stable at a similar level.

¹⁰² Axis annual report 2011

5.2.3. ERICSSON

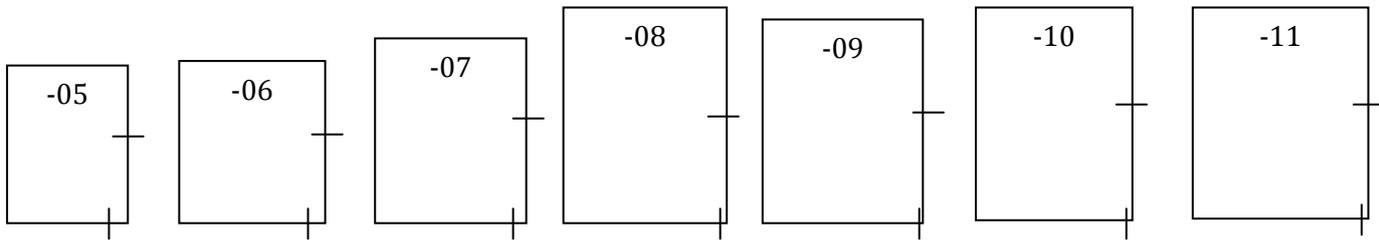
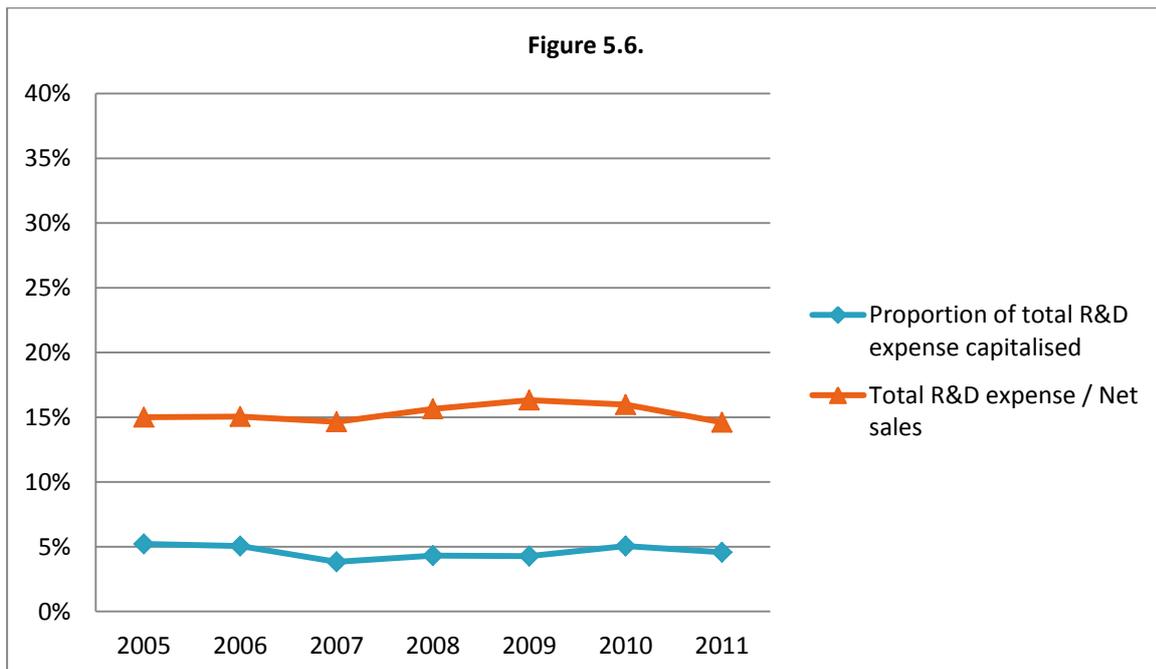


Figure 5.5. The square model. Scale 1 cm = 100 000 Mkr

Figure 5.5. shows us Ericsson’s balance sheet total has increased over time, although this has not affected the equity ratio which remains stable at 50%-56%. The revenues has grown over time, however the costs have as well. One can see in the model that the costs have grown at a faster pace than revenues, which undoubtedly has led to a diminishing net income, from 24 billion in 2005 to 13 billion in 2011. A larger balance sheet total combined with diminishing profit has led to decline in the return on assets as well as the return on equity (See appendix 1).



Our study shows Ericsson capitalises their R&D expenses to a very small degree, having the lowest proportion capitalised among all companies included. The capitalisation lies between 4% and 5% every year and is thus very stable. Total R&D expenses are stable as well, 15%-16% every year.

We find it interesting that Ericsson steadily capitalises 4%-5% every year since 2005. This clearly distinguishes the company from the others in our study, who show at least some variation in their degree of capitalisation. We speculate that some kind of policy may be the cause for Ericsson’s stability in capitalisation and R&D expenditure. Another factor could be uncertainty: According to Ericsson themselves, their industry is characterised by rapid changes in technology and demand, something that would worsen the ability to assess future economic benefits of development

activities¹⁰³. This may be an explanation for the low degree of capitalisation as well, as it prevents impairment losses in the future due to mistaken judgements made today regarding future profitability. Consequently, Ericsson is favouring the prudence concept.

Similarly, the capital structure and profitability may explain Ericsson’s R&D accounting practice. Looking at Ericsson’s capital structure, it is evident that the company has a stable equity ratio and therefore is able to withstand the short-term associated with immediate expensing of R&D. Its yearly profits indicate this as well. Thus, as mentioned above, Ericsson may evade unpredictable events by expensing R&D as early as possible. As well, stable firms do not need to disclose to the public the additional information associated with capitalisation.

5.2.4. IFS

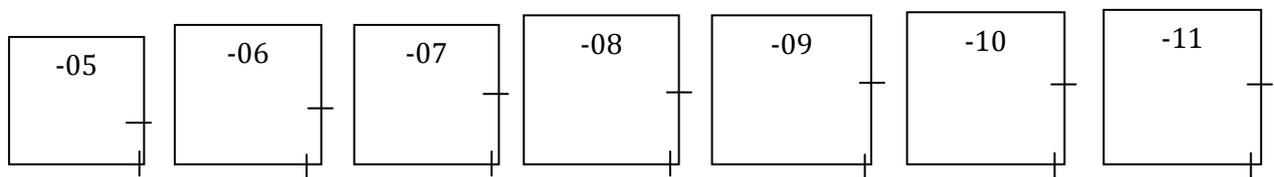
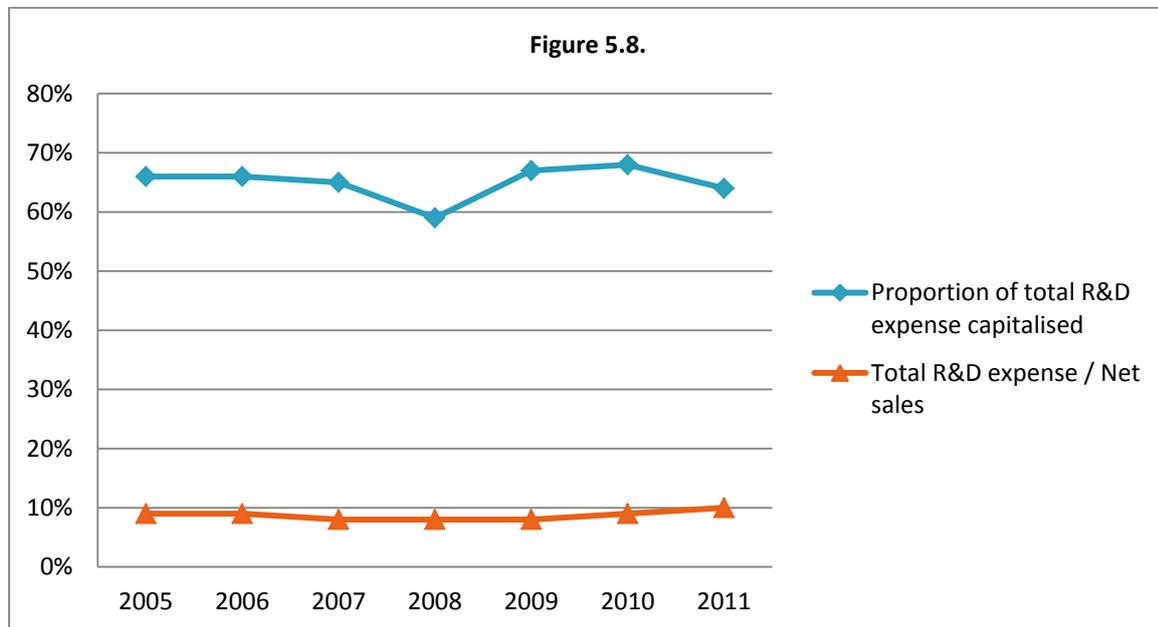


Figure 5.7. The square mode: Scale 1 cm = 1 250 Mkr

The square model depicts IFS as a stable company which grows equally in revenues and balance sheet total. An improvement in the equity ratio can be seen in the model, from 29% to 51%. One can also see IFS has a stable and positive net income over the years.



IFS has a high degree of capitalisation, one of the highest in our study. It ranges from 60%-70% and remains relatively stable. This accounting practice has led to an high importance of the item

¹⁰³ Ericsson annual report 2011



capitalised R&D on the balance sheet, as this accounts for approximately 20% of IFS total assets. The R&D investments have remained stable at 8%-10% of net sales.

IFS states in their annual report that their goal is to retain a good capital structure, which can lead to a good credit rating to enable future acquisitions¹⁰⁴.

We find it interesting that IFS retains such a high degree of capitalisation every year. Their investments in relation to net sales remain at the same level every year as well. We would like to know if some kind of policy is the cause for their smooth and consistent R&D accounting practice.

We also theorise if their goal to improve their equity ratio has affected their R&D accounting practice. IFS has expensed a relatively small share of their R&D expenses, which has led to an increase in equity and consequently an improved equity ratio.

As a stable company, one could argue that IFS can afford immediate expense of their R&D expenses and thus avoid disclosure. However, with such a high degree of capitalisation, a change in accounting practice will affect IFS's already relatively low profit and profitability negatively.

5.2.5. COMPARISON

If we compare these four cases on the basis of capital structure, we can find similarities in Axis, Ericsson and Anoto. All of them have had a relatively high equity ratio over the years, which has given them the opportunity to reduce their short-term equity by using the immediate expensing method. In other words, they can afford to apply the prudence concept. When comparing these three companies to IFS, we can see that the latter has had a relatively low equity ratio and has chosen to mainly capitalise their expenses. A low equity ratio mean IFS would not be able to withstand large, short-term losses, and thus be less able to apply the prudence concept.

To an extent, we theorise that the capital structure may be an important back factor in choice of accounting practice, at least in these four cases. Among these, the companies with a high equity ratio have chosen to capitalise less of their R&D expenses, and IFS has tried to raise their equity ratio by capitalisation to a higher degree.

According to the IFRS, the prudence concept is to be applied to research expenses while matching is to be applied to (most) development expenses. Because of this, both principles are important to take into account when accounting for R&D. Therefore, we find it interesting that the companies in our cases tend to favour one of the principles based on their capital structure.

As mentioned earlier, we speculate that applying the prudence concept may be motivated by avoidance of disclosing information to competitors. Thus, they choose to immediately expense R&D if they can afford it in the short term. However, another cause may be that Swedish companies prefer the prudence concept over matching due to its' traditionally high status in Swedish accounting.

If we instead compare the companies on the basis of profitability and return, it is harder to find any similarities. In fact, all of them are in different phases: Axis has a growing profitability, IFS has stable profitability, Ericsson's profitability is declining and Anoto has a negative profitability. We have not been able to find direct links between R&D accounting practice and profitability, although in the case

¹⁰⁴ IFS annual report 2011 p.70



of Axis we did find that the cause for the great increase in return on equity was because of them lowering their equity, to an extent by capitalising less. Ericsson and Anoto have had declining profitability and low capitalisation, while IFS has a stable profitability with a high degree of capitalisation.

SECTION 6: CONCLUSIONS

THE RESULTS OF OUR STUDY ARE SUMMARISED. POSSIBLE SUGGESTIONS OF FURTHER RESEARCH ARE PRESENTED.

6.1. SUMMARY AND REFLECTIONS

The main conclusion of our study is that the intent of the R&D regulations in IAS 38 does not seem to correspond with practice. In other words, R&D accounting behaviour in the Swedish IT-industry differs greatly among companies. Some capitalise to a high degree while some capitalise almost none of their R&D expenses, and some companies have a changing proportion capitalised over time. The importance of R&D on the income statements and balance sheets also varies greatly. We have not been able to see any overall tendencies over time.

As not even qualified research can make distinct conclusions regarding which R&D accounting method is most relevant, it is not hard to see why companies accounting practices differ so greatly. In addition, as the IT-industry is complex and with a large spread in operations and business among companies, one can also see clearly why companies make different choices. In addition, the regulations in IAS 38 make companies themselves responsible for evaluating whether to capitalise their R&D expenses or not and thus it is not hard to see varying accounting practices.

However, most companies in our study seem to immediately expense most of their R&D expenditure. This can be seen in favour of the prudence concept, and a will among companies to not over-value assets and under-value costs. This can be traced to Swedish accounting tradition, in which the prudence concept traditionally has a very high status.

Regarding other back factors of accounting practice choice, it is hard to draw general conclusions as well. In our study of back factors, we studied four companies more closely and found a connection between the companies' equity ratios and their choice of accounting method. We theorise that companies with high equity ratios who can afford to apply the prudence concept and immediately expense R&D do this. This could be explained by one of the benefits of the immediate expensing method, as it provides less information to competitors. The company IFS may have chosen to capitalise a large share of its R&D to improve equity and thus reach its goal of a higher equity ratio. Therefore, we also theorise company goals, strategies and policies may affect the R&D accounting practice.

Another fact which has been evident in our study is that a large proportion of Swedish public IT-groups provide little or no information on their R&D expenditure. Again, this may be due to a wish to not disclose information to the public because the information regarding their R&D expenditures may benefit their competitors more than the companies will gain by releasing the information to the public.

A few consequences of these accounting practices on the quality of the financial reports can be found. The fact that information can be defective among the companies may cause the users to make incorrect decisions due to the lack of the necessary information they require. This will worsen the relevance of the financial reports.

IFRS is a principle-based standard, and this will create opportunities for assessment. This may lead to varying accounting practice between similar companies, as subjective judgements from companies determine the outcome of the accounting. This may in turn worsen reliability.



However, the main conclusion is that the comparability between companies is greatly worsened by the differing practices and assessments. Comparability over time is also weakened as some companies' R&D accounting seems to fluctuate over time. As the main purpose of the financial reports is to aid in decision-making, the ability to compare financial reports is crucial.

The fact that the degree of comparability is low makes us questioning if the principle-based regulations of today is enough.

6.2. SUGGESTIONS FOR FURTHER RESEARCH

We would like to study closer if the familiarisation of the IFRS has led to a downgrade in comparability between companies. The purpose of IFRS is to create harmonisation in accounting. If we look at the companies in our study we reach the conclusion that harmonisation is insufficient in the R&D accounting area for the IT-industry and that it may be due to the large scope of interpretation. Because of this, we would like to know if a rule-based regulation, such as the US GAAP, would improve comparability and harmonisation.

We would also like to know how R&D accounting was applied in the IT-industry before the familiarisation of the IFRS and compare it to our study.

Additionally, we would find it interesting to see how R&D is treated in other industries besides IT.

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Formpipe Software AB (publ.)
HiQ International AB (publ.)
HMS Networks AB (publ.)
IAR systems Group AB (publ.)
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APPENDIX 1

THIS APPENDIX INCLUDES DETAILED DATA OF OUR QUANTITATIVE STUDY OF ANNUAL REPORTS.

HOW TO INTERPRET THE EMPIRICAL DATA

R&D cost (current year) – The immediate expense of research and development for the year. The amount is sometimes presented directly by the companies, and sometimes calculated from the income statement. If the company applies an income statement classified by function, the item “R&D costs” is explicitly stated. According to Swedish generally accepted accounting principles¹⁰⁵, this item also includes depreciation of previously capitalised development expenses. We have assumed that this is also the case for Swedish IFRS-companies if no other information can be found. Thus, in these cases, R&D cost (current year) is calculated as the item on the income statement less depreciation.

Capitalised R&D (current year) – The year’s capitalisation of development expenses. Explicitly stated, mostly in notes.

Total capitalised R&D on the balance sheet – The total amount of capitalised development expenses remaining on the balance sheet at the end of the year. Stated in the balance sheet and in the notes.

Total R&D expense current year (cost + capitalised) – The total investment in R&D (total R&D expenses) for the year, i. e. the amount immediately expensed plus the amount capitalised.

Proportion of total R&D expense capitalised – The share of the total research and development expense that was capitalised the current year. (Capitalised R&D / Total R&D expense)

R&D cost / Net sales – The share of net sales “lost” on R&D costs in the income statement.

Total R&D expense / Net sales – The share of net sales spent on R&D.

Total R&D on balance sheet / Total assets – The share of the company’s total assets that are capitalised development expenses.

¹⁰⁵ RedR 1



Return on assets

Return on assets (ROA) is a common ratio to illustrate the profitability of a firm. It shows the “interest” received during the current year on all assets invested in the business.

ROA is commonly calculated by this formula:

$$ROA = \frac{\text{Earnings before interest expenses}}{\text{Total assets}}$$

ROA is not to be affected by the financing policy of the company, i.e. the interest expenses. Because of this, earnings before interest expenses are used in the formula.

Return on equity

Return on equity (ROE) is used in a way similar to ROA, but is more specific: It shows the yield on the shareholders’ invested capital, i. e. the equity of the firm.

ROE is calculated as:

$$ROE = \frac{\text{Earnings before taxes}}{\text{Equity}}$$

Because of shareholders being more interested in what they effectively receive on their invested capital, interest expenses are included in the ROE-formula.

A characteristic of ROE is the fact that it is boosted by *the leverage effect*. ROA and ROE are connected, but changes in ROA becomes greater (both positive and negative changes) in ROE if the leverage of the firm is higher.

Equity ratio

The equity ratio shows how much of the total assets of a firm that is financed by equity, and can thus be a measure of longer-term survival.

The equity ratio is calculated as:

$$\text{Equity ratio} = \frac{\text{Equity}}{\text{Total assets}}$$



FEATURED IT-GROUPS

All data is presented as millions of Swedish kronor (MSEK). All data have been rounded off to the nearest MSEK, except in the case of MultiQ for clarification purposes.

ADDNODE

(Small Cap)

Year	2005	2006	2007	2008	2009	2010	2011
Net sales	580	629	795	1025	989	1060	1300
Earnings before interest expenses	52	50	76	105	50	54	122
Earnings before taxes	50	49	75	104	45	53	121
Total assets	762	841	860	973	911	1149	1207
Equity	398	526	505	588	601	715	773
R&D cost (current year)	2	3	6	7	12	19	3
Capitalised R&D (current year)	9	7	1	0	0	0	18
Total capitalised R&D on the balance sheet	19	6	7	5	5	7	21
Total R&D expense current year (cost + capitalised)	11	10	7	7	12	19	21
Proportion of total R&D expense capitalised	82%	70%	21%	0%	0%	0%	84%
R&D cost / Net sales	0%	1%	1%	1%	1%	2%	1%
Total R&D expense / Net sales	2%	2%	1%	1%	1%	2%	2%
Total R&D on balance sheet / Total assets	2%	1%	1%	1%	1%	1%	2%
Return on assets	7%	10%	15%	11%	5%	5%	10%
Return on equity	13%	9%	15%	18%	7%	7%	16%
Equity ratio	52%	63%	59%	60%	66%	62%	64%

The director's report contains no information on R&D other than stating that all R&D which does not live up to the requirements for capitalisation is expensed. Furthermore, information is collected from the financial statements and notes.



ANOTO

(Small Cap)

Year	2005	2006	2007	2008	2009	2010	2011
Net sales	113	109	169	144	206	208	192
Earnings before interest expenses	-8	-127	-5	-51	-19	-74	-243
Earnings before taxes	-14	-132	-7	-60	-21	-77	-244
Total assets	706	577	565	601	555	480	236
Equity	557	458	453	488	468	395	153
R&D cost (current year)	107	129	55	60	59	64	61
Capitalised R&D (current year)	8	6	9	20	4	8	0
Total capitalised R&D on the balance sheet	30	15	12	27	26	3	3
Total R&D expense current year (cost + capitalised)	115	135	64	80	64	72	61
Proportion of total R&D expense capitalised	7%	4%	15%	25%	7%	11%	1%
R&D cost / Net sales	111%	137%	37%	45%	31%	46%	33%
Total R&D expense / Net sales	102%	124%	38%	55%	31%	34%	32%
Total R&D on balance sheet / Total assets	4%	3%	2%	4%	5%	1%	1%
Return on assets	-1%	-22%	-1%	-9%	-3%	-15%	-103%
Return on equity	-2%	-29%	-1%	-12%	-4%	-20%	-159%
Equity ratio	79%	79%	80%	81%	84%	82%	65%

Anoto's director's report does not contain any information regarding R&D, all information were collected from financial statements and notes regarding intangible assets.

AXIS COMMUNICATIONS

(Mid Cap)

Year	2005	2006	2007	2008	2009	2010	2011
Net sales	895	1202	1671	1975	2301	2933	3578
Earnings before interest expenses	128	223	368	341	308	415	633
Earnings before taxes	128	222	367	340	307	413	631
Total assets	580	789	914	859	1118	1279	1618
Equity	407	501	551	441	608	627	769



R&D cost (current year)	118	147	183	244	314	365	462
Capitalised R&D (current year)	24	15	13	26	38	20	19
Total capitalised R&D on the balance sheet	52	56	59	60	80	83	96
Total R&D expense current year (cost + capitalised)	142	162	196	270	352	385	481
Proportion of total R&D expense capitalised	17%	9%	7%	10%	11%	5%	4%
R&D cost / Net sales	14%	13%	12%	14%	14%	13%	13%
Total R&D expense / Net sales	16%	14%	12%	14%	15%	13%	13%
Total R&D on balance sheet / Total assets	9%	7%	6%	7%	7%	6%	6%
Return on assets	22%	28%	40%	40%	28%	32%	39%
Return on equity	31%	44%	67%	77%	50%	66%	82%
Equity ratio	70%	63%	60%	51%	54%	49%	48%

Clear information on R&D expenses is provided in both the director's report and notes. Data regarding total expenses and proportion capitalised was collected from the director's report and the remaining from financial statements and notes.

ENEA

(Small Cap)

Year	2005	2006	2007	2008	2009	2010	2011
Net sales	712	750	821	918	778	726	722
Earnings before interest expenses	62	72	80	85	9	72	11
Earnings before taxes	61	69	77	81	-1	68	6
Total assets	503	560	624	767	697	661	565
Equity	339	379	435	548	516	513	416
R&D cost (current year)	57	61	80	108	89	90	66
Capitalised R&D (current year)	4	33	26	28	9	16	16
Total capitalised R&D on the balance sheet	17	45	60	72	45	52	41
Total R&D expense current year (cost + capitalised)	61	94	106	135	99	106	82
Proportion of total R&D expense capitalised	6%	35%	24%	20%	9%	15%	20%
R&D cost / Net sales	8%	9%	11%	13%	16%	14%	13%
Total R&D expense / Net sales	9%	13%	13%	15%	13%	15%	11%
Total R&D on balance sheet / Total assets	3%	8%	10%	9%	6%	8%	7%



Return on assets	12%	13%	13%	11%	1%	11%	2%
Return on equity	18%	18%	18%	15%	0%	13%	2%
Equity ratio	67%	68%	70%	72%	74%	78%	74%

Enea does not provide any information on R&D expenses in the director's report and all data were collected from financial statements and notes.

ERICSSON

(Large Cap)

Year	2005	2006	2007	2008	2009	2010	2011
Net sales	151 821	177 783	187 780	208 930	206 477	203 348	226 921
Earnings before interest expenses	35 737	37 782	32 424	19 710	7 792	17 502	20 782
Earnings before taxes	33 335	35 993	30 729	17 226	6 243	15 783	18 121
Total assets	208 829	214 940	245 117	285 684	269 809	281 815	280 349
Equity	105 527	120 895	135 052	142 084	141 027	146 785	145 270
R&D cost (current year)	21 350	25 402	26 455	31 296	32 251	30 845	31 636
Capitalised R&D (current year)	1 174	1 353	1 053	1 409	1 443	1 644	1 515
Total capitalised R&D on the balance sheet	6 161	4 995	3 661	2 782	2 079	3 010	3 523
Total R&D expense current year (cost + capitalised)	22 524	26 755	27 508	32 705	33 694	32 489	33 151
Proportion of total R&D expense capitalised	5%	5%	4%	4%	4%	5%	5%
R&D cost / Net sales	16%	16%	15%	16%	16%	16%	14%
Total R&D expense / Net sales	15%	15%	15%	16%	16%	16%	15%
Total R&D on balance sheet / Total assets	3%	2%	1%	1%	1%	1%	1%
Return on assets	17%	18%	13%	7%	3%	6%	7%
Return on equity	32%	30%	23%	12%	4%	11%	12%
Equity ratio	51%	56%	55%	50%	52%	52%	52%

Ericsson does not provide any information on R&D expenses in the director's report and all data were collected from financial statements and notes.



HMS NETWORKS

(Small Cap)

HMS Networks has applied the IFRS since 2006:

Year	2006	2007	2008	2009	2010	2011
Net sales	227	269	317	245	345	384
Earnings before interest expenses	52	55	87	33	85	75
Earnings before taxes	46	42	81	28	84	74
Total assets	329	352	390	339	392	391
Equity	153	182	224	240	286	299
R&D cost (current year)	19	26	27	29	32	37
Capitalised R&D (current year)	2	3	5	5	8	11
Total capitalised R&D on the balance sheet	8	14	14	14	18	23
Total R&D expense current year (cost + capitalised)	21	29	32	34	40	47
Proportion of total R&D expense capitalised	8%	10%	15%	15%	21%	23%
R&D cost / Net sales	9%	10%	9%	12%	9%	10%
Total R&D expense / Net sales	9%	11%	10%	14%	12%	12%
Total R&D in balance sheet / Total assets	2%	4%	4%	4%	5%	6%
Return on assets	16%	16%	22%	10%	22%	19%
Return on equity	30%	23%	36%	12%	29%	25%
Equity ratio	47%	52%	58%	71%	73%	76%

The director's report provides information on total R&D expenses, proportion capitalised and the total R&D expenses in relation to net sales. Other information was collected from financial statements and notes.

IFS

(Mid Cap)

Year	2005	2006	2007	2008	2009	2010	2011
Net sales	2 149	2 209	2 356	2 518	2 605	2 585	2 576
Earnings before interest expenses	128	126	154	172	202	224	239
Earnings before taxes	67	75	129	161	168	189	218
Total assets	2 105	2 305	2 311	2 471	2 474	2 516	2 559



Equity	615	866	1 117	1 229	1 305	1 295	1 302
R&D cost (current year)	62	65	65	83	71	75	93
Capitalised R&D (current year)	121	125	122	119	143	157	164
Total capitalised R&D on the balance sheet	509	497	476	454	481	501	531
Total R&D expense current year (cost + capitalised)	183	190	187	202	214	232	257
Proportion of total R&D expense capitalised	66%	66%	65%	59%	67%	68%	64%
R&D cost / Net sales	10%	9%	9%	9%	7%	8%	9%
Total R&D expense / Net sales	9%	9%	8%	8%	8%	9%	10%
Total R&D on balance sheet / Total assets	24%	22%	21%	18%	19%	20%	21%
Return on assets	6%	5%	7%	7%	8%	9%	9%
Return on equity	11%	9%	12%	13%	13%	15%	17%
Equity ratio	29%	38%	48%	50%	53%	51%	51%

Most information could be found in the director's report, total R&D expenses, proportion capitalised and depreciation. Other information was collected from financial statements and notes.

JEEVES

(Small Cap)

Year	2005	2006	2007	2008	2009	2010	2011
Net sales	94	120	130	158	180	177	187
Earnings before interest expenses	13	12	21	21	17	2	17
Earnings before taxes	13	12	20	20	16	1	16
Total assets	93	114	126	163	178	149	160
Equity	35	41	43	52	58	51	57
R&D cost (current year)	24	26	23	25	32	30	32
Capitalised R&D (current year)	5	8	10	12	9	8	8
Total capitalised R&D on the balance sheet	9	12	19	33	36	23	21
Total R&D expense current year (cost + capitalised)	29	35	33	37	41	39	39
Proportion of total R&D expense capitalised	18%	24%	29%	32%	22%	21%	19%
R&D cost / Net sales	26%	22%	18%	16%	18%	17%	17%
Total R&D expense / Net sales	31%	29%	25%	23%	23%	22%	21%



Total R&D on balance sheet / Total assets	9%	10%	15%	20%	20%	15%	13%
Return on assets	14%	11%	16%	13%	10%	2%	10%
Return on equity	37%	30%	47%	38%	27%	3%	28%
Equity ratio	37%	36%	34%	32%	33%	34%	36%

Total R&D expenses and the proportion capitalised was collected from the director's report. Remaining information was collected from the financial statements and notes.

MULTIQ

(Small Cap)

Year	2005	2006	2007	2008	2009	2010	2011
Net sales	82,4	87,5	105,7	146,5	143,9	105,7	91,9
Earnings before interest expenses	0,4	3,6	0,7	7,0	3,8	-10,2	1,3
Earnings before taxes	-0,1	3,2	0,4	5,3	2,4	-11,2	0,5
Total assets	66,5	61,7	113,5	105,0	113,0	82,4	90,3
Equity	36,5	38,9	51,5	55,9	62,1	50,9	51,6
R&D cost (current year)	3,4	2,6	4,3	7,7	5,7	6,1	5,3
Capitalised R&D (current year)	1,2	0,5	0	1,1	2,7	1,1	0
Total capitalised R&D on the balance sheet	1,4	1,5	1,1	1,8	4,1	4,4	3,4
Total R&D expense current year (cost + capitalised)	4,7	3,1	4,3	8,7	8,5	7,2	5,3
Proportion of total R&D expense capitalised	27%	15%	0%	12%	32%	15%	0%
R&D cost / Net sales	5%	4%	4%	6%	4%	7%	7%
Total R&D expense / Net sales	6%	4%	4%	6%	6%	7%	6%
Total R&D on balance sheet / Total assets	2%	2%	1%	2%	4%	5%	4%
Return on assets	1%	6%	1%	7%	3%	-12%	1%
Return on equity	0%	8%	1%	9%	4%	-22%	1%
Equity ratio	55%	63%	45%	53%	55%	62%	57%

Information regarding total R&D expenses and the relation between total R&D and net sales could be found in the director's report. Remaining information was found in the financial statements and notes.



NET INSIGHT

(Mid Cap)

Year	2005	2006	2007	2008	2009	2010	2011
Net sales	91	135	229	274	233	288	295
Earnings before interest expenses	-60	-10	35	44	36	45	47
Earnings before taxes	-60	-10	34	41	32	44	47
Total assets	191	194	261	358	408	531	569
Equity	148	137	181	274	335	441	492
R&D cost (current year)	37	21	14	26	18	22	20
Capitalised R&D (current year)	40	45	49	44	52	50	65
Total capitalised R&D on the balance sheet	44	59	69	68	95	122	159
Total R&D expense current year (cost + capitalised)	77	66	63	70	70	72	85
Proportion of total R&D expense capitalised	52%	68%	78%	63%	74%	69%	76%
R&D cost / Net sales	59%	36%	23%	26%	18%	8%	7%
Total R&D expense / Net sales	84%	49%	28%	26%	30%	25%	29%
Total R&D on balance sheet / Total assets	23%	31%	27%	19%	23%	23%	28%
Return on assets	-31%	-5%	14%	12%	9%	8%	8%
Return on equity	-40%	-7%	19%	15%	9%	10%	10%
Equity ratio	78%	70%	69%	77%	82%	83%	86%

The director's report provides information on the capitalisation of the current year and the amount of capitalised R&D on the balance sheet. Remaining information was found in the financial statements and notes.

READSOFT

(Small Cap)

Year	2005	2006	2007	2008	2009	2010	2011
Net sales	401	460	525	584	618	618	663
Earnings before interest expenses	53	48	25	11	14	51	81
Earnings before taxes	53	48	24	7	11	49	80
Total assets	368	490	566	615	581	610	707
Equity	169	239	262	273	249	267	324

R&D cost (current year)	22	25	40	55	49	40	45
Capitalised R&D (current year)	25	28	37	34	38	45	53
Total capitalised R&D on the balance sheet	63	87	94	71	71	81	101
Total R&D expense current year (cost + capitalised)	47	53	77	89	87	85	98
Proportion of total R&D expense capitalised	54%	53%	48%	38%	44%	53%	54%
R&D cost / Net sales	7%	8%	14%	19%	14%	12%	12%
Total R&D expense / Net sales	12%	12%	15%	15%	14%	14%	15%
Total R&D on balance sheet / Total assets	17%	18%	17%	12%	12%	13%	14%
Return on assets	14%	10%	4%	2%	2%	8%	11%
Return on equity	31%	20%	9%	3%	5%	18%	25%
Equity ratio	46%	49%	46%	44%	43%	44%	46%

The director's report provides information on total R&D expenses, the capitalisation of the current year and depreciation. Remaining information was found in the financial statements and notes.

TRANSMODE

(Mid Cap)

Transmode has applied the IFRS since 2007:

Year	2007	2008	2009	2010	2011
Net sales	459	607	570	699	917
Earnings before interest expenses	25	111	59	107	155
Earnings before taxes	16	102	56	107	155
Total assets	602	633	687	571	755
Equity	418	495	541	422	532
R&D cost (current year)	70	69	74	87	100
Capitalised R&D (current year)	0	11	8	21	26
Total capitalised R&D on the balance sheet	0	10	14	29	40
Total R&D expense current year (cost + capitalised)	70	80	82	108	126
Proportion of total R&D expense capitalised	0%	14%	9%	20%	21%
R&D cost / Net sales	15%	12%	14%	13%	13%
Total R&D expense / Net sales	15%	13%	14%	15%	14%



Total R&D on balance sheet / Total assets	0%	2%	2%	5%	5%
Return on assets	4%	18%	9%	19%	21%
Return on equity	4%	21%	10%	25%	29%
Equity ratio	69%	78%	79%	74%	70%

The director's report provides information on total R&D expenses and the relation between those and net sales. Remaining information was found in the financial statements and notes.

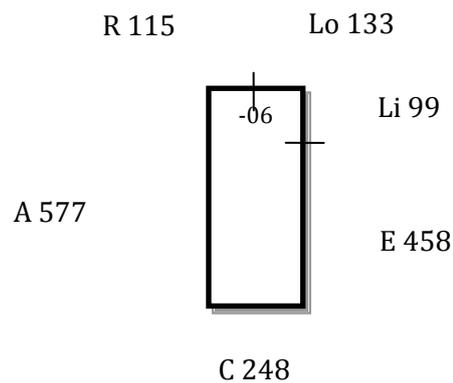
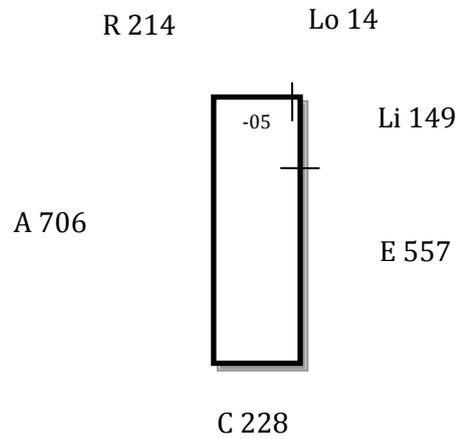


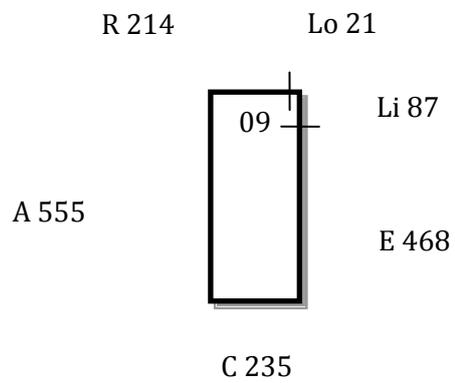
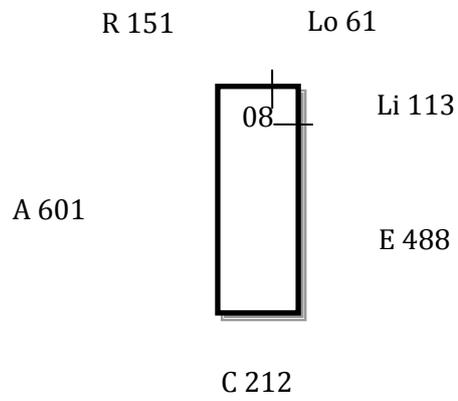
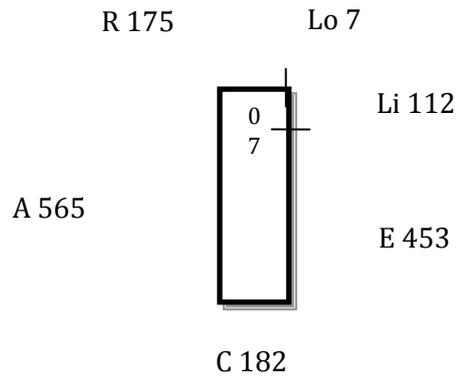
APPENDIX 2

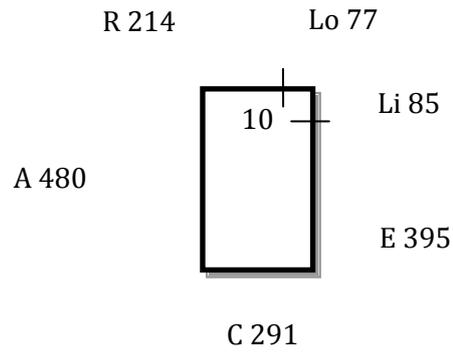
THIS APPENDIX INCLUDES MORE DETAILED VERSIONS OF THE SQUARE MODELS USED IN THE DISCUSSION SECTION.

R = Revenues
C = Costs
P = Profit
Lo = Loss
A = Assets
Li = Liabilities
E = Equity

ANOTO









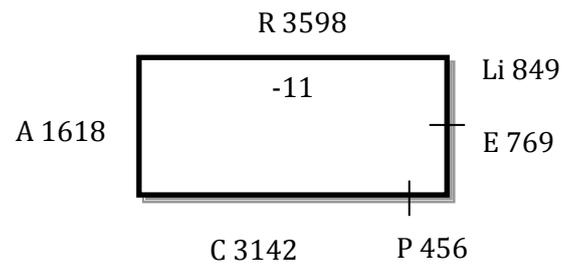
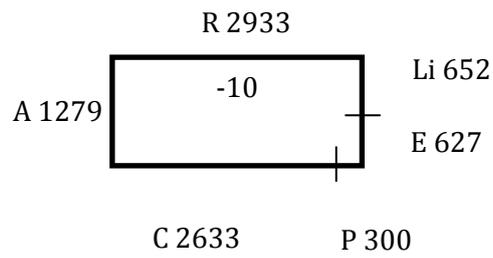
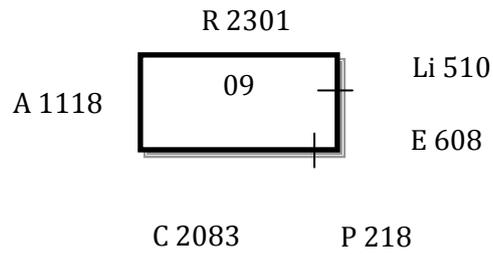
AXIS

R 895
A 580 Li 173
E 407
C 804 P 91

R 1206
A 789 Li 288
E 501
C 1049 P 157

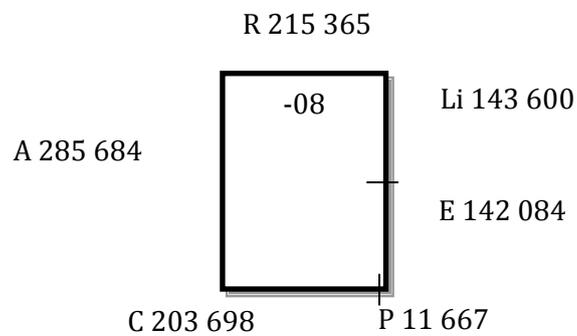
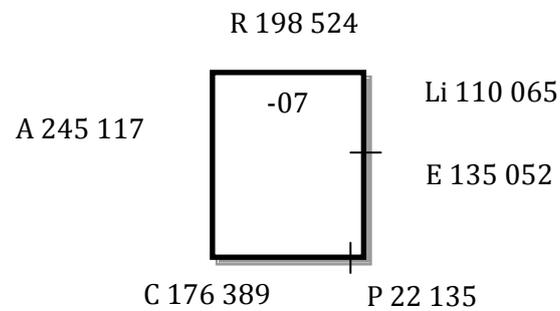
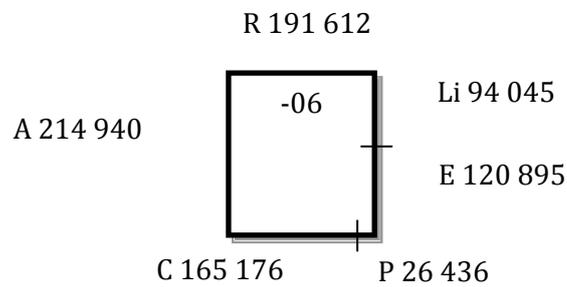
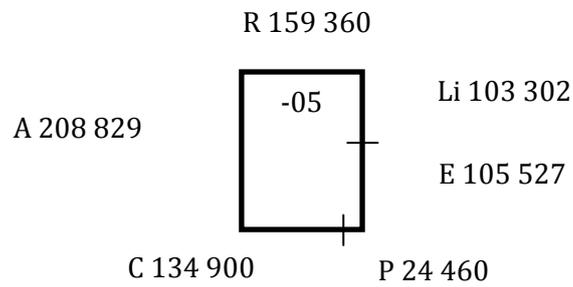
R 1678
A 914 Li 363
E 551
C 1419 P 259

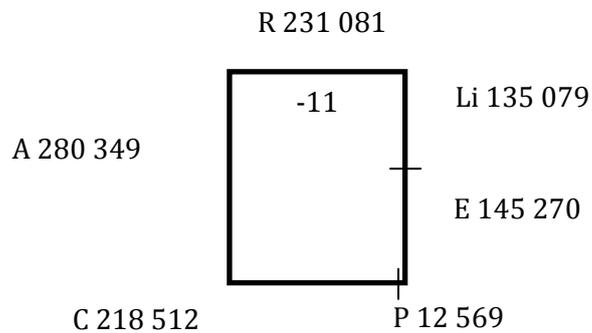
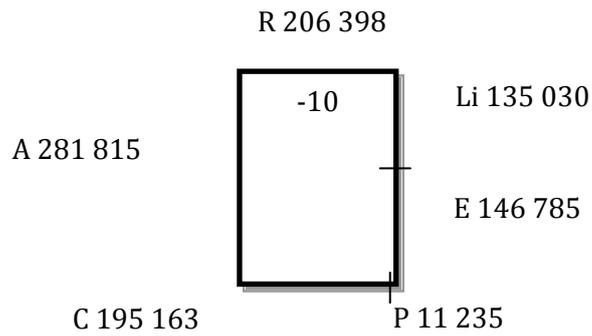
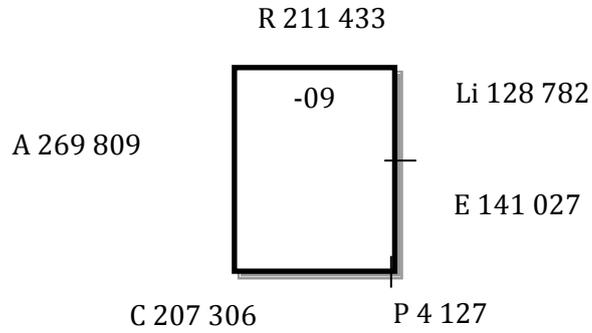
R 1984
A 859 Li 418
E 441
C 1732 P 252





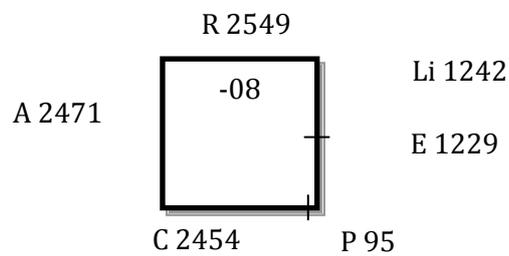
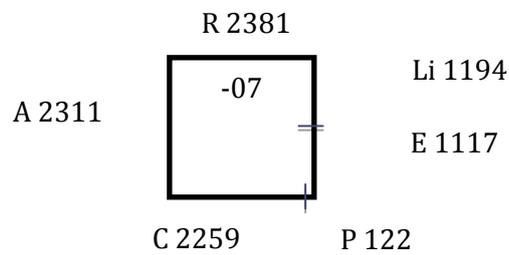
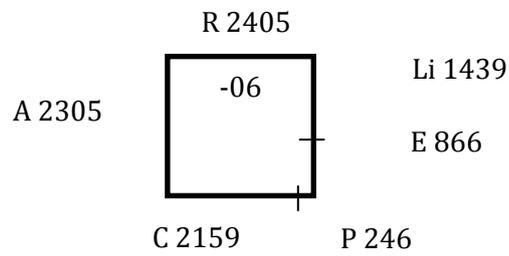
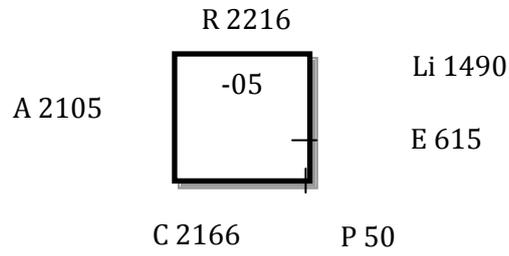
ERICSSON

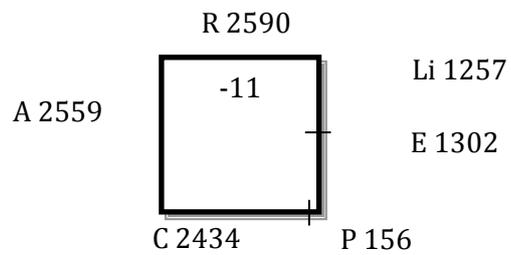
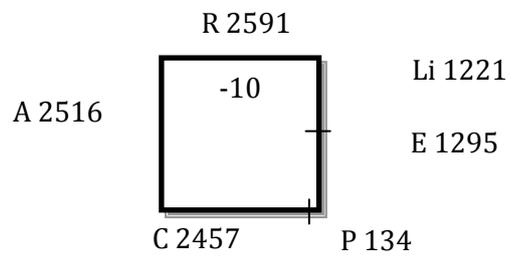
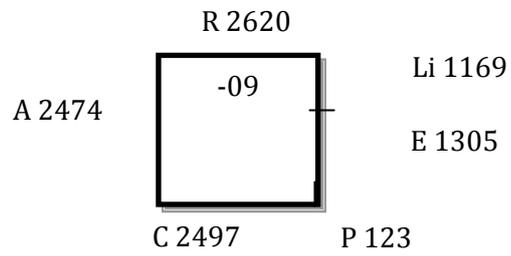






IFS







APPENDIX 3

PRESENTATIONS OF COMPANIES EXCLUDED FROM FURTHER STUDY.

ACANDO

(Small Cap)

Acando is an IT-consultancy company. Their consultants “...identify and implement sustainable business improvements through information enabled by technology”. The main markets are the Nordic countries, Germany and the UK. Acando has approximately 1000 employees in five countries¹⁰⁶.

ASPIRO

(Small Cap)

The Aspiro group is a provider of digital streaming services for music and television. Aspiro supplies customers with streaming technology, and the customer then uses the service with its’ own brand. The main markets are the Nordic and Baltic countries. The group has around 120 employees¹⁰⁷.

CYBERCOM

(Small Cap)

Cybercom is an IT-consultancy company which provides customers with solutions in telecommunications management, connected devices and IT, or “strengthen customer’s business in the connected world”. The main markets are the Nordic countries, Eastern Europe and Southeast Asia. The number of employees is approximately 1600¹⁰⁸.

DORO

(Small Cap)

Doro is a telecommunications company which focuses on selling user-friendly telephones developed especially for senior citizens. Doro’s business is developing, marketing and selling its’ products, manufacturing is external. The products are sold globally. Doro has around 70 employees¹⁰⁹.

¹⁰⁶ acando.com

¹⁰⁷ aspiro.com

¹⁰⁸ cybercom.com

¹⁰⁹ doro.se



FORMPIPE SOFTWARE

(Small Cap)

Formpipe Software is a software developer in the Enterprise Content Management field. ECM-systems help public and private organisations manage their information. Formpipe was started in 2005 and has around 70 employees¹¹⁰.

IAR SYSTEMS

(Small Cap)

IAR Systems started in 1983 and was a part of the Intoi group until May 2011. After disposing of two subsidiaries, only IAR remained and operations continued as an individual entity. The company provides software licenses for system programming. Customers include e.g. large companies in the manufacturing and medical industries throughout the world. The company has around 150 employees¹¹¹.

MICRO SYSTEMATION

(Small Cap)

Started in 1984, Micro Systemation develops forensics technology for extracting data from mobile devices (so-called XRY). Customers include police, military, government intelligence agencies and forensics laboratories worldwide, with the UK being one especially important market. Micro Systemation has around 60 employees¹¹².

NOVOTEK

(Small Cap)

Novotek, founded in 1986, provides industrial IT-solutions used by manufacturing companies for managing and optimizing their production processes. Novotek has approximately 120 employees¹¹³.

PREVAS

(Small Cap)

Prevas develops IT-solutions for industrial companies, mainly for new methods of production. The company was founded in 1985. The main market is the Nordic countries and Germany. Prevas has around 470 employees¹¹⁴.

¹¹⁰ formpipe.com

¹¹¹ iar.com

¹¹² msab.com

¹¹³ novotek.se

¹¹⁴ prevas.se



SIGMA

(Small Cap)

The Sigma group is a consultancy company which provides services in areas such as ERP-systems, management, system development and information logistics. The business started in 1986. The strategy includes both organic growth and acquisitions. Around 1400 people are employed by the Sigma group¹¹⁵.

VITEC SOFTWARE GROUP

(Small Cap)

The Vitec Software group is a developer of industry-specific Enterprise resource planning systems. The industries focused upon are real estate companies, real estate agents, newspapers and the energy industry. Vitec started in 1985 and has around 300 employees¹¹⁶.

¹¹⁵ sigma.se

¹¹⁶ Noteringar: Vitec Software Group, nasdaqomxnordic.com