



Key drivers for dividends

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An empirical study for A-listed Swedish companies

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Introductionary acknowledgements

During the fall of 2004 and the early winter of 2005 we have been writing this Master Thesis at the Department of Business Administration at Lund School of Economics and Management.

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Abstract

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Key words: Dividends, drivers, Swedish A-list, corporate finance, regression, profitability, size, capital structure, risk.

Purpose: The main purpose of the thesis is to identify the determinant factors of dividend payout for Swedish firms traded on the A-list along with the interdependence between these factors when deciding what makes management act the way they do when agreeing upon the magnitude and structure of the payouts.

Methodology: The thesis is based on a quantitative study where the authors have gathered secondary data from databases and performed several regressions on the data. The authors partly compare earlier research results with their own as well as come up with some own theoretical ideas.

Theoretical perspectives: The theory is based on already existing theories regarding dividends. Due to vast amount of research within the area the authors have selected prior studies based on the acknowledgement of them among academics and also choosing research that has been conducted in the same way as the authors.

Empirical foundation: The empirical research is comprised of two separate parts. The first part discusses the different dividend payout policies that exist amongst the sample firms as

well as the development of the dividends. The second part is the regression where the authors have performed several regressions with the chosen variables with data collected from Ecowin, Reuters and company specific webpages.

Conclusions: As previous research has shown it is very difficult to find a model that you can apply to all companies, since all companies are different from each other. However the authors have been able to identify some of the key factors that drive dividend payouts. Amongst these factors regarding prior year's dividends, profitability, capital structure and risk are important factors. Other factors that are important are ownership factors and line of business.

INDEX

1 INTRODUCTION	7-14
1.1 BACKGROUND	7-10
1.2 QUESTION FOR RESEARCH	10
1.3 PURPOSE	10
1.4 LIMITATIONS	11
1.5 TARGET GROUP	11
1.6 GOAL	11
1.7 DISPOSITION	12-13
2 METHODOLOGY	13
2.1 THE CHOICE OF SECTOR AND COMPANIES	14-15
2.2 INITIAL APPROACH TO THE CHOICE OF METHOD	15-17
2.3 GATHERING OF PRIMARY SOURCES	17
2.4 GATHERING OF SECONDARY SOURCES	17-18
2.5 CRITICISM OF SOURCES	18
2.6 CRITICISM OF THEORY	18-19
2.7 THE USE OF REFERENCES	19
2.8 SAMPLE	19-20
2.9 THE BASICS OF THE REGRESSION ANALYSIS	20-24
2.9.1 STATISTICAL SIGNIFICANCE	22
2.9.2 ANOVA	22
2.9.3 R ² , R ² -ADJUSTED AND CP-MALLOWS	23
2.9.4 ANALYSIS OF ERROR TERMS	23-24
3 THEORY	25-58
3.1 INTRODUCTORY THEORY	25-31
3.2 DIVIDEND POLICY MAIN DETERMINANT VARIABLES	31-33
3.3 DIVIDEND POLICY MAIN PAYOUT VARIABLES	33-46
3.3.1 PROFITABILITY	33-34
3.3.1.1 EARNINGS PER SHARE	34
3.3.1.2 FREE CASH FLOW PER SHARE	35-36
3.3.1.3 MARGINS	36
3.3.1.4 RETURN ON EQUITY	36-37
3.3.2 SIZE	37-38
3.3.2.1 SALES	38
3.3.2.2 ASSETS	38-39
3.3.2.3 MARKET CAPITALIZATION	39
3.3.3 CAPITAL STRUCTURE	39-43
3.3.3.1 LEVERAGE	41
3.3.3.2 TOTAL DEBT/EBITA	41-42
3.3.3.3 CASH	42
3.3.3.4 DIVIDEND PER SHARE/UNRESTRICTED EQUITY	42-43
3.3.4 RISK	43
3.3.4.1 GROWTH	43-44
3.3.4.2 BETA-VALUES	44-45
3.3.4.3 FREE CASH FLOW/TOTAL DEBT	45-46
3.3.5 SUMMARY	46-47
3.4 SURROUNDING FACTORS	47-56
3.4.1 INTERNAL	47-51

3.4.1.1 OWNERSHIP STRUCTURE	47-49
3.4.1.2 SHARE REPURCHASE PLAN	49-51
3.4.2 EXTERNAL	51-53
3.4.2.1 INDUSTRY	51-53
3.4.2.2 SHARE INDEX	53-54
3.4.2.3 INTEREST RATES	54
3.4.2.4 EXCHANGE RATES	54
3.4.2.5 P/S-RATIO	55
3.4.2.6 DIVIDEND YIELD	55
3.4.3 SUMMARY	56
3.5 SUMMARY TABLE OF PREDICTED IMPACT OF VARIABLES	56-58
4 IMPERICAL FINDINGS	59-78
4.1 DIVIDEND POLICIES AND DEVELOPMENT	59-65
4.1.1 EARNINGS PER SHARE	60-61
4.1.2 COMPETITOR BASED	61
4.1.3 CAPITAL STRUCTURE BASED	61
4.1.4 DIVIDENDS AND REPURCHASE POLICY	62
4.1.5 DIVIDEND POLICY NOT INDICATED	62
4.1.6 OTHER	62
4.1.7 SUMMARY	64
4.2 DIVIDEND POLICY CHANGES	62-65
4.3 DIVIDEND ACHIEVERS AND REDUCTION/OMISSIONS OF DIVIDENDS	65-67
4.4 CORPORATE LOSSES AND DIVIDEND POLICIES	67-68
4.5 REGRESSION ANALYSIS CALCULATIONS AND ASSUMPTIONS	68-77
4.5.1 TESTING FOR MULTICOLLINEARITY	69
4.5.2 BOX-COX TRANSFORMATION AND OUTLIERS	70-72
4.5.3 THE STEPWISE REGRESSION	72-73
4.5.4 THE BEST SUBSET REGRESSION	73-74
4.5.5 THE MULTIPLE LINEAR REGRESSION	75-77
4.6 SUMMARY TABLE PREDICTED AND ACTUAL IMPACT FROM VARIABLES	77-78
5 ANALYSIS OF REGRESSION RESULTS	79-99
5.1 REGRESSION RESULTS	79-82
5.1.2 EXTENDING THE REGRESSION RESULTS	81-82
5.2 ANALYSIS OF HYPOTHESIS	83-99
5.2.1 PRIOR DIVIDENDS	83
5.2.2 PROFITABILITY	84-87
5.2.3 SIZE	87-89
5.2.4 CAPITAL STRUCTURE	89-91
5.2.5 RISK	91-93
5.2.6 OWNERSHIP STRUCTURE	93-95
5.2.7 SHARE REPURCHASE	95
5.2.8 LINE OF BUSINESS	95-97
5.2.9 OTHER FACTORS	97-99
5.3 THE CASE OF ZERO DIVIDENDS	99
6 CONCLUSIONS	100-103
7 REFERENCES	104-109
8 APPENDIX A	110-111

1. Introduction

The purpose with this introductory chapter is to make the reader intrigued and interested in the subject as well as to understand on which ideas and thoughts the authors will base the thesis. Further will be explained to you the purpose, limitations and the methodology used.

1.1 Background

Successful companies earn an income. That income can then be used for different purposes. It can be reinvested in operating assets, used to acquire securities, retire debt, or distributed to shareholders. If decision-makers choose to distribute it to shareholders, three key issues arise:

- (1) How much should be distributed?
- (2) Should it be through cash dividends or by other means such as buybacks?
- (3) How stable should the distribution be from year to year?

Among academics there have over the years been numerous reports and studies regarding the subject of dividend policy and shareholder return. Along with the great stock market emphasis put on dividend policies many theories have emerged trying to explain this phenomenon. So far researchers have yet to come up with a conclusion that can be applied to all firms. Instead researchers have started to talk about the dividend puzzle, and Black wrote in 1961 that *“The harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just do not fit together”*¹

Generally speaking about dividend policy we mean the payout policy that managers follow when deciding the size and pattern of cash distributions to shareholders over time. With many different theories some are of conflicting nature.

Looking historically on dividends they began as a payout of liquidating dividends when English and Dutch sailing ventures were terminated and the profits and proceeds from the sale of the assets were distributed to those that had the right to claim returns. This started in the sixteenth century, but within this system it existed some inefficiencies, mainly caused by

¹ Black, 1996, page 8

the fact of total liquidation. This leads to a development of only returning the profits. The earnings were retained to finance new ventures and dividends became only a small partial and symbolic way of creating return, hence they became similar to the dividends that exist in our society.²

Three main schools of dividend policy have emerged. These three differ in the way that one sees dividends as attractive and as positive influence on stock price while another one believes that stock prices are negatively correlated with levels of payout and the third states that firm value is irrelevant of dividend policy.³

One theory states that the remaining retained earnings that exist after a corporation has undertaken all its investments that create a positive net present value should be returned to the shareholders. This is also referred to as the residual theory.⁴ One of the most important papers on dividend policy was Miller and Modigliani's from 1961 where they argued that the dividend policy did not affect the value of the firm.⁵ The article came as a surprise to many academics at the time since the general conception was that a well-structured dividend policy would have an important role on the value of a firm. Numerous studies have shown that management believes that the dividend policy of a corporation will affect the firm value and that a well-structured dividend policy will attract investors. Since the dividend policy of a firm is determined almost exclusively by management we will therefore focus on dividend policy and changes in these policies. To make the reader understand and be aware of some of the most common and accepted theories we will devote part of the thesis to explain them, and in our analysis examine the empirical evidence of them.

Numerous firms choose not to pay dividends or only pay out a small amount of retained earnings and the reason for this varies between different companies and industries. For some industries the dividend paid to investors is the most important source of return since the underlying growth is close to zero. How do companies choose by which measures they will increase their dividends and which are the key drivers for this increase? The Swedish regulatory environment changed in 2000, allowing corporations another mean of increasing

² Lease et al, 2000, page 5

³ Frankfurter and Wood, 2002, page 111

⁴ Arnold, 2002, page 849

⁵ Miller and Modigliani, 1961, page 422

the return, share buyback programs. Corporate law prohibited this since 1895 before the abolishment in 2000.

The importance of share buyback schemes as a way of creating returns to shareholders has become more and more popular over the last decades, for example in the US it is a more common way to create return rather than just paying out dividends. However there have been trends of a passing of this unfashionability of paying dividends, especially in the US. Technology firms have over the past 20 years seized to pay dividends based on the idea that their growth opportunities were so glorious that paying a dividend would be a sign of weakness, telling investors that management could not find profitable ways to invest their money. As a result of this mentality large mature technology firms have huge amount of cash on their balance sheets: Microsoft has \$60 billion, Cisco \$10 billion and Dell \$4 billion.⁶ However Microsoft announced in 2004 that they would pay a dividend of \$32 billion.⁷ Still there is a big difference in the dividend structure in the US today than in the 1970s. Fama and French have a quite straightforward explanation to this phenomenon; the sorts of companies that are traded on today's stockmarkets have changed radically. Until the early 1970s, an exchange listing was, by and large, the preserve of large, profitable firms. The type of companies one would suspect to pay a dividend. New companies that came to market tended to be even more profitable than the blue-chips. This all changed with the birth of the NASDAQ, that attracted newer and more innovative companies, where making profits was not a necessary fact, but the companies were valued based on promising future growth prospects. This has made that the decrease in dividends can partly be explained by the new structure of firms.⁸

Today the majority of listed companies and many of the listed Swedish companies has management incentives including option programs. This has received a lot of publicity not only in Sweden but also abroad where they have due to rising stock prices paid out enormous sums to its owners. As a result of the acceptance of share repurchase programs dividend payouts are likely to be affected since this is a measure for management to influence share price, hence the value of their options. Has the change in regulation encouraged companies to focus more on increasing the price of their shares instead of paying out direct returns in the

⁶ The Economist, "The Dividend Puzzle", 2003

⁷ Lashinsky, "Microsoft shares the wealth", 2004

⁸ The Economist, "Shares without the other bit", 1999

form of dividends to their owners? With sagging stockmarkets, investors have realised the minimal amount of cash they have earned from their investments. Recent corporate scandals including Enron, WorldCom, Parmalat just to name a few and the turbulent environment on the markets may lead to investors being more interested in a dividend return, a fact that would cause management to put their repurchase programs on hold.

As far as we know there have been limited research examining the variables that drive Swedish corporate dividends. We will therefore together with existing theory and by adding some variables as far as we know, that have not been used on a prior basis to see which the main determinants are for dividend payouts for Swedish firms. These variables range from financial ratios to changes in share indexes and ownership structure. A great number of the studies performed on dividend payouts have been done in the US where dividends are normally paid on a quarterly basis, another important aspect when comparing to Sweden where dividends are paid annually.

1.2 Question for research

Which are the key drivers for dividend payouts for companies listed on the Swedish A-list⁹ and which are the underlying factors when there is a change in these? Variables taken into account will be variables that look at profitability, size, risk and capital structure issues. Also factors that take into account changes in the surrounding environment of the companies will be examined such as interest rates, exchange rates, ownership structure and the development of stock indices.

1.3 Purpose

The main purpose of the thesis is to identify the determinant factors of dividend payout for Swedish firms traded on the A-list along with the interdependence between these factors when deciding what makes management act the way they do when agreeing upon the magnitude and structure of the payouts.

⁹ Advice references to see which companies that have been included

1.4 Limitations

The thesis will be limited to researching the dividend policy of Swedish A-listed companies since 1997, which allows it to include the regulatory change for share, repurchases and study the issue under various economic conditions. Another determinant factor in deciding upon the time-range is the difficulty to obtain information about all the variables prior to 1997. Why we have chosen to only include the A-listed companies is that these companies have an ownership structure more diverse than other Swedish indices and tend generally to be larger. As already described there have been numerous studies on dividend policy about the factors that influence dividend policy, we will therefore not be able to cover all research surrounding dividends, but will focus on the research that has been performed surrounding dividend policy.

We have chosen not to investigate events such as special dividends, stock dividends, stock splits because they do not possess the same level of recurring commitment that is associated with regular cash dividends.

An important aspect of the thesis is that it will not deal with stock dividends since no cash is dispersed from the corporation when this happens. Furthermore we will not study which methods that are superior, if dividend creates shareholder value, etc.

1.5 Target group

The targets of people that this thesis is directed towards are business students, mainly with a finance degree, tutors and professors. The thesis is also directed towards management at listed companies in Sweden.

1.6 Goal

Our main purpose is to make the reader understand what drives dividends today and the factors most likely to cause a change in dividend policy.

1.7 *Disposition*

Chapter 1 – Introduction

Chapter one will briefly explain the background on the studied phenomenon and the reason why the authors have chosen this subject. It is also comprised of, for the thesis very important parts as purpose and question for research, which in this case are the dividend policies for Swedish firms and to see which factors that impact them the most.

Chapter 2 – Methodology

This chapter will give the reader an overview of how the thesis will be designed and how the research has been performed and by which methods. We have chosen a more quantitative approach using a regression analysis as our main tool. As a supplement we have also studied the dividend policy for each firm and the development over this seven-year period, chosen as our time sample.

Chapter 3 – Theory

The theory chapter starts with a brief overview of some of the most famous theories on dividend policies. This is followed by a discussion of all the variables used in the regression and the predicted impact they will have on dividends. These are both variables used in prior studies and variables that the authors believe could have an impact on the results. To each variable a hypotheses has been made, with the prediction that the variable will either have a positive or negative impact on dividend payouts.

Chapter 4 – Empirical findings

This chapter starts with a run-through of the dividend policies for each of the sample firms. Thereafter the authors will look at the development and actions that have been taken for the sample firms' dividends during the sample timeline. After the empirical research the regression analysis follows where the factors that have an impact on dividend payouts for the sample firms will be examined.

Chapter 5 – Analysis

In the analysis chapter the authors will analyse the results received in the empirical findings, to see which variables that affect the dividend payout the most and also to find out which variables that has no explanatory value at all and analyse the reasons behind this.

Chapter 6 – Conclusion

This final chapter will include conclusions of the results, findings and analysis that the authors have come across writing this thesis. Propositions for further potential research within the area will also be given.

Chapter 7 – References

Presentation of the different sources used in the thesis.

2. Methodology

This chapter will shortly cover the methodology chosen by the authors, why these methods have been chosen, which type of data that has been used and finally how this data has been processed. We will also discuss the reliability, validity and reliance of the data sources.

The choice of methodology is essential to the final outcome of any research. The methods applied can be considered as the tool that one should utilize solving a problem and gaining new knowledge. Therefore it is of great relevance to choose the methodology that best matches the needs and illuminates the information sought. For a method to work properly there has to be certain basic criteria fulfilled:¹⁰

1. There has to be a relevance between the methods and the reality examined.
2. A systematic selection of information has to be made.
3. The information obtained should be used to the best possible way.
4. The results obtained should be presented in such a way that others can control and review the sustainability.
5. The results obtained should make way for new knowledge and an increased awareness off the phenomena examined leading to a continued research and improved understanding.

According to these criteria the authors has chosen the method most appropriate concerning the initial approach to the phenomena, the data collection and the criticism of sources.

2.1 The choice of sector and companies

Facing this task we had to decide which firms to chose. The authors found it really interesting to conduct a study on companies listed on the Stockholm Stock Exchange. At this exchange there are several different indices as the A-list, the O-list and the Attract 40.

To be able to be listed on the A-list a company has to fulfil certain criteria; at least three years documented history, proven earnings-capability, at least 2000 shareholders and at least 25% of the equity and 10% of the votes has to be traded publicly. If one look at the main criteria

¹⁰ Holme I. & Solvang B., 1997, page 13

for the O-list the company for example only has to have at least 300 shareholders and a minimum of 10% of the equity has to be traded publicly and 10% of the votes.¹¹ The 40 most traded companies on the O-list make up the Attract40. These criteria make the A-list companies generally to be larger in size and more mature than on the other main lists. Other characteristics for companies on the A-list are also that they often have more international and diverse ownership, the shares are amongst the most traded on the Stockholm Stock Exchange and many of the companies are controlled by a power-sphere. Therefore we found it appropriate to choose the companies on the A-list as our sample of firms. To fit the sample the companies must provide full disclosures between the years 1996-2003.

2.2 Initial approach to the choice of method¹²

The basic approach to a research is to make a choice between using a qualitative or quantitative method. These differ quite extensively as the quantitative approach does have a more rigid structure with the main purpose being an explanation of the cause of the phenomena examined. This approach facilitates applying the results on other subjects along with making predictions on similar phenomena. The qualitative approach places focus on the *understanding* of the phenomenon in contrast to the ability to *explain* the phenomenon, therefore minimizing the use of statistics and formulas. Even though these methods are very different there is no argument against using them simultaneously when carrying out a study as each provide different characteristics (see exhibit 2.1). The authors are however intending to focus on the quantitative method trying to neutralize the subjective parts of the research while collecting information as objectively as possible. The foundation for the author's analysis, using the quantitative method, is data gathered through financial databases Reuters and Ecowin and additionally the annual reports of the target companies. This approach will give indications on general patterns and deviations explaining the underlying factors for dividend payouts ratios. The use of the quantitative method is essential in the science of statistics, where data is gathered, processed and analysed. Given the large amount of facts needed in order to constitute a regression analysis and to obtain a clear picture of the diverse elements involved in the dividend payout decision the authors have heavily relied on this formalised and standardized method to produce reliable and interpretable results. Patel and

¹¹ www.fsb.se

¹² Holme I. & Solvang B., 1997, page 14

Davidson divides statistics into two subgroups; descriptive and testing of hypothesis.¹³ The former will examine and provide further knowledge of the phenomenon while the latter subgroup is used to test our hypothesis aiming to establish conclusions. Applying the assembled data to a regression analysis using a variety of variables will jointly capture the impact of these and provide information on the different dimensions affection the dividend payout decision while testing our hypothesis.

Prior studies that where performed by using the same method include; Alli, Khan & Ramirez (1993), Holder, Langrohr & Hexter (1998) and Redding (1997).

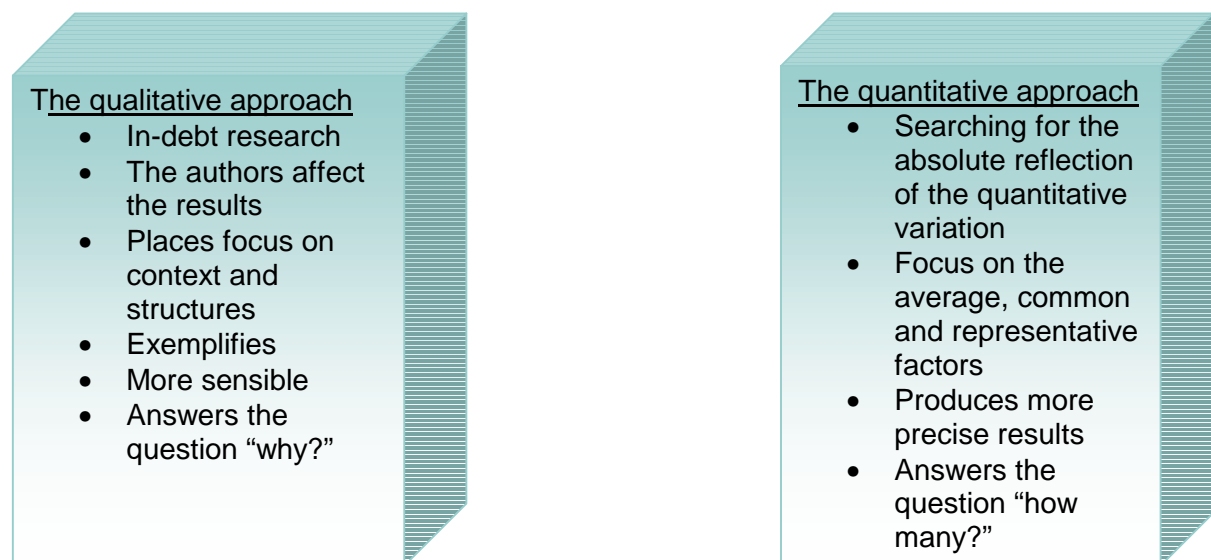


Exhibit 2.1 “Characteristics of the quantitative and qualitative approaches”¹⁴

We will as a compliment to the regression gather all the dividend policies for the selected firms over the time range. We will use the data to see how dividend policies has evolved over time and for example see which types of firms that has cut their dividends. This will be done in order to get a more qualitative understanding of which types of firms that has a certain type of policy and to see the development for each firm.

When deciding on the use of certain theories there are two alternatives pending on the conception of the relation between empirical finding and the existing theories. The inductive approach includes presenting a theory from your empirical findings while the deductive

¹³ Patel R. & Davidson B. page 90-104

¹⁴ Ibid

implies testing the relevance of existing theories through a certain study. Common with the co-use of quantitative and qualitative methods there is often a simultaneous application of the deductive and inductive approach when conducting a research. As the authors has stated earlier in this thesis the research on determinant factors of dividend payouts is rather widespread and the theories are numerous. This thesis will combine both of the above mentioned methods using the existing theories along with introducing new variables into the equation and employing these to the noted Swedish A-list companies. The use of existing theories will create the basis for the thesis and these are vital to our choice of variables, hence a deductive approach. For the ongoing part the authors have identified additional parameters that ought to be relevant for the dividend payout ratios and these empirical findings will be used in order to establish new theories on the phenomenon, thus a combination between a deductive and inductive approach will be deployed.

2.3 Gathering of primary sources

The most relevant part when determining whether a source is primary or secondary is its closeness to the holder of information¹⁵, for example are face-to-face interviews considered being primary sources. Since the initial choice of method was focused on a quantitative approach the gathering of primary sources has been minor in relation to those sources of secondary nature, i.e. database sources.

2.4 Gathering of secondary sources

In order to increase the understanding of the phenomenon examined the authors have gathered vast amounts of secondary data mainly from the financial databases Reuters and Ecowin. This secondary data will be used as the basis for the models applied and is the cornerstone when creating new theories. These databases are considered to be reliably sources and are often vital parts of financial research both for academics and professionals. When completing the data from Reuters and Ecowin with statistics from the annual reports and homepages of the target companies the authors have been aware of and taken into account the potential discrepancies resulting from the use of dissimilar calculation methods, often the problem when companies tries to “boost” their financial appearance presenting the

¹⁵ Patel R. & Davidson B. page 90-104

most appropriate ratios etc. Even though the major part of the companies applies the IAS some discrepancies have been found and recalculations have been made. Alongside databases financial press such as *The Financial Times*, *The Wall Street Journal* and *Dagens Industri* has been consulted for information. Finally existing literature on the subject of dividends has been thoroughly reviewed when forming the hypothesis. This literature has been carefully chosen as the theories on dividends are numerous and therefore the authors have selected those most applicable on the phenomenon studied. These include matters such as dividend payouts in relation to corporate value, dividend payouts and share repurchases as well as dividend payouts in a historical perspective.

2.5 Criticism of sources

The scrutiny of sources can according to Holme and Solvang be divided into four different steps; (i) observation, (ii) origin, (iii) interpretation, (vi) applicability and during the completion of the phase these steps will interact.¹⁶ The first step handles the availability and reliability of sources, clearly, when carrying out a research one has to be sure of which sources that can provide the information sought for. The authors had knowledge of numerous paths to get a hold on relating information, both concerning financial data along with papers and articles written on the dividend payout policies. Along with finding the relevant sources the origin was determined and for the financial databases this involved two renowned financial sources, *Reuters* and *Ecwin*. The literature used consisted mainly of articles published in financial press such as *The Journal of Finance* as well as published books on the subject, sources considered to be of genuine origin. When it comes to the analysis of the data the subjectivity of the reader's interpretations is problematic, thus to reduce these uncertainties the authors have tried to maximize the available quantity of sources. This strategy will offer the broadest view of the phenomenon when shaping the readers fundamental understanding and comprehension.¹⁷ Information from financial databases has been crosschecked with data from annual reports and financial press, consequently seeking to increase the reliability of the data. This process of establishing the reliability of sources is vital in the quantitative method since it lacks the in-dept research of the qualitative approach.

¹⁶ Holme I. & Solvang B., 1997, page 130

¹⁷ Ibid, page 134

2.6 Criticism of theory

Much of the theoretical research on dividends is way ahead of the empirical investigations, even though this phenomenon has existed for over 300 years. As stated before in this thesis, a wide variety of conclusions have been made regarding dividend payouts and the factors affecting these. Theories involving corporate management behaviour, agency costs, regression analysis etc. has all been taken into consideration when first approaching the subject. In general, empirical findings are based on the estimation of a regression analysis and during the process this method can cause numerous complications when seeking a plausible result (these specific problems will be discussed in chapter 4). The authors have originated the thesis from generally accepted reports, among others Lintner's study (1956), creating the basic framework for factors shaping the dividend payout decision even though these theories might not be perfectly suitable for determining the current reality and the applicability can be limited. This is however a common problem for models based on theory and when selecting the relevant theories the authors have chosen those which is ought to maximize the applicability for the current thesis.

2.7 The use of references

This thesis will provide reference to other studies, published papers and so forth via footnotes at the bottom of every page. The position of each footnote depends on which part of a word or phrase it will refer to; (i) footnote in headline means that the source used is being referred throughout the whole part, (ii) footnote at the end of a sentence indicates that this sentence and/or the prior part is included in the reference to the source and finally (iii) footnote in the middle of a sentence will involve solely that word or the sentence prior the word.

2.8 Sample

To be included in the survey the firm has to trade on the Stockholm Stock Exchange since at least 1997. Some companies on the A-list have been excluded due to various reasons such as the date of listing (TeliaSonera and G&L Beijers) or delisting (Allgon, Norsk Hydro, Pharmacia and Syngenta). After consulting with our tutor we made a second regression where we included the excluded companies for which we could find reliable numbers. We

were not able to find the numbers for some of the companies in this second regression, i.e. Allgon. The results of the regression with the excluded companies did not show any major differences and therefore the authors have chosen to display the results from the first regression made. Of the companies that have matched our criteria all but one, Elekta, have paid a dividend at some point during our sample period. Therefore Elekta have been excluded from our sample of companies.

We have also chosen to exclude the major banks all included in the index. This is due to the nature of their balance sheet and their financial reporting. Financial institutions are very different compared to other companies when you look at some ratios and to include them in the sample would lead to a possibility of numbers somewhat distorted.

Company	Reason for exclusion
Allgon	Delisting
Elekta	No dividends paid
Föreningssparbanken	Bank
G&L Beijers	Listing post 1997
Nobel Biocare	Listing post 1997
Nordea	Bank
Norsk Hydro	Delisting
Pharmacia	Delisting
TeliaSonera	Listing post 1997
SEB	Bank
Svenska Handelsbanken	Bank
Syngenta	Delisting
TietoEnator	Listing post 1997

Table 2.1 “Excluded companies”

The sample chosen will give some implications on the result of our study. We have chosen the index where we on beforehand had the knowledge that companies on this index were often larger and more mature than on other Swedish indices. This has been done deliberately but the authors are very well aware of that the results might be different if we would have chosen both another index but also another approach. A qualitative approach with a qualitative survey might very well have given another result.

2.9 Basics of a regression analysis

The definition of the simple linear regression model is rather straightforward. It commences with two variables, x and y , which are indicating data from a certain population, and the models will explain one variable in the terms of the other, i.e. how does y vary with a change in x . When the two variables are related, it is possible to predict a value of y from a value of x with relative accuracy. Thus the simple regression model takes the form of:

$$y = \beta_0 + \beta_1 X + \varepsilon$$

This simple linear regression models includes the two variables, x and y , the intercept β_0 , the coefficient for x , β_1 and an error term, ε . y is often referred to as the dependent variable and x the independent variable. The intercept is the value of the y -variable when the x -variable is zero; it determines where the regression line intercepts the y -axis. The coefficient indicates how much y changes with a one-unit change in x . The error term contains every other factor that affects y , apart from variations in x . The error term can be the result from misinterpretation or misreading of data material, unpredictable effects or the occurrence of non-linear relationship.

Analysis of the regression model is based on the assumption of normally distributed error terms with a constant variance, though when working with larger sets of data slighter departures for normality will not affect the model noteworthy.¹⁸ Additionally a number of assumptions are taken when working with regression analysis; (i) linearity of relationship, (ii) homoscedasticity and finally (iii) no autocorrelation, independence of error terms¹⁹. The regression model provides the line that most accurately fits the data and is derived from the ordinary least-square method. This implies a correlation between the observations and straight line where the sum of the squared error term is minimal, i.e. the distance between the plots and the line is minimal; see exhibit 2.2.²⁰ The equation follows:

$$\sum (y_i - \hat{y})^2$$

Where: y_i = the actual value of y

\hat{y} = the predicted value of y according to the estimated line

¹⁸ Wooldridge, 2003, page 22, 116

¹⁹ Forsbäck, 2004

²⁰ Blom & Holmquist, 1998, page 44

Regression line

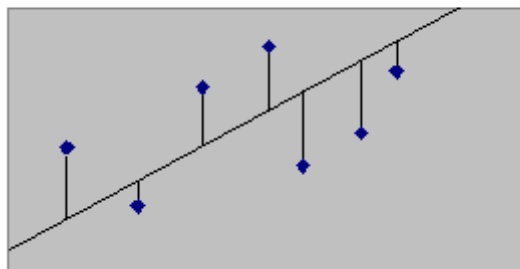


Exhibit 2.2 “Regression line”

When having completed the regression analysis there are several methods to test the relative strength of the equation chosen using among others the analysis of variance, the t-test and the f-test but the procedure also has to include an analysis of error terms controlling for autocorrelation, heteroscedasticity and multicollinearity.

2.9.1 Statistical significance

The statistical level of a study is set in order to be able to reject or accept a hypothesis; this level is called the α -level and is determined in advance. The α -level is defined as the probability of rejecting the hypothesis if it is true, i.e. finding a relationship when it is actually non-existent. When determining the α -level considerations should include how serious an error in the higher or lower level would be for the result and the probability of a change in the results if a different set of data would be examined.²¹ Another explanation of statistical significance is if the results of a study are more unusual than would be expected by chance alone. In practical life different α -levels are used simultaneously in order to minimizing the risk of rejecting or accepting a certain hypothesis. In this thesis the authors used a α -level of 0.05 in the final regression, hence testing if the hypothesis can be rejected at 95% confidence level. Generally, p-levels indicate statistical significance and a value lower than 0,05 would imply statistical significance. The t-test is a hypothesis test of the statistical significance of single individual explanatory variables, including the intercept term, by determining if the individual estimated coefficients equals zero. The rule of thumb for the t-test is: critical t-value = 2 at a 95% confidence level.²²

²¹ Blom & Holmquist, 1998, page 122

²² Forsbäck, 2004

2.9.2 ANOVA

The analysis of variance shows the amount of variation in the response data explained by the equation and the amount of variation still unexplained. The ratio of explained variation to unexplained variation is given as the F-value. The F-value is also used to determine the p-value. If the level of variation in the dependent variable in the certain equation is given, the finding reveals the equations actual strength, i.e. how well it describes the phenomenon.²³ The ANOVA will be used in the final regression model in this thesis.

2.9.3 R^2 , R^2 -adjusted and Mallows Cp

The R^2 and adjusted R^2 values represent the proportion of variation in the dependent variable data explained by the independent variable. Adjusted R^2 is a modified R^2 that has been adjusted for the number of terms in the model. If unnecessary terms are included in the regression equation, R^2 can be unnaturally high. Unlike R^2 , adjusted R^2 decreases when you add terms to the equation.²⁴ Mallows C-p is another determinant for how well the model fits and is related to the mean square error of a predicted value. A small Cp value, in relation to the number of terms with the intercept included, indicates that the model is relatively accurate in estimating the true regression coefficients and predicting the value of the dependent variable. Equations with a significant lack-of-fit have values of Cp larger than the number of terms included.²⁵

2.9.4 Analysis of residuals and error terms

A residual is defined as the difference between an observation of the dependent value and the predicted value at the combination of independent variable set up in the regression equation. The analysis of residuals includes creating probability plots and histograms that can indicate nonnormality, skewness and outliers in regression data. Nonnormality imply that data is not normally distributed, skewness means that the data is not symmetric (when a distribution is symmetric the mean and the median is similar) and an outlier is an observation with a large residual value, i.e. plotted far away from the regression line and the other residuals. Observations can be considered to be outliers when dropping them from the regression analysis makes your estimates of the regression change substantially, i.e. when the residual of

²³ Ibid

²⁴ Wooldridge, 2003, page 40, 197

²⁵ www.minitab.com/support, 2004

the observation is, say, three times larger than the standard deviation of the regression.²⁶ When these problems occur, transformation of the data is often necessary in order to make it suitable for the regression model, as the assumption of normality will then hold.²⁷ High correlation between the independent variables will result in multicollinearity that implies that one variable will confine the effects of another variable and testing this matter with correlation matrix and scatter-plots is essential. In this thesis multicollinearity will also be tested with by the VIF-test (Variance Inflation Factor). This test gives proof of how much the variance of a predicted regression coefficient will increase if the independent variables are correlated. The rule of thumb for detection of multicollinearity via VIF is the following:²⁸

VIF-value < 1 = no multicollinearity

VIF-value > 1 = independent variables might be correlated

VIF-value = 5 – 10 = independent variables are poorly estimated

Furthermore, the assumption of homoskedasticity should be tested, i.e. the error terms should have a constant variance, conditional on the independent variable. The opposite relation, heteroscedasticity, will occur if the error term variance is considered to be a function of the independent variable. Hence the assumption for homoskedasticity²⁹:

$$\text{Var}(\varepsilon|x) = \sigma^2$$

Where:

$\text{Var}(\varepsilon|x)$ = the variance of the error term

σ^2 = the unconditional variance of the error term

When the error terms are correlated over time, named autocorrelation or serial correlation, a scatter-plot of the error terms over time will show signs of this trend. This problem can occur when seasonal trends and fluctuation are significant and is solved through transformation and the use of dummy variables. The Durbin-Watson test is commonly used for detection of serial correlation, though the existence of a lagged independent variable makes this control measure invalid. Instead the Ljung-Box Q-statistics will be employed for this matter.

²⁶ Wooldridge, 2003, page 321

²⁷ Blom & Holmquist, 1998, page 220-224

²⁸ www.minitab.com/support, 2004

²⁹ Wooldridge, 2003, page 53-54

3. Theory

This chapter contains a short description of different dividend theory policies followed by a thorough exposition of the different drivers that the authors believe will affect dividend policies. This, together with existing theories and models will result in the drafting of hypotheses.

3.1 **Introductory theory**

Existing theory concerning dividend policy is based on a certain number of factors that is said to drive the level of dividends. Already since Lintner's classic article on dividend policy in 1956, *Distribution of Incomes of Corporations Among Dividends, Retained Earnings and Taxes*, where he stated that the dividend policy of a corporation is mainly based on three different factors; pattern of past dividends, stability of current earnings and the level of current earnings, this has been shown in many more recent studies as well. Studies like Lintner's are based on data where the authors have asked managers about their perception on dividends and dividend policy and is therefore more of a behavioural model. Lintner's results showed that management prefer to make periodic partial adjustments to the target level of dividends instead of changing the cash dividend. His conclusion was that managers believe that shareholders prefer a steady stream of dividends to one that fluctuates. Another interpretation made by Lintner is that the dividend policy is a way of signalling future profitability and the key determinant factor when deciding upon dividends for healthy firms was net income.³⁰ These studies often have the purpose to show how management decides upon the dividend policy of the corporation of which they are in charge.

Miller & Modigliani³¹ in addition to many other researchers came to the conclusion that with a certain level of investment, if a firm chooses to pay a dollar more of dividend now; it will have to raise an extra dollar of external finance to support its future investment. With a higher current dividend to already existing shareholders this will be exactly offset by a decrease in future dividends as the firm must now pay dividends to its new shareholders. A higher dividend will lead to a lower capital appreciation, no matter how the firms business decisions turn out. With no taxes and transaction costs and given full information, the value of the firm

³⁰ Lintner, 1956,

³¹ Miller & Modigliani, 1961, page 414-420

will not be affected by its dividend policy and therefore it is irrelevant to firm value. This theory is also based on the assumption that the dividend paid does not influence the firm's business decisions. The paying of a dividend will either reduce the amount of cash equivalents held by the firm, or increase the amount of money raised by issuing securities.

As a further development of Lintner's work Fama and Babiak came to the conclusion that managers prefer paying a stable dividend and they are reluctant to increase it to a level, which they cannot sustain on an ongoing basis. According to them changes in a firm's dividend is a function of the firm's target dividend payout ratio, current or lagged earnings, and the last period's dividend.³²

Other researchers, Frankfurter and Wood, have questioned if it is truly correct to base theories in this subject on mathematical models. They believe that it is more a matter of cultural and psychological factors that determine the payout ratios. According to them management is influenced by cultural factors such as customs, regulations, public opinion, perceptions and hysteria, general economic conditions, all in perpetual change, impacting different firms differently.³³ These studies are made through the study of managers and the perception that corporate managers have of dividend policies. Results show that managers truly believe that the way they structure their dividend policy and the continuity of this policy is something of high concern for shareholders. While earnings can be very volatile dividend payouts tend to be smoothed out.³⁴ This has even gone so far in certain cases that managers become what Baker and Farrelly named them *dividend achievers*, meaning that they have unbroken records of dividends for the last ten years. With a general strong reluctance from management to decrease dividends they have also been argued to be *sticky* and decreased only when absolutely necessary.³⁵

No single rational can explain the dividend phenomenon. Why certain shareholders prefer dividends can partially be explained by a combined number of factors such as risk averseness, agency costs and costs associated with systematic liquidation of holdings. According to Brealey and Myers the continuance of dividends is based mainly on long

³² Fama & Babiak, 1968, page 1159

³³ Frankfurter & Wood, 2002, page 31

³⁴ Lease et al, 2000, page 12

³⁵ Baker & Farrelly, 1988, page 80

corporate traditions of paying dividends.³⁶ The tradition and evolution of paying dividends is more than 300 years old. With more and more complex financial innovations created the last decades it would be strange if not the evolution of creating direct return to shareholders also has evolved. More and more is share repurchases becoming an issue and with the recent deregulation in Sweden this has become a way for Swedish corporations to follow their peers abroad in an additional way to attract investors and please existing shareholders.

Why does not dividends follow the same growth as earnings generally have, we believe that there are some additional factors that have to be taken into account when management decides upon the dividend. The external communication to shareholders and investors state that earnings per share is the most decisive part when deciding upon the payout ratio. Other factors are also involved when enterprises discuss their dividend policy, such as capital structure and future forecasts. We want to investigate which factors that affect payouts the most and believe that these can vary a lot between industries. Initially it can depend on changes in the firms' profitability, size, capital structure and risk. Secondly we also believe that there are surrounding factors that affect the dividend policy and changes in this policy, which also are of importance and has to be taken into account. Therefore we would like to put more emphasis on the interaction between these different factors in explaining dividend policy.

From existing theory together with the author's own ideas a model has been created that explains the interaction between in our perception the three different phases of deciding upon dividend payout ratios, this is also something we have based our model on. In other words our goal is to determine how these phases interact with each other, meaning the interaction between independent and dependant variables. An independent variable is a variable where possible changes may first occur and the dependant variable will be affected by the changes in the independent variable if there is a connection between the two variables.³⁷

³⁶ Frankfurter and Wood, 2002, page 127

³⁷ Svenning, 1997, page 71

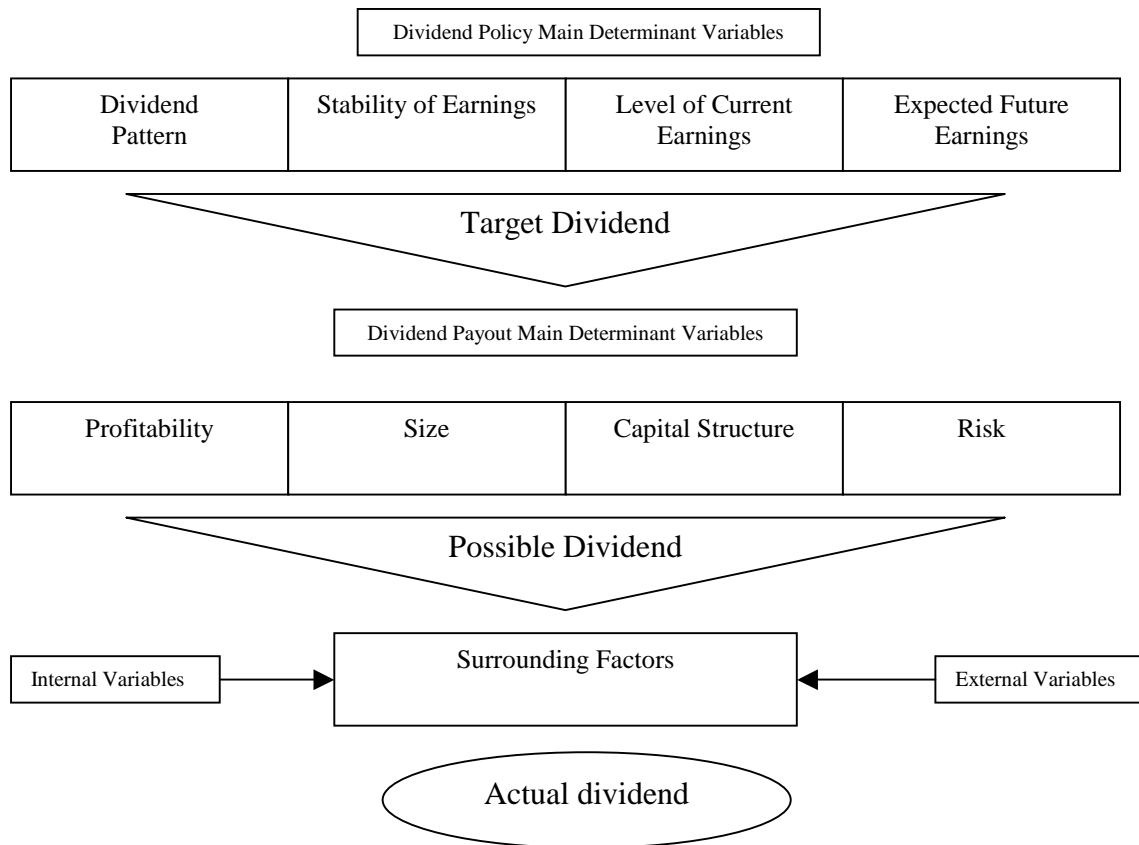


Exhibit 3.1 “Dividend Policy Payout Model”

A model like this one where arrows are used in trying to validate a theory can be referred to as a cause and effect diagram. To make the reader understand the model we will now further explain it shortly before analysing the different parts and our perception of how they interact.

- The dividend policy that a firm chooses depends very much upon the driving forces behind this policy. And the main determinant factors for choosing this has through extensive research been proved to be the following factors; (i) pattern of past dividends, (ii) stability of earnings, (iii) current level of earnings and finally (iv) expected future level of earnings.³⁸

The interactions of these factors lead to the first phase in our model that is the target dividend. The target dividend is usually set up as a long-term goal on how to create return to shareholders, but at every year end the strength and the possibility is tested through what we call dividend payout main determinant variables.

³⁸ Baker et al, 2001, page 10

- The dividend payout main determinant variables are based on four different aspects for a firm. The first one is profitability and to analyse this we will use ratios as profit and EBITDA margins, Return on Equity etc.
- Secondly we will measure the size of the company by looking at sales, market capitalisation, and total assets.
- Another important aspect is the capital structure of the firms and to study how the development of certain ratios may affect the dividend.
- Finally we will also look at the risk of a company; this can be measured by looking at beta-values and credit risk ratios.

The interaction of these variables together with the already stated dividend policy will lead to the second phase in table 3.1 which we have named possible dividend. With a so far very quantitative approach we now reach the final stage in the model but before getting to the actual dividend we believe that there are some surrounding factors that will affect the dividend payout. These are believed to be of a more psychological nature but management's reaction to them will be fairly consistent. These can be further divided into internal and external variables.

- The internal variables will be factors like share buyback programs and ownership structures.
- The external variables are variables that management cannot affect themselves, these include interest rates, exchange rates etc.

Our model has similarities with Lintner's mathematical model for explaining dividend changes. His regression model was ;³⁹

$$\Delta D_{it} = A_i + C_i (r_i E_{it} - D_{i(t-1)}) + U_{it}$$

³⁹ Lintner, 1956, page

where

ΔD_{it} = the change in dividends per share observed from period $t-1$ to t for firm i ;

A_i = the intercept term for firm i ;

C_i = the speed of adjustment coefficient for firm i ;

r_i = the target payout ratio for firm i ;

E_{it} = the earnings after taxes per share in period t for firm i ;

$D_{i(t-1)}$ = the dividends per share paid out last period for firm i ; and

U_{it} = the error term for firm i in period t .

What the authors found really interesting with Lintner's model is the speed of adjustment coefficient for the firm, C_i . This coefficient can be compared both to the factors that produce what we call the possible dividend and to the surrounding factors in our model. What we aim to do is to find what Lintner would explain as the most important factors explaining this speed of adjustment.

Other previous research that has been made looking at changes in dividend policy has included how different stakeholders react to changes in policy. Dhillon and Johnson⁴⁰ looked how bondholders and shareholders reacted respectively after the announcement of a change in the dividend policy. Compared to previous research made by Handjinicolaou and Kalay,⁴¹ which only examined cases where there had been significant changes, more specifically that meant looking at large dividend changes and dividend initiations and omissions. Their results showed that shareholders reacted positive to a change with increasing share prices and bondholders had a negative reaction with a decline in bond prices. This can be explained by the fact that the dividends lower the value of the asset base and hence lower the value of debt. At the same time the equity holders receive the full dividend but the value of their equity claim declines by less than the full amount of the dividend.⁴² Benartzi, Michaely, and Thaler concluded that dividend changes seem to respond to earnings changes in the immediate past and not to signal future unexpected earnings growth.⁴³ On the other hand surveys by Miller

⁴⁰ Dhillon & Johnson, 1994, page 281-289

⁴¹ Handjinicolaou & Kalay, 1984, page 60

⁴² Dhillon & Johnson, 1994, page 287

⁴³ Lease et al, 2000, page 111

and Modigliani, Prais, and Healy and Palepu all showed that a change in dividends can be interpreted as a response to management's expectations of long-run earnings. More specifically if the firm raises the level of dividends that can be considered as evidence of the greater ability for the firm to generate cash through future profits. Another important aspect of their research was that if earnings decline but the firm continue to pay dividends at the same level this should be interpreted as a temporary decline in earnings and that management is confident that earnings will rise in the near future.⁴⁴

This chapter will be based on the above-described model and we will walk you through the different independent variables that lead to the dependent one, the actual dividend. With the belief that corporate management base their dividend policies on already through prior research validated key determinants we will not put too much focus on this part of the chapter but will more thoroughly go over the latter parts of our model in table 3.1. The continuance of this chapter will however start of with a brief discussion of the determinants that set the target dividend.

3.2 *Dividend policy main determinant variables*

As already mentioned several studies has shown that the main drivers behind determining a dividend are the pattern of past dividends, the stability of earnings, the current level of earnings and the expected future earnings. This theory is the underlying theory for the starting point in our model and originates from Lintner's article published 1956. Therefore it is worthwhile to run over how he came up with his conclusion. He started off by putting up 15 different variables that he believed would affect the policy of dividend payouts. After that he took 600 randomly chosen enterprises and out of these a sample of 28 were further studied which included an extensive financial analysis. His conclusions were the following:

- Corporations have a defined goal for the share of distributed profit and will gradually adapt their dividend policy towards this goal.
- They try to avoid an increase in the dividend when there exist an obvious risk that the new level may not be maintained

⁴⁴ Ang, 1975, page 65

- Corporate management has the perception that shareholders and investors prefer stability in payouts and are therefore willing to pay a premium for stocks with these attributes.
- Corporate management focuses rather on the change in dividend than the absolute dividend payout level.⁴⁵

Baker and Farrelly also looked at the phenomena in their survey. They asked only what they called dividend achievers, explained above, the ranking factors of determining dividend policy. Their result was very much in line with Lintner's previous research. The four most important reasons for managers where:⁴⁶

- Sustainability of the dividend payout
- Anticipated level of future earnings
- Pattern of past dividends
- Level of current earnings

A more recent American survey performed on all companies that fit certain criteria on all firms on the NASDAQ show similar results.⁴⁷ This survey also show that there are differences among industries and that the persons that decides upon the level of payouts almost exclusively are the chief executive officer and the chief financial officer of the corporation. The survey also comes to the conclusion that even though financial markets do not price dividend consistency financial managers sure tends to believe otherwise. Management's belief of the importance of consistency tend to be so strong that past dividend patterns may constrain current decisions and lead to *sticky dividends*. The second most important factor is the stability of earnings; something that acknowledges the fact that management tends to have strong reluctance to decrease dividends in the future. A reduction in earnings is rarely followed by a reduction in dividends, unless the reduction in earnings is likely to persist over a longer period of time. A company with more volatile earnings is therefore more likely to pay lower dividends as management is scared of decreasing the dividend payout. Consistent with argument number one management tends to smooth out dividends in order to avoid dramatic changes, which leads us to our first hypotheses.

⁴⁵ Lintner, 1956

⁴⁶ Baker & Farrelly, 1988, page 85

⁴⁷ Baker et al, 2001, page 1

H₀: Dividends paid the previous year will have a positive impact on the dividend payout.

The target dividend is often expressed as a percentage of earnings per share and often expressed with a spread of 10-20 %. It is vital to bear in mind that the target rate is exactly what it says, a target, and not a restrictive year-by-year constraint.

The third and fourth most important factors according to the Baker et al study mentioned above are the level of current earnings and the level of expected future earnings. Quite logically firms with high earnings tend to pay high dividends, with the exception of fast growing firms that tend to pay low dividends to be able to support a rapid expansion. Additionally, firms with high levels of expected future growth tend to pay out higher dividends as the fear of having to cut back on the payouts decreases. Furthermore another 18 factors followed, but with less explanatory value than the first four.⁴⁸

Our belief is that Swedish firms follow their American peers in deciding upon dividend policy and as already stated we assume the above factors explained to be similar for our sample companies. Therefore we will now put more emphasis on the different variables that we will use in our regression and explain why we believe they play an important role when deciding upon the dividend payout.

3.3 Dividend Policy Main Payout Variables

3.3.1 Profitability

A company that generates higher operating margins and returns on capital has a greater ability to generate equity capital internally, attract capital externally and withstand business adversity. Therefore profitability may quite naturally be the most decisive factor in explaining how much a company may be not only willing but also forced to set their dividend target to. Intuitively a company that is very profitable should be a company that has a high dividend payout ratio. This is also the result that Fama and French found in their study from 2001. The most profitable firms were also the ones with the highest payouts.⁴⁹ However this is not always the case since some companies like Microsoft and Berkshire Hathaway believe

⁴⁸ Ibid, 2001, page 9

⁴⁹ Fama and French, 2001, page 13

that they will be able to generate a greater return to shareholders if funds are retained within the company.⁵⁰ While the absolute levels of ratios are important, it is equally important to focus on trends and compare ratios with those of a firm's competitors. Various industries follow different cycles and have different earnings characteristics. How to measure profitability therefore varies between industries, for example the drug industry usually generates high operating margins and high returns on capital. Defence contractors generate low operating margins, but high returns on capital. The pipeline industry has high operating margins and low returns on capital. This may have the effect that different industries set their policies differently depending on how profitability is measured.

3.3.1.1 Earnings Per Share

Earnings per share is probably the most decisive factor when communicating the payout ratio to shareholders. Many companies use this measure since it represents how much available earnings that could be distributable to its stakeholders after all investments, interest expenses and taxes etc are made.⁵¹ Nonetheless there are some difficulties in coming up with an accurate number, since you can divide earnings per share between basic and diluted earnings per share. Basic earnings per share are derived from dividing net income to common stockholders by the weighted-average shares outstanding. The diluted earnings per share is derived from dividing net income to common stockholders by the effect of assumed conversions by the weighted-average common shares and potentially dilutive common shares. This means that a company that has a high number of potentially dilutive numbers of shares may show misleading earnings per share figure. Management should be aware of this and adapt their policy accordingly, not setting a dividend too high.

Looking at this figure, from an accounting perspective it is a very pure number, but may not always reveal how profitable a company actually is. However very few companies communicate payout ratios based on other than earnings per share. Consequently the higher the earnings per share the higher should the payouts be.

H1: Earnings per share should have a positive impact on the dividend payouts.

⁵⁰ Buffet, 1984 Annual report Berkshire Hathaway Inc.

⁵¹ Arnold, page 1043

3.3.1.2 Free Cash Flow per Share

If earnings per share is a very common number upon communicating the dividend payout, a number that reveals more of the actual profitability of a firm is the cash flow per share and more specifically the cash flow from operations per share. Amortisation and depreciation is added back with the purpose of reducing the carrying value of the balance sheet assets. Capital-intensive industries, like shipping companies, may have very high amortisation of fixed assets. They have however the possibility to use the assets, ships, even after they are completely amortised or even sell them at a higher value than they are accounted for due to the nature of demand and supply in the industry. Free cash flow does include changes in working capital and capital expenditures but does not include the financing activities. Therefore this is an accurate measure to examine if the firm is generating cash through its activities and if it is profitable or not. There have been some controversies among prior researchers what number to use. Brittain changed Lintner's earnings per share to cash flow per share, while Fama and Babiak thought earnings per share was a better measure.⁵²

There exist significant research and theory regarding the free cash flow available for the firm. The free cash flow can be defined as the amount of cash in excess of funds required for all projects with a positive net present value.⁵³ This figure differs from the one that we have chosen to use. The free cash flow to the firm does also take into account the financing activities for a firm, which makes it harder to actually see how profitable a company is from its operations. According to Jensen firms with a relatively low level of free cash flow have more growth opportunities than firms with a higher level of free cash flow. A lower level of free cash flow reduces the widely discussed agency costs and the needs for dividends to reduce this agency cost will be lessened.⁵⁴ This leads to the conclusion that a low level of free cash flow would imply a low level of dividend payouts. We have chosen the same cash flow figure also used by John and Williams where they came to the conclusion that firms expecting higher future operating cash flows optimally pay larger dividends.⁵⁵

Not only low levels of cash flow but also the nature of the cash flow will affect the payout ratios. Looking at the volatility of cash flows one can use that to analyse the risk of the firm

⁵² Ang, 1975, page 69

⁵³ Standard & Poor's, 2003, page 25

⁵⁴ Jensen, 1986, page 328

⁵⁵ John and Williams, 1985, page 1065

and the specific industry. A company that operates in a highly cyclical industry should tend to have a lower dividend payout than one that operates where cash flows are stable.

H2: Free cash flow per share should have a positive impact on the dividend payouts.

3.3.1.3 Margins

Margins and then mainly EBITDA and profit margins are useful indicators of how profitable a corporation is. While the EBITDA margin is an operational ratio that shows the relationship between EBITDA/Sales, the profit margin also includes depreciation, amortisation, net interest expenses, taxes etc and shows a more accounting based measured number. In terms of profitability it is more common to look at the EBITDA margin while the profit margin ratio may be more useful when you study dividend payout ratios. Both margins have drawbacks, with the EBITDA ratio serving as a more useful indicator when looking at operational profit.⁵⁶ But for a company that operates in a very capital-intensive industry that is often highly leveraged and therefore may have high interest expenses together with significant depreciation and amortisation cost, not affecting the EBITDA, this could make a high EBITDA turn into a low or sometimes negative profit margin.

For the profit margin we have a similar problem, however with the fact that amortisation and depreciation affect the result in a negative way. Apart from this there may also be extraordinary losses and profits that have affected the margins a particular year, losses or profits that may not reveal how profitable the company actually is.

However we consider the profit margins to be a useful indicator when looking at payout ratios. Higher margins should imply that a company has more resources to return to shareholders and therefore also may pay higher dividends.

H3: Higher margins should have a positive impact on dividends.

3.3.1.4 Return on Equity

This figure tells you how much return the company is able to generate on the invested equity in the firm. The higher return on equity the better the company is to generate return to its shareholders. A firm that does not have higher returns than the interest rates on a safe t-bill

⁵⁶ Standard & Poor's, 2003, page 21

should not be an interesting investment.⁵⁷ A company with a constant high return on equity may be a company that better creates return for their investors than the investors themselves. The firm might therefore consider this as a reason not to return a large amount of the retained earnings in forms of dividends, as they believe that if it stays within the company its shareholders will be better off in the end.

H4: A high return on equity should lead to a low dividend payout ratio.

3.3.2 Size

Studies have shown that there exists a correlation between firm size and dividend payouts. This can partly be explained by the ownership structure. Larger firms tend to have more institutional investors that generally demand higher dividends than non-institutional investors do.⁵⁸ This can partly be explained by tax reasons. In the US institutional investors are either tax-exempt, can defer taxes or pay taxes on only 15 percent of the dividends received from another corporation.⁵⁹ In Sweden pension funds pay taxes of only 15% on dividends, compared to 30% for individual investors.⁶⁰ Another possible explanation is that large firms are more liquid than smaller ones. With institutional investors preferring dividend-paying stocks and themselves being large in size, needing liquid stocks this serves as a good measure.⁶¹

An important aspect with size is that the smaller a firm is, the less financial flexibility it has. Adverse developments that simply would be a setback for a larger firm could lead to default for a smaller one. Larger firms often have substantial staying power even if their business is troubled. Banks' exposure to these firms may be quite extensive, creating a reluctance to abandon them. This makes the access to capital markets easier for larger firms than for smaller ones. Access to markets leads to more financial flexibility and should lead to higher dividend payout ratios. Lloyd, Jahera and Page⁶² and Vogt also claim that firm size play an important role in explaining the dividend payout ratio.⁶³ They state that larger firms tend to

⁵⁷ Arnold, 2002, page 668

⁵⁸ Redding, 1997, page 225

⁵⁹ Alli, Khan and Ramirez, 1993, page 526

⁶⁰ Lodin, page 5

⁶¹ Redding, 1997, page 227

⁶² Lloyd et al, 1985, page 77

⁶³ Vogt, 1994, page 17

be more mature and will have easier access to capital markets, something that reduces the dependence on internally generated funds.⁶⁴

To measure size we have selected proxies. These are figures derived from the profit and loss account and balance sheet as well as figures based on what the market thinks about the company. There is one issue that arises when looking at size; generally size and type of industry is correlated.

3.3.2.1 Sales

When looking at a company and trying to determine the size of it, its sales are a very good number. The bigger the sales for the company generally the lower the risk. A company with very high sales figures does not often depend on only one product or segment, and if so that product is generally one with quite steady demand, i.e. electricity. Compared to looking at total assets this is an absolute number, hard to question. Total assets can be misleading since they are accounting measures and therefore may not show the relevant value. A company with very high sales should also be a company more willing to return money to shareholders. This is based on existing theory that size measured in the form of sales is an important aspect for a firm when looking at the dividend payout ratios.⁶⁵

H5: An increase in sales should have a positive impact on dividends.

3.3.2.2 Assets

By looking at the structure and type of total assets a company have you can quite easily see which type of company you are looking at. While sales could differ between years quite importantly, due to for example the cyclical nature of an industry, assets remain relatively stable. The more assets a company has, especially based on how the assets are structured can play an important role in deciding the payout levels. An important aspect with size in regards to total assets is the cost of issuing. Both Fama and Higgins⁶⁶ state that issuing costs will decrease as the firm size increases. This means that raising external capital should according to their theory be cheaper the larger the company, i.e. companies with more assets. Dividend payouts will decrease the asset base and increase the need for external financing, and for a

⁶⁴ Holder et al, 1998, page 75

⁶⁵ Ibid, page 78

⁶⁶ Alli, Khan and Ramirez, 1993, page 527

smaller company with less financial flexibility this could be a more risky and complex operation. This means that larger firms will have a higher payout ratio than small firms.

H6: An increase in total assets should lead to a higher dividend payout.

3.3.2.3 Market Capitalization

How a company is valued is very much dependent on the forecast of its future earnings. Companies that currently have low levels of sales but are expected to grow by a great amount may have a market capitalisation way above companies with higher current sales. While market capitalisation is interesting in that aspect it is also interesting to see the change in value between years to see the market opinion about the company. Redding used market capitalisation as one of his variables, when he studied the importance of size for dividend payout. His results showed significant evidence on the positive impact it had on dividends.⁶⁷ Consistent with our earlier hypotheses regarding size, we believe that the same conditions apply in this case.

H7: Market capitalisation should have a positive impact on dividends.

3.3.3 Capital Structure

Capital structure is a very important aspect for a firm when deciding upon its dividend payout ratio. With profitability as probably the most common way to communicate target ratios to shareholders, capital structure ratios are one of the most, if not the most common after profitability. Corporations may not be as precise when they disclose their capital structure ratios but prefer to communicate it leaving more flexibility to changes depending on the current situation.

When looking at capital structure one has to consider the industry characteristics in which the firm operates. When you look at financial institutions they may appear to be extremely leveraged, but that is because the nature of their business. Industries that are very non-cyclical also tend to have quite high leverage levels, much due to the often low-risk stable cash flows. Another interesting example is the shipping industry, a highly cyclical industry

⁶⁷ Redding, 1997, page 244

that is often highly leveraged. High levels of leverage can be explained by the very liquid nature of the assets.

To understand theories surrounding capital structure it is important to understand what happens to the capital structure of a firm when it pays a dividend. This is dependent on how management decides to finance the payout. One way to finance it is by using internally generated funds, and the other is by using external funds, i.e. borrowing money or raising equity. In the first scenario, the equity decreases while the debt remains constant, therefore increasing the leverage. If a company were to raise a loan to finance the dividend and then pay out the entire sum, the equity remains constant while the company is more in debt, leading to a higher leverage. Internally generated equity is available for financing a certain amount of new investment, however, beyond that amount; the firm must turn to more expensive common stock. At the point where new stock must be sold, the cost of equity, and consequently the marginal cost of capital rises.⁶⁸ This makes it extremely important for management to find the right balance when determining on their dividend policy.

According to Miller & Modigliani firm value should not be affected by the capital structure of a firm.⁶⁹ This theory only holds under certain market conditions, where there exist no taxes and no transaction costs, i.e. not on the real market. Management may find it very important to maintain a certain capital structure, both because they have a perception that this will increase firm value and also because of financial covenants that may restrict the company to breach certain limits. However many firms that have set goals do not have the wherewithal, discipline, or management objective to achieve these objectives. A companies leverage goals, for example, need to be viewed in the context of its past record and the financial dynamics affecting the business. For example, if a company has aggressive spending plans, a low set goal could carry little weight, unless management has committed to a specific program of asset sales, equity sales, or other actions that in a given time period would produce the desired results.⁷⁰

⁶⁸ Brigham and Daves, 2004, page 562

⁶⁹ Modigliani, F. and Miller, M.H. 1958, page 261-297

⁷⁰ Standard & Poor's, 2003, page 22

3.3.3.1 Leverage

Looking at the capital structure of a firm, perhaps the most important ratio is the leverage defined as $Total\ Debt / (Total\ Debt + Equity)$. Traditional measures focusing on long-term debt have lost much of their significance, since companies rely increasingly on short-term borrowings. It is now commonplace to find permanent layers of short-term debt, which finance not only seasonal working capital but also an ongoing portion of the asset base.⁷¹ This ratio gives a good indication on how levered the firm is. The higher the ratio the more levered the firm is and consequently more in debt. A company with a very high ratio may want to use earnings to reduce this leverage instead of paying high dividends. One important reason is to reduce the credit risk, which is the decisive cost factor when raising external finance. This means implicitly that when external financing costs go up dividend payouts should go down.

The leverage indicator might also be a good factor when looking at the size of a company. According to a study by Florence “very large companies are in general more highly geared than the smaller”.⁷² This implies that a highly leveraged firm should pay a higher dividend. According to a study by Easterbrook the raising of external finance will cause periodic reviews of the firm’s activities by the contributors of capital. Their presence will ease the burden of monitoring for existing shareholders and reduce agency costs.⁷³ This will in turn lead to lower dividend payouts.

H8: Leverage should have a negative impact on dividends.

3.3.3.2 Total Debt / EBITDA

This ratio is also important when looking at the capital structure of a firm. The difference to the above-mentioned ratio is that this ratio compares how big the debt is compared to what a company generates in sales after cost of goods sold. A low number indicates that the company has an operating profit that is high compared to the amount of the total debt. It should therefore, if the depreciations and amortizations are not too significant be a company that can afford to return money to shareholders. Consequently, the lower the ratio the higher the payment.

⁷¹ Ibid, page 23

⁷² Florence, 1959, page 90

⁷³ Easterbrook, 1984, page 653

H9: An increase in the level of Total Debt / EBITDA should lower the dividend.

3.3.3.3 Cash

The level of cash a company has on its balance sheet may be a good sign of the capacity for dividend payouts. If a company holds a lot of cash this could be a sign that there exists excess capacity to return to shareholders. A firm with large amounts of cash could be less exposed to short-term liquidity risk, meaning that they should be able to cover all short-term debt and working capital requirements. Also the fact that having large amounts of cash on hand can be considered to be an ill-advised investment, something that speaks in favour of returning cash to shareholders.⁷⁴ Some companies have chosen to have large amounts of cash on balance sheet, these are often considered as former high growth firms like Microsoft and Nokia, that through their big cash reserves are able to finance investments, both internal and external ones.

There is also a threat arising for a company that holds excessive amounts of cash on their balance sheets. This threat is that there exists a possibility that another company may be willing to acquire this company and finance it through the acquired company's cash on balance sheet, a leveraged buyout. This is especially true for companies that have a fairly modest market value in relation to the amount of cash at hand; regularly low-growth firms with steady cash flows.

H10: The level of cash should have a positive effect on dividends.

3.3.3.4 Dividend per Share / Unrestricted equity

When companies state their dividend goals they often do so by expressing them as dividend per share / earnings per share. That number has the drawback that it may be a negative number due to the fact that a company may have negative earnings, make a loss. A company may continue to pay a dividend even if there is a loss one year. The ratio encounters the same difficulties as the commonly used P/E-ratio used for share-valuation. However a company is only allowed to distribute earnings from their unrestricted equity that is primarily made up of retained earnings and previous years profit. This is known as the impairment of capital rule,

⁷⁴ Arnold, 2002, page 580

designed to protect creditors.⁷⁵ Therefore this number cannot be negative and serves better as a comparison between both companies but also between profit- and loss-making years. This equity may serve as a sort of cushion for worse economic conditions and to distribute large amounts of it may be risky, unless you are very certain that you will not run into difficulties. The use of this ratio can be interpreted in many ways. To begin with, a firm that chooses to give out a low amount of their equity can be in a growth phase and in need for these funds to finance its growth. Another possibility is that a company that has a small ratio is a company that has large amounts of unrestricted equity. When the ratios are higher this can be interpreted both as being a company with steady earnings that “can afford” to hand out a large proportion to shareholders, or it can in for example be a company that is having a very aggressive dividend policy. The ratio may increase in two different scenarios, either that the dividend per share increases or that the amount of equity decreases.

H11: Dividend per Share / Unrestricted equity should have a positive impact on dividends.

3.3.4 Risk

We have touched upon risk above when discussing for example cash flow volatility and leverage. There are however other ways of measuring risk as well, for example market risk and credit risk. A company with a very high risk should be a company with lower dividend payouts than one with higher risk. This is much due to the access and cost of funds for a risky company. Risk can partly be characterised by the growth level of a company, therefore a company with very high growth should be more risky than one with lower growth. The value of a firm is very dependent on the growth prospects. When prospects of growth are poor, one way of creating value for shareholders is by returning excess funds to shareholders. With the assumption that the company will not go into default but will generate stable cash flows over time and return this to shareholders the company can be considered to be low risk.

3.3.4.1 Growth

Studying sales it is important not only to look at size but also to look at the growth from previous years. A company with very high growth rates is most certainly a company that will have to do heavy investments to be able to retain that growth, and therefore will not be

⁷⁵ Brigham & Daves, 2004, page 568

willing to pay out a lot of dividends. They need all the internal funds available.⁷⁶ This relationship is the same as stated earlier when discussing cash flows. Even though a company with high growth rates might look appealing one has to remember that growth is not certain and what lies in the future is only a prediction. Therefore high growth is correlated with high risk. Fast growth could be subject to poor execution, even if the idea is well conceived. There is also a risk of over ambitiousness; they want to grow more than is healthy for the firm.⁷⁷ Consequently a company that faces low growth should pay out higher dividends. However limited internal earnings growth opportunities may lead management to pursue growth externally, implying that there will be less means for dividend payouts. Sales vary between the years; therefore we have used the compounded annual growth rate (CAGR) when calculating the growth rate. This will give a more accurate number we believe, because it gives the average growth rate over the period.

H12: Growth rate will have a negative impact on dividends.

3.3.4.2 Beta-values

When considering how the market perceives the risk of a company one can use the beta-value. We have calculated the beta-value on a yearly basis. It measures the volatility of the share compared to an index. If the value is 1 this means that a one-percentage change in index will lead to a one-percentage change in the share value. A very high value implies that the perceived risk is higher for this company than one with a low value.⁷⁸ The changes in each respective share have been measured against the change in the AFGX.⁷⁹ The calculations have been performed using the statistical software Minitab. As stated earlier we believe that risk is one of the determinant factors in assessing the dividend payouts. A high-risk firm is often one with high growth and low earnings; implicitly a company with a high beta value should have low level of dividends. Bar-Yosef and Kolodny came to the conclusion that high payout firms tend to have a low beta and low payout firms a high beta but also that the return was much higher for the low payout firms.⁸⁰

⁷⁶ Alli et al, 1993, page 527

⁷⁷ Standard & Poor's, 2003, page 19

⁷⁸ Lakonishok, J. and Shapiro, A.C., 1984, page 36-41

⁷⁹ Affärsvärldens General Index

⁸⁰ Bar-Yosef and Kolodny, 1976, page 187

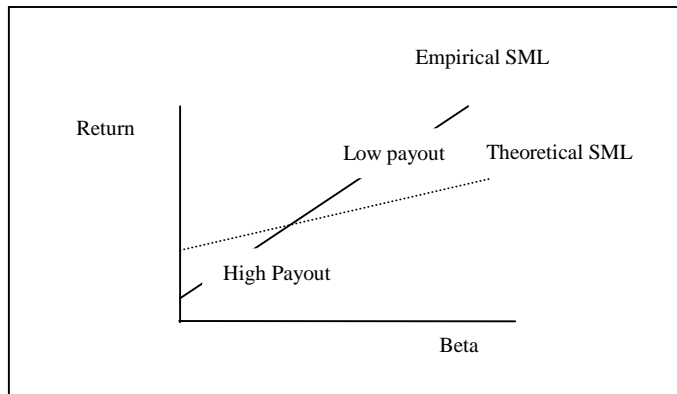


Exhibit 3.2 “Interpretation of results to support dividend relevance”

Rozeff used the beta as a proxy for the cost of external financing, not only like a risk measure for investors but also for lenders of capital. A higher beta would imply higher issuing cost. His results showed a negative relationship between the dividend payout ratio and the beta. This can be interpreted as when external financing becomes more expensive firms tend to lower the payout ratios and try to maintain as much internally generated funds as possible.⁸¹ According to an article by Dyl and Hoffmeister management can through the dividend affect the beta-value of their security. With two identical companies one that pay a large dividend is perceived by the market to be less risky and therefore also gets a lower beta than the other one. Through this manner management can try to influence the market perceived risk of their stock.⁸²

H13: An increase in the beta-value should lower the dividend payout.

3.3.4.3 Free Cash Flow / Total Debt

When doing credit comparisons for companies this is one of the most important ratios used by rating agencies and banks in evaluating the credit of a company. It is very good in the way that it tells how many times the cash flow generated by the company can cover existing debt. If a company has a very low ratio here this would imply that the amount generated through operations is a small amount compared to their indebtedness and that the risk of default could be high. According to the pecking order, or seniority of the stakeholders, debt-holders comes first and can through financial covenants limit the dividend payouts. This means that a company with a high value should have more financial flexibility and should have lower

⁸¹ Rozeff, 1982, page 257

⁸² Frankfurter & Wood, 2002, page 117

risk.⁸³ The higher the number the lower the risk, and consequently the higher the ratio the higher should the dividends be.

H14: When the ratio increases the dividend should follow.

3.3.5 Summary

Before progressing further to the external and internal variables that we believe may affect the dividend payouts, there will be a short summary of what we believe to be determinant factors when deciding upon the dividend and how levels of these affects the dividend payouts.

Profitability

- *Earnings per share: Higher earnings per share should lead to higher dividends.*
- *Free cash flow per share: An increase in free cash flow should result in a higher level of dividend payouts.*
- *Margins: The higher the margins the more profitable and consequently the higher the dividends.*
- *Return on equity: A higher percentage means that management may be able to generate greater return if funds are withheld within the company, implying a lower dividend.*

Size

- *Sales: With the belief that size matters and that a larger company pay higher dividends, higher sales means higher dividends.*
- *Assets: Higher the assets the lower the cost of issuing and therefore the higher the dividend payouts.*
- *Market Capitalisation: The higher the market value the higher the dividends.*

Capital Structure

- *Leverage: A high leverage would imply a low dividend payout.*
- *Total Debt / EBITDA: The lower the number the higher the payout.*
- *Cash: A company with a great deal of available cash at balance sheet should be more willing to pay a higher dividend.*

⁸³ Standard & Poor's, 2003, page 53

- *Dividend per share / Unrestricted equity: This ratio should have a positive impact on the payout.*

Risk

- *Growth: A high growth rate should have a negative impact on dividends.*
- *Beta-value: Measures the risk perceived by the market, high value implies a high risk and should lead to a low dividend.*
- *Free cash flow / Total Debt: A good measure of credit risk, where a high number implies low credit risk, and furthermore also high payouts.*

3.4 Surrounding factors

Alongside of the factors described above we believe that there exist other factors that will affect the payout ratios. These factors can be generated either internally in the company or externally from its environment. Some of these factors especially the internal ones are hard to measure quantitatively, therefore some of them are not included in the regression analysis but serve more as factors that might be able to explain deviations from predicted outcomes.

3.4.1 Internal

3.4.1.1 Ownership structure

Bathala, Moon and Rao (1994) claimed that the concentration of ownership would affect the dividend payout because of the agency costs involved. According to their theory agency costs will be higher when ownership is dispersed among many shareholders. This is because of the fact that monitoring becomes a high-cost activity and increases the need for other agency-cost-reducing mechanisms. In the case of a large dispersion it is likely that the CEO will have the most power over the company and decide upon the dividend. Bathala, Moon and Rao concluded that firms with a relatively large number of shareholders would have higher dividend payouts.⁸⁴

Sweden is one of few countries that have shares with different voting rights. With an A-share occasionally having 1000 votes compared to one vote for a B-share the role of the A-shares

⁸⁴ Bathala et al, 1996,

are very important. This is not the only interesting aspect that is significant for Swedish firms but also the fact that many of the largest firms in Sweden are controlled by two different spheres of power the Wallenberg-sphere and the Handelsbank-sphere. There are several other smaller spheres like the Stenbeck-, Lundberg- and Douglas-sphere. The different spheres may not have much of the capital but with the system with A- and B-shares and no other major shareholder they have practical control in many of Sweden's largest corporations. The Wallenberg-sphere and the Handelsbank-sphere each have an investment company called Investor respectively Industrivärden, both listed on the Stockholm Stock Exchange. They have no activity themselves besides from managing their portfolios. Therefore an investor in these companies will get a return based on the performance of the portfolio companies. Therefore it is likely to assume that Investor and Industrivärden will influence or even decide upon the dividend policies in their respective portfolio companies based on the influence of their ownership. In Sweden we can therefore say that there exists three types of investors; individuals, institutions and spheres, compared to most other countries where only the first two exists. In line with existing theory the spheres are more likely to play a larger role in overseeing management than dispersed individual investors.⁸⁵

Another interesting aspect with the sphere ownership is the double taxation. On the dividends received the sphere companies are obliged to pay taxes. Then as dividends are returned to shareholders in the sphere companies, they will have to pay taxes again, making these companies being valued with a discount on the material value, regularly between 15-39%.⁸⁶ This would imply that sphere controlled companies would pay lower dividends. In our regression model we have assigned a dummy variable if the firm can be considered to be controlled by one of the spheres. The criterion for this is that the sphere has practical control over the company. Practical control does not necessarily mean that a company have more than 50% of the votes. To decide if the company is under practical control, we have used the annual publication by Sundin and Sundqvist called "Ägarna och Makten" and applied the same ownership status used by the authors.⁸⁷

H15: Sphere-ownership will lead to lower dividend payouts.

⁸⁵ Baker et al, 2001, page 245

⁸⁶ Lundborg, A., 2000

⁸⁷ Sundin and Sundqvist, "Ägarna och makten" 1998-2004

We also believe that foreign ownership will affect the payout ratios for dividends. Looking at the structure of foreign investors, a majority are institutional investors and asset managers. An individual investor should due to a higher tax on dividends than on capital gains prefer low payout stocks and institutional investors, not affected by the taxes should prefer high payout stocks. Consistent with existing theory it should not matter if the institutional investors are foreign or domestic, they should both prefer dividend payouts to capital gains. To be classified as having significant foreign ownership we have instead of using the percentage of the votes used the percentage of the capital as a measure. This is due to the belief that we have that foreign institutions look for already dividend-paying companies, instead of actively trying to influence the managing of the company. The foreign ownership at the Stockholm Stock Exchange has increased over the last few years. Between 1997 and 2003 it has ranged between 31.4%-39.2%, creating an average of 35% of foreign ownership.⁸⁸ To fit the criteria we have therefore set a minimum of 31.4% of foreign ownership.

H16: Foreign ownership should have a positive impact on dividends.

3.4.1.2 Share Repurchase Plans

There have been numerous studies coming up with many motives of why share repurchases is a better option for the firm than paying a cash dividend. Some of these motives are similar, but not exactly identical, to those for paying cash dividends. If a firm decides to repurchase shares this will lead to fewer outstanding shares and should therefore lead to an increase in the share price. Theoretically if the same amount of money is spent on cash dividends as on repurchases the gain for the shareholder should be the same. To explain the rationale behind repurchases we will now explain some of the most common theories.

One important theory is the tax-motivated substitution for dividends. This theory is based on the fact that a company should use repurchases instead of dividends to minimize stockholder taxes, and instead of receiving a heavily taxed dividend receive a capital gain on the share. Studies in the US performed by Grullon and Michaely have showed the increased importance and popularity for repurchases.⁸⁹

⁸⁸ Sundin & Sundqvist, 1998-2004

⁸⁹ Baker et al, 2002, page 249

Perhaps the most widely studied theory for explaining this phenomenon is the signalling explanation. This is based on the theory of asymmetrical information. Corporate managers have more information regarding the company than the average investor and may therefore be able to know when the share is undervalued. Ikenberry, Lakonishok and Vermaelen showed that managers who disagree how the market evaluated public information, initiated share repurchase plans because of this where firms that was undervalued. One important aspect here concerns the fact that management want to have a smooth dividend. Investors do not welcome a sharp increase in the dividend to a higher level if it cannot stay at that level. While a share repurchase plan is considered more like a one-off return by investors. Morgan's study, where he asked CFO's at the NYSE, showed that managers viewed stock repurchases as an investment decision and not a financing or dividend decision.⁹⁰

Another theory is based on the possibility for management through a repurchase plan to change the capital structure of the firm. The questioning of Miller and Modigliani's classic study from 1958 saying that firm value is not affected by the capital structure of the firm lead many researchers to study this phenomenon. Companies that have internal or externally communicated capital structure goals may want to adjust their preferred structure by repurchasing shares. Basic corporate finance states that cost of equity is more expensive than cost of debt. This means that the effective use of equity has become more important when investors have higher demands for return. A debt-financed repurchase program is therefore a far more flexible way to adjust the capital structure than for example by the issuing of bonds.⁹¹

Companies that have important stock option plans for management should favour buybacks to dividends. When the company pays a dividend the price of the share tends to fall by exactly the amount of the dividend. For a shareholder this has not lead to a loss since they received the cash dividend. The value of the option that is dependant on the value of the stock and that have not received a dividend have however been negatively affected. This suggests that management have an incentive to reduce dividends in order to increase the expected value of their stock options. According to one study there was a significant downward shift in dividends after the initiating of a stock option plan.⁹² Chan Ikenberry and Lee (2000) found

⁹⁰ Bierman, 2001, page 22

⁹¹ Baker et al, 2002, page 251

⁹² Lambert et al, 1989, page 420

evidence that companies may time repurchase announcements around the time of exercise of executive stock options. Stock options became popular in Sweden in the late 1990, just before the legislation-change that allowed companies to repurchase shares. Practically all companies have executive stock option plans today so it is hard to statistically measure the importance of a stock option plan and link it to the dividend paid.⁹³ We have instead decided to use the repurchase variable as a dummy. If the company has made repurchases a certain year they will fit the repurchase dummy criteria, regardless of how many shares they have repurchased. Through this we will try to see if this has affected the dividends for companies that have done repurchases. And we believe that a repurchase of shares will affect the dividend paid that year in a negative way.

H17: Share repurchases should have a negative impact on dividends.

3.4.2 External

3.4.2.1 Industry

When looking at two companies and assessing their performance by looking at their balance sheet, cash flow statements and profit and loss account they can appear to be similar. However different industries can have very different characteristics. They do not all move through the same economic cycles and the cyclicalities can differ a lot. Some industries are dependant on the output on other industries and some have an inelastic demand, for example food retailers. Since the type of industry is believed to make a difference, it is important to try to isolate the industry factor as far as possible. In our regression we have therefore found it important to add a dummy variable based on the industry belonging. The sample companies industries range between automobile, retail, transport, tourism, healthcare, construction, chemicals, financial intermediaries and insurance, computer, real estate, security activities, materials and industry.⁹⁴

The Stockholm Stock Exchange has adopted the Global Industry Classification Standard (GICS), developed by investment-bank Morgan Stanley Capital International Inc. along with rating agency Standard & Poor's. The GICS is the result after a great amount of interviews with investors, asset managers and financial analysts around the world. The grouping is based

⁹³ Sundin & Sundquist, 1998-2004

⁹⁴ Sveriges största företag

on the main activity of the company, defined as how the majority of revenues are generated. The main difference compared to previous grouping is that this new one is market oriented instead of earlier product-orientation. The product-orientated separated between goods and services. Today however there are very few goods that are sold where there is no additional service provided.⁹⁵ The companies in our sample are at the Stockholm Stock Exchange divided into the following line of businesses:

Line of business	Companies
Materials	Holmen, SCA, SSAB, Stora Enso, Höganäs
Industrials	ABB, Assa Abloy, Atlas Copco, Sandvik, Scania, Securitas, Skanska, SKF, Volvo, Bergman&Beving, Cardo, Gunnebo, Haldex, Hexagon, SAS, Seco Tools, ÅF
Consumer Discretionary	Autoliv, Electrolux, Trelleborg, Finnveden, Lindex, TV4, Ticket
Consumer Staples	Swedish Match, Sardus
Healthcare	AstraZeneca, Gambro, Getinge
Financials	Industrivärden, Investor, OMX, Skandia, Bure, Hufvudstaden, JM
Information Technology	Ericsson, Nokia, Scribona, WM-Data

Table 3.1 “Lines of business”

For statistical reasons we cannot run all these lines of businesses in the regression. With a minimum of 30 observations to be statistically significant there are only four lines that fit this criteria; Materials, Industrials, Consumer discretionary and Financials. These will be run in the regression using a dummy variable for each one. The rest of the companies we have chosen not to include in the regression. One possibility was to run them with a dummy variable called other; the problem is though however that these companies are very different in terms of cyclicity, seasonality, volatility and capital structure. Therefore we have chosen to exclude them from the industry segment. The lines of businesses included, materials, industrials, consumer discretionary and financials make up a total of 36 out of 45 companies.

⁹⁵ www.stockholmsborsen.se

According to existing theory by both Michel (1979) and Baker and Farrelly (1988) suggest that the industry in which a company operates will affect its dividend policy. According to Baker and Farrelly one third of all CFO's when asked upon decided their dividend after having looked at industry norms.⁹⁶

All segments included are composed out of relatively mature companies. The materials and industrials segment include in general companies that have existed for quite a while with a product base that may be evolving but still can be considered to be quite stable, creating medium to low growth. The consumer discretionary segment is made up of a little bit younger companies than the previous segments, and also with a bigger variety in the product base, but with the common feature that companies within this industry should be more dependant on consumer demand, and more cyclical. These features make us believe that this dummy variable will have a negative impact on the dividend payout. The final segment, called financials, is made up of some of the oldest Swedish companies, Skandia for example, and some relatively young like Bure and OMX. It is also made up of the two sphere-companies. The nature of this industry and it being more regulated than other industries makes us believe that companies in this sector will pay a lesser dividend. In a survey made by Baker, Veit and Powell, they showed that there was significant differences for firms in this industry to retain a certain capital structure, a factor making financial companies pay less in dividends.⁹⁷

H18: Companies in the material sector will pay higher dividends.

H19: Companies in the industrial sector will pay higher dividends.

H20: Companies in the consumer discretionary sector will pay lower dividends.

H21: Companies in the financial sector will pay lower dividends.

3.4.2.2 Share Index

Looking at the share indices development over the year one could see the markets perception of the past year. If the index has climbed this is due to more confidence in the stock market. The evaluation of the index is often correlated to economic conditions. In a recession when corporate earnings go down the share indices follow, and inversely in an upturn the indices go up when the economy is booming. A well performing economy where earnings per share

⁹⁶ Baker & Farrelly, 1988, page 87

⁹⁷ Baker et al, 2002, page 9

figures increase should lead to higher dividend payouts for firms. When the state of the economy turns this will lead to lower earnings per share and lower dividend payouts for the firms.

H22: An increase in share-index will have a positive impact on dividends.

3.4.2.3 Interest Rates

Interest rates fluctuate over the economic cycles. When the economy is doing really well, interest rates are adjusted upwards by the governing banks, in the US the Federal Reserve and in Sweden by the Riksbank. This is done because of fears of an overheating of the economy and high inflation rates. When inflation rates go up, stock markets tend to go down. This is because investors can find a risk-adjusted return in bonds and t-bills that after an increase is more compelling than shares might be. When interest rates goes up, the cost of capital for the company increases. Thus, the holding of cash becomes more expensive which should lead to a higher payout. This can according to Malkiel be observed by looking at dividend yields that rises to be competitive alongside with interest rates.⁹⁸ As a way to measure this we have taken the Swedish 3-month t-bill rate, which can be considered to equivalent to the risk free rate of return.

H23: Interest rates will have a positive impact on dividends.

3.4.2.4 Exchange Rates, USD / SEK

For being a rather small country, population wise, Sweden's industry is very export-oriented. Therefore Swedish companies are very dependant on currency rates and many of them would benefit from a weaker Swedish krona, something that would make Swedish products more competitive abroad. Some of the companies do not disclose their results in SEK, but have decided to do so in Euro or USD. Others may have a cost base in SEK but an income base in USD or Euro; a strengthening of the SEK will therefore presumably have a negative impact on their results. When their results suffer so should also the dividend.

H24: The USD/SEK exchange rate should have a negative impact on the dividend.

⁹⁸ Malkiel, 1999, page 328

3.4.2.5 P/S – ratio

The P/S – ratio is calculated by dividing the market capitalisation by the annual sales. The lower the ratio the more attractive the investment. This ratio shows how much the market value every SEK of the company's sales. The P/S – ratio is a good compliment to the P/E – ratio that under certain circumstances not is applicable. When a company makes a loss the P/E – ratio is invalid. In a highly cyclical industry like the semiconductor one, there are years when only a few companies produce any earnings.⁹⁹ When this occurs investors can see how much they are paying for a SEK of the company's sales rather than for a SEK of its earnings. A company that goes into a loss may also lose its dividend yield and investors lose a way of valuing the share. However it is important to remember that sales are not worth anything if it cannot be turned into earnings.

Existing theory says that one function of dividends is the signalling of unobservable financial strength by managers with superior information. If dividends are performing according to this function, then a company, which pays dividends, should carry a higher market capitalisation than a company which has identical publicly available information (such as its balance sheet) but which does not pay dividends. In other words, ratios such as price-to-earnings and price-to-sales should be higher for companies that pay dividends if the signalling hypothesis is correct.¹⁰⁰

H25: P/S-ratio will have a positive impact on dividends.

3.4.2.6 Dividend Yield

The dividend yields are calculated by dividing the dividends paid by the share-price. The higher the yield the more of the relative value the company is returned to shareholders. Studies by both Sharpe and Sosin (1976) and Baskin showed that there was an inverse relationship between dividend yield and stock volatility. When the volatility measured as the beta-value increased the yield went down. Baskin showed that a 1-% increase in the yield led to a 2,5% decrease in volatility.¹⁰¹

H26: The yield should have a positive impact on the dividend payout.

⁹⁹ www.investopedia.com

¹⁰⁰ Redding, 1997, page 240

¹⁰¹ Baskin, 1989, page 25

3.4.3 Summary

As described above we believe that there are factors “off the balance-sheet” that influence the dividend policy. Some of them can be considered to be internal in the way that the management or board has some influence over it and the others can be considered as external, the market decides upon these. We believe however what they have in common is that they affect the dividend payout for a company.

Internal:

Ownership structure: A company that is sphere-controlled will have a lower payout than one that is not.

Foreign ownership will lead to a higher payout.

Share repurchases: A company that has done repurchases will have a lower dividend than one that has not.

External:

Industry: Companies in the material sector will pay higher dividends

Companies in the industrial sector will pay higher dividends

Companies in the consumer discretionary sector will pay lower dividends

Companies in the financial sector will pay lower dividends

Share index: If the index that the company is attached to goes up so should also the dividend.

Interest rates: When interest rates goes up the dividend payout should follow.

Exchange rates, USD/SEK: A stronger Swedish krona would lead to lower dividends.

P/S- ratio: The P/S-ratio will have a positive impact on the dividend.

Yield: An increase in the yield will lead to a higher dividend.

3.5 Summary table of predicted impact of variables

As a summary of the theory chapter the authors find it proper to outline all our variables for the reader. This table will show how we predict that each variable will affect the dividend payout and from where these ratios or proxies have been found in the environment of the firm.

The next chapter, empirical findings will test each and every variables impact through a regression analysis.

Variable	Predicted impact	Balance Sheet	Profit and loss account / Cash flow	Internal	External
Dividend t-1	+	X	X		
EPS	+	X	X		
FCF / Share	+	X	X		
Profit margin	+		X		
EBITDA margin	+		X		
Return on Equity	-	X	X		
Sales	+		X		
Assets	+		X		
Mkt Cap	+	X			X
Leverage	-	X			
Total Debt/ EBITDA	-	X	X		
Cash	+	X			
DPS / Unrestricted equity	+	X	X		
Sales Growth	-		X		
Beta	-				X
FCF / Total Debt	+	X	X		
Sphere controlled	-			X	
Foreign ownership	+			X	
Share repurchase	-			X	
Materials	+				X
Industrials	+				X
Consumer Discretionary	-				X
Financials	-				X
Share Index	+				X
Interest rates	+				X

Exchange rates	-				X
P/S – ratio	+				X
Dividend yield	+				X

Table 3.2 “Summary of variables”

4. Empirical findings

This chapter will start by a survey of the development of dividend policies and actions taken for our sample of companies during our sample period. After that we will explain the statistical methods used to study the data and will focus on providing the reader with an understanding of the issues investigated along with a presentation of the assumptions taken by the authors when analysing the data. We will then walk you through the different steps taken in our regression and show our results.

4.1 Dividend Policies & Development

The authors have as already mentioned looked upon the dividend policies and existing changes from 1997 until 2003 for companies that matched the criteria. There are a few common features for the majority of the companies which is that they have over time become more aggressive in raising the amount paid out, measured as dividend per share through earnings per share (DPS/EPS ratio). The majority of the companies mention throughout the period that they aim to pay a stable and increasing dividend over time. Other general information tends to be previous year's payout levels and that the dividend payout will be determined by the future prospects of the firm.

One theory in dividend policy is the residual theory. The residual theory is based on that all funds that are left when all investments with a positive net present value should be returned to shareholders.¹⁰² For a company with volatile earnings, it would be very hard for management to maintain a steady dividend. As mentioned in the theory chapter management prefer a stable dividend, the residual theory does not hold, at least for the companies in our sample. Only one company in our sample, Ticket, the travel arranger, comes close to this policy.

We have decided to divide the different policies into different clusters and will now walk you through the different policies that exist or have existed amongst our sample of companies. It has to be underlined that these different clusters are based on the information given in the

¹⁰² Brigham & Daves, 2004, page 561

annual reports published by the companies in the sample. There may well be internal policies, not communicated to the public that management tries to maintain.

4.1.1 Earnings per share

Most companies state in their annual report dividend policies that the dividend paid out will be based on the earnings per share. This comes quite natural since this is the amount available to shareholders. The target percentage varies between 15% and >50%. Many companies say that the ratio should be obtained over a cycle and less cyclical companies tend to have a higher ratio. Also companies that have a lower growth rate tend to pay out lower dividends in accordance with existing theory. The company that has the lowest earnings per share percentage payout is the insurance company Skandia that varies between 15% - 25%.

The majority of companies have payout ratios between 30% - 50%. Where the lower range is dominated by more cyclical industrial companies and the upper range is subject to less cyclical ones like the food industry company Sardus.

One company, Gambro, has a target to deliver a dividend in the range of 8%-15% of the company's cash earnings per share. Cash earnings per share are calculated as net income plus depreciation and amortization divided by the number of shares outstanding. The company changed its dividend policy between the years 1997-1998 due to consequent changes in the firm strategy since 1991. As of 1998, Gambro decided to pay out dividends to a lesser extent since they thought the cash would generate greater return to shareholders if withheld within the company.¹⁰³

It is interesting to see how the target ratios have evaluated over time. There are roughly the same amounts of companies that pay dividends but the relationship between the different target ratios have varied greatly. The change is especially significant looking at the group of companies with a payout ratio between 0-33% as the number of firms in that group has decreased significantly since 1997. Baker and Farrelly's study from 1988 stated that three-fourth of the firms maintained a target payout ratio but only one third communicated the target payout ratios to their shareholders. They came to the conclusion that having a target payout ratio suggests that the dividend-achieving firms treat dividends as an active policy

¹⁰³ www.gambro.com

variable.¹⁰⁴ Comparing these figures to the ones that we have for the Swedish companies today, one could draw the conclusion that clear communication with shareholders and investors has become more and more important.

Earnings Per Share Target	1997 % (number)	2000 % (number)	2003 % (number)
0-33%	33% (15)	33% (15)	22% (10)
34-49%	16% (7)	20% (9)	22% (10)
>50%	13% (6)	16% (7)	22% (10)
Total	62% (28)	69% (31)	67% (30)

Table 4.1 “Dividend developments”

4.1.2 Competitor Based

Some of the companies have an approach where they state that their dividend should be higher or have a higher average growth than the average of its specific industry. Volvo has changed its policy since 1997; in 1999 it adopted a policy that dividends should exceed the average of the industry. Sandvik has throughout the period had a policy of returning more than the average for its specific industry. One company, Industrivärden, has adopted a policy where they have as a goal to return more than the average return given on the Stockholm Stock Exchange.

4.1.3 Capital Structure Based

Some of the companies have an outspoken “long term equity structure” they want either to obtain or retain in terms of dividend payouts. One of these is Ångpanneföreningen that has a target ratio of 40-45%. Before changing policy in 2001, Skanska had as a policy to return 5-6 percent of the group’s equity to its shareholders. Holmen uses this as a policy but also states that the company should pay an extra dividend when the capital structure permits. Bure, an investment company has as a goal that at least 5% of equity should be returned. This has been changed over time as the company has suffered from bad performances the last few years. Prior to this the company had as a policy to return 5% or 5 SEK per share in 1997-1998, 5% or 2,5 SEK per share in 1999.

¹⁰⁴ Baker and Farrelly, 1988, page 86

4.1.4 Dividends and Repurchase policy

Some companies also state that another way for them to create return to shareholders is by doing share buybacks. As mentioned earlier law prohibited this before 2000. Since then many companies have initiated buyback programs and clearly communicate this as a way of creating value to shareholders. Another reason mentioned as a cause of the buybacks is the possibility to change the capital structure to targeted leverage ratios. Some companies that clearly state this in their annual reports include Gambro, Volvo, Haldex and Holmen. The big difference with the buyback programs initiated compared to the dividend policy is the flexibility with the buybacks. They do not have the same recurring commitment attached to them.

4.1.5 Dividend Policy Not Indicated

Some companies do not reveal their dividend policy in their annual reports. Companies like these include Ericsson as well as smaller companies like Bergman&Beving, which have no information throughout the period. Some other companies have seized to inform about their dividend policy, companies that fit here are for example Bure and Scania.

4.1.6 Other

Several other companies do not fit under any specific section. Some of these companies have an outspoken dividend policy but a rather subjective one that could be subject for interpretation. These companies state that the dividend for example should be all means available to shareholders, Ticket, but pay no dividends due to bad results. Others like SAS acknowledge the importance of capital in economic downturns for the specific industry.

4.1.7 Summary

In this summary the overall results of the research done on divined policies is presented. The average payout has been recalculated excluding extraordinary dividends, defined as exceeding 150% and below -20%.

Corporation	EPS-target	Average DPS/EPS	Capital Structure	Other Info
ABB	30-50%	36%	-	-
Assa Abloy	33%	37%	-	Consider long-term financial goals.

AstraZeneca	-	15%	-	Dividends cover 2-3x. Share buyback program
Atlas Copco	30-40% 1997-2002 40-50% 2003	38%	-	-
Autoliv	-	31%	-	Only mentioned in absolute numbers.
Electrolux	30-50%	33%	-	-
Ericsson	-	27%	-	-
Gambro	8-15% of cash EPS starting 2003	31%	-	Strategic change starting 1991
Getinge	33%	34%	-	-
Holmen	-	43%	5-7% of equity, Debt/Equity ratio = ~0.5-0.7	Extra dividend if possible
Industrivärden	-	49%	D/E 20% 97-00	Higher than exchange average
Investor	-	41%	-	Equal over time
Nokia	-	56%	-	-
OM	-	71%	-	Paid in line with earnings trend and capital requirements
Sandvik	>50%	70%	-	Higher than industry average
SCA	33% of cash flow from operations starting 2000	36%	-	Higher than industry average -97, buyback program -00
Scania	-	56%	-	Steady dividend 97-00 No policy -01
Securitas	>33%	60%	-	-
Skandia	15-25% 1999-2003	13%	-	No policy prior to -99
Skanska	35-45% 1997-2002	40%	5-6% of equity 97-02	Not needed for core business -03
SKF	33% 1997-2002 50% 2003	30%	-	Fund pension obligations
SSAB	33% 1997	66%	Used to adapt	-

	50% 1998-2003		capital structure	
Stora Enso	33% 1997-2002 50% 2003	66%	-	-
Swedish Match	40-50% 1997-2000 30-50% 2000-2003	42%		Buybacks considered in -03
Trelleborg	33% 1997 30-50% 1998-2003	50%	-	-
Volvo	-	33%	-	Exceed average of the industry
Bergman & Beving	-	49%	-	-
Bure	-	33%	-	>5% of material value 98-00; buyback program in -01
Cardo	35-50%	45%	-	-
Finnveden	30%	17%	-	-
Gunnebo	33% 1997-2002 30-40% 2003	70%	-	-
Haldex	33%	38%	-	Dividends + buybacks to correspond to 33% in 2003
Hexagon	25-35%	44%	Equity ratio decisive	-
Hufvudstaden	>50%	65%	-	-
Höganäs	30% 1998-2002 30-50% 2003	44%	-	-
JM	30% 1997-1998 50% 1999-2003	56%	-	-
Lindex	30%	38%	-	-
Sardus	>50%	70%	-	-
SAS	30-40% 1998-2000	22%	-	Industry specific conditions
Scribona	33%	52%	-	-
SECO	>50%	78%	-	-
Ticket	-	33%	Safeguarding of Debt/Equity ratio	All possible means, residual
TV4	~50%	75%	-	-
WM-data	25-30% 1997-2002	20%	-	-

	25-50% 2003			
ÅF	50%	60%	40-45%	-

Table 4.2 “Summary of sample firms”

4.2 Dividend Policy Changes

A dividend policy change implies that a firm has changed the percentage of the EPS payout ratio, or done any other fundamental change in their policy communicated to stakeholders. Far from every company has changed their dividend policy during this period, some has even used the same sentences in describing their policy in their annual report. For the companies that have changed their policy the most common is that they have increased their dividend policy payout ratios. Some have however decreased the ratio, like Swedish Match. Over the period there have been a total of 23 policy changes for our sample of companies, equivalent to roughly one change for every two companies. The most astonishing fact derived from the table of dividend policy changes is the time of occurred changes. Half of all spotted changes occurred the last year.

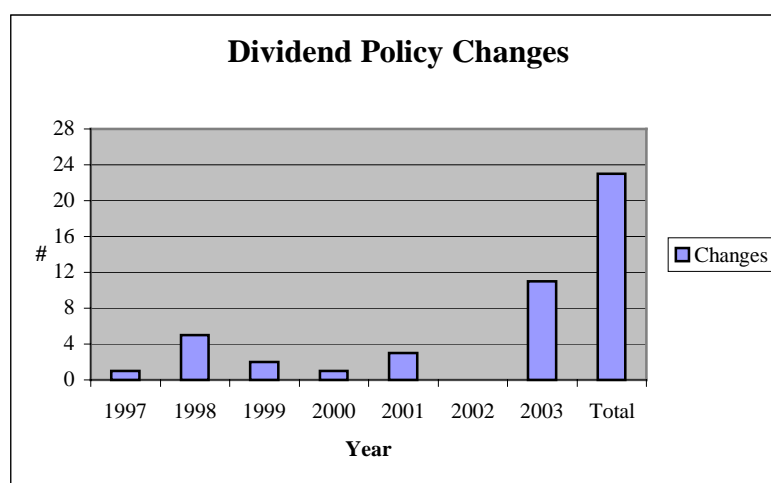


Exhibit 4.1 “Dividend policy changes”

4.3 Dividend achievers and reduction/omission of dividends

If one examines the development for the sample companies over time in terms of changes in the absolute amount of dividend paid, interesting patterns emerges. They may not be statistically accurate, but may serve as a good indication. During this period 8 companies have seized to pay dividends and out of these eight only one was controlled by one of the power-spheres. This omission was performed by Ericsson that was close to default at the

time, which could be a sign that sphere companies only seize to demand dividends when their portfolio company is close to default. There were 29 reductions of dividends, performed by 27 different companies; some companies performed more than one reduction.

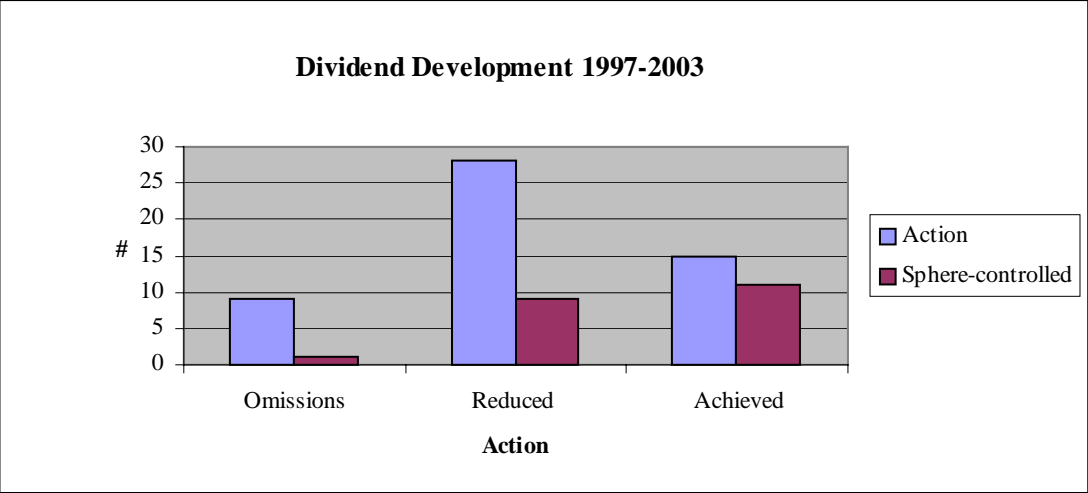


Exhibit 4.2 “Dividend Development 1997-2003”

Of these 27 companies 9 belonged to one of the spheres. During this period a total of 15 companies were able to sustain their amount of dividends paid or increase it year-on-year. What is noteworthy here is that out of these 15 a sphere owned a total of 11 companies. One reason behind this could be that the portfolio companies tend to be larger mature companies with a steadier stream of income. Baker and Farrelly state that managers that can be considered to be dividend achievers believe that shareholders prefer a reasonably stable dividend rate and place a premium on the gradual growth of dividends.¹⁰⁵

The sphere-controlled companies are not only the ones where nominal dividends have a tendency to remain at the same level or increase. The stability of dividends for companies controlled by a sphere is also evidently more stable than dividends paid from non-sphere controlled companies. Both the average and the median are notably lower for the sphere controlled companies, than for the non-sphere companies. This graph is based on calculations performed in excel. The standard deviation was calculated based on the annual dividend change for the respective companies. The lower the standard deviation, the more stable the dividends.

¹⁰⁵ Baker and Farrelly, 1988, page 88

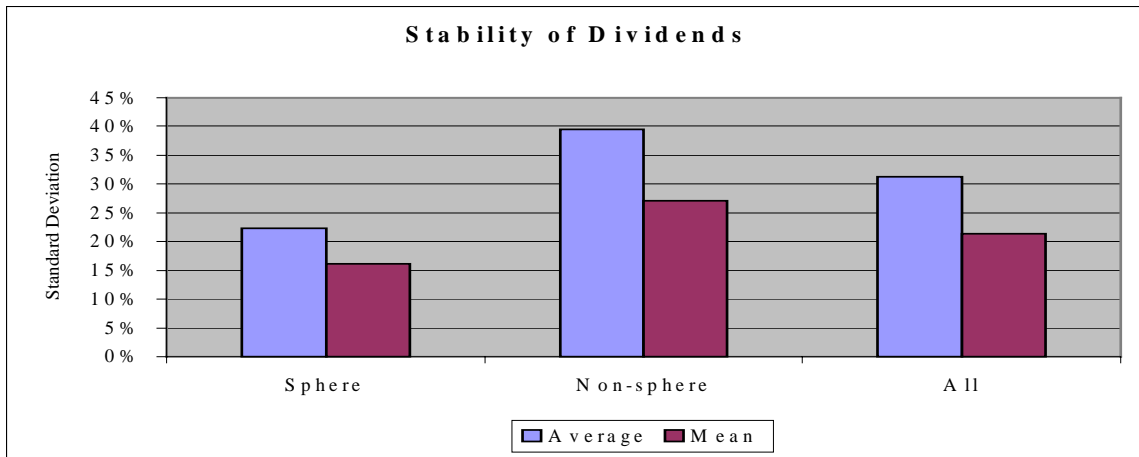


Exhibit 4.3 “Stability of dividends”

4.4 Corporate losses and dividend reductions

Out of the 46 companies in our sample, 20 recorded a loss during the time period. Of these 20, 11 did losses more than one year. Of the companies that seized to pay dividends during this time period, all had consecutive losses. Out of a total of eleven year-on-year loss making companies nine seized to pay a dividend. This is very much in line with the study by DeAngelo, DeAngelo and Skinner where they showed that companies with consecutive loss making years run a greater probability of seizing to pay dividends.

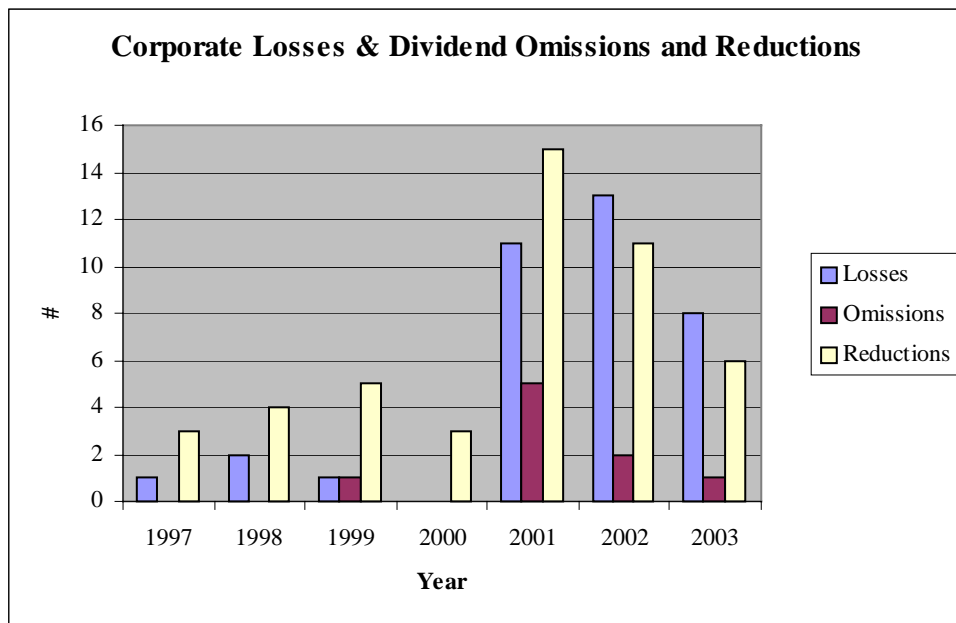


Exhibit 4.4 “Corporate Losses & Dividend Omissions and Reductions”

For companies that had unusual items affecting their balance sheet the reductions was less significant or even inevitable, just as suggested by the same authors.¹⁰⁶ An unusual item could for example be a single write-down of goodwill, an example of a non-recurring item.

¹⁰⁶ DeAngelo et al, 1992, page 1850

The same study comes to the conclusion that dividend reduction decisions *"reflect the low level of current and expected future earnings, and not simply year-to-year earnings changes"*.¹⁰⁷ Compared to DeAngelo et al's study where 50,6% of the companies that made losses reduced their dividends the same year, for our sample of companies there where a total of 70%. Our sample may not be statistically accurate but may be an indication of the situation.

4.5 The regression analysis calculations and assumptions

The computer application used for regression analysis in this thesis was Minitab that provides understandable and logic insights to the matter. The application also provides extended support on the Internet, www.minitab.com/support. Minitab presents numerous methods of regression, which investigate the regression data inputs in various ways, therefore, offering the end user, i.e. the authors, alternatives when estimating the most accurate equation. These methods include the multiple linear regression, the stepwise regression (forward selection and backwards elimination) and the best subset regression. These have all been applied and will be further explained below. Additionally table 4.3 with the basic statistics (mean, median, standard deviation, maximum and minimum) will give an overview of variables applied when estimating a regression model. This table will indicate the range and the variance for each variable. The variables included in the regression are the ones that have been described in the theory chapter.

Variables	N°	Mean	Standard deviation	Minimum	Median	Maximum
DPS Box-Cox (SEK)	292	1,2936	0,2304	0,6686	1,3237	2,0202
DPS t-1 (SEK)	314	3,893	2,881	0	3,5	14
EPS (SEK)	314	8,062	7,879	-17,32	7,21	44,7
BETA	311	0,7909	0,4417	-0,5	0,737	2,85
FCF/share (SEK)	312	11,581	12,055	-25,25	8,875	50,45
Return on equity (%)	310	15,117	13,691	-48,67	14	64,6
EBITDA margin (%)	315	15,384	15,825	-10,13	11,97	99,4
Profit margin (%)	314	6,429	9,469	-33,4	5	71,26

¹⁰⁷ DeAngelo et al, 1992, page 1849

log(Sales (SEK))	315	23,429	1,533	20,314	23,245	26,399
log(Market Cap (SEK))	315	23,22	1,786	18,350	23,286	28,299
log(Assets (SEK))	315	23,492	1,726	18,834	23,571	27,138
Total debt/EBITDA(x)	312	6,767	12,634	-50,27	4,515	98,99
Leverage (%)	315	59,564	15,192	14,52	60,27	96,89
log(Cash (SEK))	315	20,778	1,932	16,213	20,682	25,253
USD/SEK	315	8,6387	0,9906	7,2505	8,5190	10,4579
Swedish 3-mth T-bill	315	3,6143	0,4802	2,7	3,6	4,31
AFGX	315	217,01	56,89	145,2	190,6	316,3
Dividend yield (%)	314	3,237	3,421	0	3	47,4
PS-ratio (x)	315	1,487	2,293	0,03	0,77	26,16
FCF/Total Debt (%)	315	16,849	17,185	-37,5	14,02	139,14
DPS/unrestricted equity (%)	307	15,654	14,587	0	11,58	93,65
Sales growth (%)	315	7,26	9,551	-20,33	6,5	30,61

Table 4.3 “Statistical values for variables”

4.5.1 Testing for multicollinearity

Using scatterplots and a correlation matrix tests have been conducted for detection of multicollinearity. The VIF-test for the independent variables showed a majority of values ranging from 1 – 3, indicating a possible existence of correlation. This can be explained by the fact that most variables indirectly related to each other. General economic conditions are likely to affect all firms and therefore it would be unlikely that it did not exist any correlation at all between them. Though none of the VIF-values were in the range of 5 – 10 so therefore none was excluded via this test. Using the correlation matrix variables showing values above 0,5 were the size proxies where the natural log was applied, i.e. log(Sales (SEK)), log(Market Cap (SEK)) and log(Assets (SEK)). Running the regression with each of the respective variables, the R² was highest for log(Market Cap (SEK)), 0,9%. Therefore we chose to exclude the two variables with the lowest value, log(Sales (SEK)), 0,0% and log(Assets (SEK)), 0,6%.

4.5.2 Box-Cox transformation and outliers

Because of the regression assumption of normally distributed data a transformation of data has been made. When investigating if a nonnormality pattern in the dependent variable, DPS (SEK), existed probability plots and histogram were produced and the authors found a lack of symmetry, indicating that the data positively skewed (see exhibit A1 and A2 in Appendix A). This was considered to be of such an extent that transformation was a must with the aim of achieving normally distributed data. Although histograms can be misleading when searching for nonnormality and probability plots should also be examined. The transformation process chosen was the Box-Cox method, which will provide data with a more homogeneous variance than untransformed data.¹⁰⁸ In Minitab the Box-Cox transformation will initially indicate the optimal number for transformation for nonnormality in data, the λ or Lambda-value. A Box-Cox plot includes (see exhibit A3 in Appendix A):

1. A plot of possible values for lambda compared to the pooled standard deviation from each transformation.
2. A 95% confidence interval for λ , which is contained within the red lines on the plot, between the Upper and Lower CL.
3. The optimal value for λ , two optional values and the rounded value of λ .

The optimal value of λ is then used as a guide to choose a practical value of λ for the transformation of data. Commonly used data values for λ include:

Λ value	Transformation, Y' = transformed value of dependent variable
$\Lambda = 2$	$Y' = Y^2$
$\Lambda = 0.5$	$Y' = \sqrt{Y}$
$\Lambda = 0$	$Y' = \text{Loge}Y$
$\Lambda = -0.5$	$Y' = 1/(\sqrt{Y})$
$\Lambda = -1$	$Y' = 1/Y$

Table 4.4 “Lambda-values”

In this sort of transformation only positive values can be recalculated, thus a natural elimination of the cases where DPS (SEK) = 0 was carried out. This implies that the regression will only provide indication on which factors that affect dividends for companies

¹⁰⁸Blom & Holmquist, 1998, page 203, 224

that actually *pay* a dividend, leaving out certain years when firms choose not to pay any dividend, thus reducing the number of observations to 292. Analysis of the non-paying observations will be done separately but with the results of the regression borne in mind.

As shown in exhibit A3 in Appendix A the optimal lambda derived from the Box-Cox calculations was 0,21. This leads to the following Box-Cox transformation of DPS (SEK)-data:

DPS (SEK)	DPS Box Cox-transformed
1	1,00000
2	1,15843
3	1,26250
4	1,34196
5	1,40702

Table 4.5 “Box-Cox results 1”

Variable	Mean	St. deviation	Minimum	Median	Maximum	Skewness
DPS (SEK)	4,204	3,009	0,15	3,750	15,000	1,16
DPS Box Cox	1,2936	0,2304	0,6686	1,3237	2,0202	-0,031

Table 4.6 “Box-Cox results 2”

When analysing the result from the transformed DPS (SEK) variable in the following regressions one has to bear in mind the impact of the transformation. As the variable shifts from being denominated in SEK to a transformed value so does the coefficients in the independent variables. This fact also applies for the independent variables that has been recalculated with the natural log and effectively will be transformed using following formula

$$e^{\ln(x)} = X$$

Outliers have been identified through the use of normal probability plots of the residuals as for each variable as well as fitted line plots. The authors chose to exclude observations, which had a residual three times larger than the standard deviation of the regression. 23 observations were finally excluded from the sample used in the regression.

When having transformed the DPS (SEK) data and excluded outliers from regression variables the DPS Box-Cox variable became normally distributed and displayed the following normal probability plot;

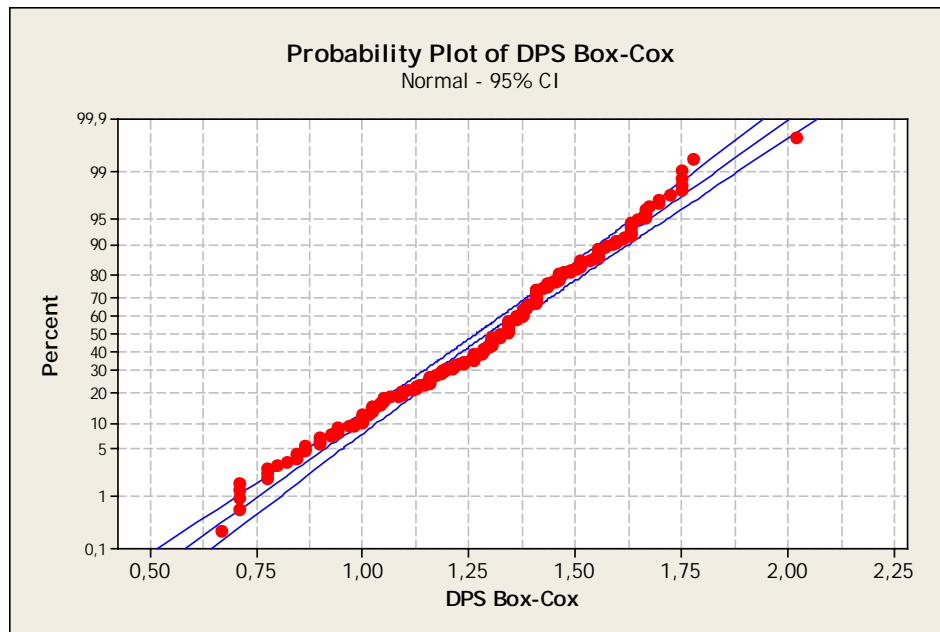


Exhibit 4.5 “Probability Plot of DPS Box-Cox”

4.5.3 The stepwise regression

This method combines the forward selection and the backward elimination process, thus adding and eliminating variables according to certain criteria, in this case α -levels, in order to derive the best sets of variables for the regression equation. The stepwise regression is advantageous when a large number of variables exists and is considered to be a valuable tool in building a regression model. Though this method does not take into account specific information on variables held by the user and the equation given is not to be considered to be the most suitable but rather one alternative that describe the data well. When applying this method a relatively high α -level was used, this enabled the authors to get an overview of all the variables to include and their impact on the dependent variable.¹⁰⁹

Alpha-to-Enter: 0,25

Alpha-to-enter is the α -value that determines if any of the variables not yet in the equation should be included.

Alpha-to-Remove: 0,25

¹⁰⁹ Blom & Holmquist, 1998, page 240-241

Alpha-to-remove is the α -value that determines if any of the variables in the model should be removed.

The result from the stepwise regression analysis, after 12 steps, where the following:

Dependent variable: DPS Box Cox			
Independent variable	Coefficient	T-value	P-value
Intercept	1,240	-	-
DPS t-1 (SEK)	0,0341	10,68	0,000
EPS (SEK)	0,0082	7,14	0,000
Dividend yield (%)	0,0159	4,24	0,000
FCF/share (SEK)	0,00360	5,17	0,000
Leverage (%)	-0,00244	-4,53	0,000
DPS/unrestricted equity (SEK)	0,00153	3,44	0,001
Profit-margin (%)	-0,00366	-4,33	0,000
BETA	-0,0064	-3,59	0,000
log(Cash (SEK))	0,0160	2,55	0,011
log(Market Cap (SEK))	-0,0137	-1,87	0,063
USD/SEK	-0,0086	-1,30	0,194
Total Debt /EBITDA (x)	-0,00088	-1,30	0,195

S	0,104
R ²	78,91
R ² -adjusted	77,94
Mallows- Cp	8,1

Table 4.7 “Stepwise regression results”

4.5.4 Best subset regression

This regression method identifies the best-fitting regression equation that can be created with the independent variables, i.e. the equation with the highest R²-statistics. Best subsets regression is an efficient way to identify equations that uses the minimum amount of independent variables. Using a subset of variables rather than a full set is advantageous because the subset model estimate the regression coefficients and predict dependent variable

values with smaller variance than the complete model using all independent variables. Similar precautions have to be taken as in the stepwise regression concerning the automatic procedures in this model. Results from the two best subsets are presented:

Subset 1			
N°	R ² -adjusted	Standard deviation	Mallows Cp
11	77,9	0,10400	7,8
Variables included:			
<ol style="list-style-type: none"> 1. DPS t-1 (SEK) 2. EPS (SEK) 3. BETA 4. FCF/share (SEK) 5. Profit-margin (%) 6. log(Market Cap (SEK)) 7. Total Debt / EBITDA (x) 8. Leverage (%) 9. log(Cash (SEK)) 10. Dividend yield (%) 11. DPS/unrestricted equity (%) 			

Table 4.8 “Subset regression 1”

Subset 2			
N°	R ² -adjusted	Standard deviation	Mallows Cp
12	77,9	0,10386	8,1
Variables included:			
<ol style="list-style-type: none"> 1. DPS t-1 (SEK) 2. EPS (SEK) 3. BETA 4. FCF/share (SEK) 5. Profit-margin (%) 6. log(Market Cap (SEK)) 7. Total Debt / EBITDA 8. Leverage (%) 9. log(Cash (SEK)) 10. USD/SEK 11. Dividend yield (%) 12. DPS/unrestricted equity (%) 			

Table 4.9 “Subset regression 2”

The stepwise regression and the best subset regression produced nearly identical results, apart from the fact that the independent variable USD/SEK was not included in the first of the best subset equations. This fact implies that the authors, from these two measures, have worked

out an overview of which variables that are most likely to be incorporated in the final regression and tested for further analysis.

4.5.5 The multiple linear regression

After analysing information from the above-mentioned regression methods the authors use a multiple linear regression with the purpose of establishing a final regression equation. The multiple linear regression allows for examination of the relationship between one dependent variable and more than one independent variable, hence the model is built on the simple linear regression and add a number of independent variables:

$$y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \dots + \beta_KX_K + \varepsilon^{110}$$

The terminology used in the multiple linear regression is the same as in the simple multiple regression. When applying the variables derived from the stepwise and best subset regressions the multiple linear regression indicated the following results:

Dependent variable: DPS Box Cox					
Independent variable	Coefficient	SE Coefficient	T-value	P-value	VIF
Intercept	1,240	0,1248	9,94	0,000	-
DPS t-1 (SEK)	0,034105	0,003175	10,74	0,000	1,9
EPS (SEK)	0,008169	0,001135	7,20	0,000	1,7
BETA	-0,06392	0,01769	-3,61	0,000	1,2
FCF/share (SEK)	0,0036020	0,0006926	5,2	0,000	1,7
Leverage (%)	-0,0024271	0,0005335	-4,55	0,000	1,6
Profit margin (%)	-0,0036406	0,0007831	-4,65	0,000	1,3
log(Market Cap (SEK))	-0,013780	0,007290	-1,89	0,06	3,8
Total debt/EBITDA (x)	-0,0008987	0,0006758	-1,33	0,185	1,3
Log(Cash (SEK))	0,015931	0,006203	2,57	0,011	3,3
USD/SEK	-0,008498	0,006586	-1,29	0,198	1,0
Dividend yield (%)	0,015818	0,003719	4,25	0,000	1,6
DPS/unrestricted	0,0015313	0,0004409	3,47	0,001	1,3

¹¹⁰ Wooldridge, 2003, page 71

equity (%)					
S = 0,103476 R-Sq = 79,0% R-Sq(adj) = 78,1%					

Analysis of Variance

Source	Degrees of freedom	Sum of squares	Mean of squares	F	P
Regression	12	10,56493	0,88041	82,22	0,000
Residual Error	262	2,80533	0,01071		
Total	274	13,37026			

Table 4.10 “First regression using chosen multiples”

Three variables, log (Market Cap (SEK)), USD/SEK and Total Debt/EBITDA (x) proved not to be statistically significant, at the 95% confidence level, and was therefore excluded from this regression. To control for ownership structure, line of business and share repurchases the authors then included the dummy variables mentioned in chapter 3 resulting in final regression. According to the criteria for statistical significance the following fit: (i) Sphere controlled (ii) Foreign ownership (iii) Materials (iv) Industrials (v) Consumer Discretionary and (vi) Financials. Share repurchases proved not to be significant in this regression.

$$\begin{aligned} \text{Box-Cox DPS} = & 0,859 + 0,0289 \text{ Dividend - T1} + 0,00757 \text{ EPS (SEK)} - 0,0774 \text{ BETA} \\ & + 0,00338 \text{ Cash flow per share (SEK)} - 0,00276 \text{ Profit margin (\%)} \\ & - 0,00282 \text{ Leverage (\%)} + 0,0155 \text{ Cash (SEK)} \\ & + 0,0197 \text{ Dividend yield (\%)} + 0,00164 \text{ DPS/unrestricted equity (\%)} \\ & - 0,0398 \text{ SWE dummy} - 0,0381 \text{ FOR dummy} + 0,0700 \text{ Materials} \\ & + 0,0923 \text{ Industrials} + 0,120 \text{ Consumer Discretionary} \\ & + 0,0581 \text{ Financials} \end{aligned}$$

Final Regression Results; Dependant variable DPS Box Cox					
Independent variable	Coefficient	SE Coefficient	T-value	P-value	VIF
Intercept	0,85888	0,09019	9,52	0,000	-
DPS t-1 (SEK)	0,028858	0,003215	8,98	0,000	2,2
EPS (SEK)	0,007574	0,001100	6,89	0,000	1,8
Beta	-0,07743	0,01679	-4,61	0,000	1,3
FCF/share (SEK)	0,0033803	0,0007300	4,63	0,000	2,1
Leverage (%)	-0,0028214	0,0004594	-6,14	0,000	1,4
Profit margin (%)	-0,0027640	0,0007924	-3,49	0,001	1,4

Log(Cash (SEK))	0,015468	0,004318	3,58	0,000	1,8
Dividend yield (%)	0,019712	0,003007	6,55	0,000	1,4
DPS/unrestricted equity (%)	0,0016399	0,0004249	3,86	0,000	1,4
Sphere controlled	-0,03980	0,01341	-2,97	0,003	1,2
Foreign ownership	-0,03811	0,01603	-2,38	0,018	1,8
Materials	0,07000	0,02648	2,22	0,009	2,0
Industrials	0,09235	0,02093	4,41	0,000	3,0
Consumer Discretionary	0,11967	0,02326	5,15	0,000	1,9
Financials	0,05807	0,02220	2,62	0,009	1,8
S = 0,0987193 R-Sq = 81,3 % R-Sq (adj.) = 80,3 %					

Analysis of Variance

Source	Degrees of freedom	Sum of squares	Mean of squares	F	P
Regression	15	11,11887	0,74126	76,06	0,000
Residual Error	262	2,55332	0,00975		
Total	277	13,67220			

Table 4.11 “Final regression results”

4.6 Summary table of predicted and actual impact from variables

This table is to be compared to table 3.2 in the theory chapter where we listed predicted impacts the regression variables were thought to have.

Variable	Statistically significant	Predicted impact	Actual impact
DPS t-1 (SEK)	X	+	+
EPS (SEK)	X	+	+
FCF/share (SEK)	X	+	+
Profit margin (%)	X	+	-
EBITDA margin (%)	-	+	n/a
Return on equity (%)	-	+	n/a
Log(Sales (SEK))	n/a	n/a	n/a

Log(Assets (SEK))	n/a	n/a	n/a
Log(Market Cap (SEK))	-	+	n/a
Leverage (%)	X	-	-
Total debt/EBITDA (x)	-	-	n/a
Log(Cash (SEK))	-	+	+
DPS/ unrest. Equity (%)	X	+	+
Sales growth (%)	-	-	n/a
BETA	X	-	-
FCF/Total debt (%)	-	+	n/a
Sphere controlled	X	-	-
Foreign ownership	X	+	-
Share repurchase	-	-	n/a
Materials	X	+	+
Industrials	X	+	+
Consumer Discretionary	X	-	+
Financials	X	-	+
Share index	-	+	n/a
Interest rates	-	+	n/a
Exchange rates	-	-	n/a
P/S-ratio (x)	-	+	n/a
Dividend yield (%)	X	+	+

Table 4.12 “Predicted results compared to actual results”

5. Analysis of regression results

In this chapter we will analyse the results that we received in our regression and our empirical survey. These will be compared with our hypotheses and what existing theory suggested together with our own thoughts and ideas.

5.1 Regression results

The number of variables included in the final regression was 9 excluding the dummy variables, while the initial number of variables that the authors chose to investigate was 21. Thus more than half of the variables have been excluded from our final regression, this could be the result of various reasons, either these variables had a lack of statistical significance for the regression, the sample of companies were not during these years representative for this variable or the variables chosen were just not applicable on the Swedish market. References and earlier empirical studies have mainly been investigating the American Stock market and more specifically the NYSE, evidently there are remarkable differences when examining the Swedish A-list and US companies, as already mentioned one of the most significant, US companies generally pay quarterly dividends while Swedish pay annual dividends.

In the final regression all variables are significant, the α -levels were well below 0,05 and the t-statistics above 2,0. The coefficients are to be compared to the DPS Box Cox variable and the interpretation of the final regression would be the following:

$$\begin{aligned} \text{Box-Cox DPS} = & 0,859 + 0,0289 \text{ Dividend} - T1 + 0,00757 \text{ EPS (SEK)} - 0,0774 \text{ BETA} \\ & + 0,00338 \text{ Cash flow per share (SEK)} - 0,00276 \text{ Profit margin (\%)} \\ & - 0,00282 \text{ Leverage (\%)} + 0,0155 \text{ Cash (SEK)} \\ & + 0,0197 \text{ Dividend yield (\%)} + 0,00164 \text{ DPS/unrestricted equity (\%)} \\ & - 0,0398 \text{ SWE dummy} - 0,0381 \text{ FOR dummy} + 0,0700 \text{ Materials} \\ & + 0,0923 \text{ Industrials} + 0,120 \text{ Consumer Discretionary} \\ & + 0,0581 \text{ Financials} \end{aligned}$$

1. Given that all the independent variables were zero the intercept proves that the transformed DPS Box Cox then would be 0,859.
2. If DPS t-1 (SEK) would increase by 1 SEK DPS Box Cox would increase by 0,0289 units, all other variables constant.
3. If EPS (SEK) increases by one 1 SEK DPS Box Cox would increase by 0,00757 units, all other variables constant.
4. If Beta increases with one unit DPS Box Cox would decrease with 0,0774 units, all other variables constant.
5. If FCF/Share increases with 1 SEK DPS Box Cox would increase with 0,00338 units, all other variables constant.
6. If Profit margin (%) would increase by 1 % DPS Box Cox would decrease by 0,00276 units, all other variables constant.
7. If log(Cash (SEK)) increase by 1 transformed unit, DPS Box Cox would increase by 0,0155 units, all other variables constant.
8. If Leverage (%) would increase by 1 unit, DPS Box Cox would decrease by 0,00282 units, all other variables constant.
9. When the Dividend yield increases by one unit, DPS Box Cox increases by 0,0197, all other variables constant.
10. If DPS/unrestricted equity increases by one unit, DPS Box Cox increases by 0,00164 all other variables constant.
11. If the company is under sphere control that will affect them by paying -0,0398 less than a company not under sphere control.
12. If the company has a large part foreign ownership the company will pay -0,0381 less than a company with less or no foreign ownership.
13. If the company is in the materials sector this will increase their dividends by 0,0700 to one that is not.
14. An industrial company will pay a 0,0923 higher dividend than one that is not industrial.
15. A consumer discretionary firm will pay a dividend that is 0,120 higher than one that is not.
16. A company in the financial sector will pay a 0,0581 higher dividend than one that is not.

5.1.2 Extending the regression analysis

In order to further justify the results from the regression analysis carried out in chapter 4 the authors have divided the sample into two time series, 1997-2000 and 2000-2003. This will give a fuller picture of the regression results and could give an indication if the model received in the final regression is “over-fitted”. This means that the equation proposed might be too specific for the sample it is reflecting. It is also interesting to see if different variables were more important a certain time period. The dummy variables have been excluded since they do not fulfil the statistic criteria.

Year Sample 1997-2000 Dependent variable Box Cox DPS					
Variable	Coefficient	SE Coefficient	T-value	P-value	VIF
Constant	1,6043	0,2117	7,58	0,000	-
Dividend t-1	0,102526	0,007114	14,41	0,000	1,7
EPS	0,013910	0,002624	5,30	0,000	2,2
BETA	-0,09894	0,03577	-2,77	0,006	1,1
CF/share	0,004673	0,001726	2,71	0,008	2,0
ROE	-0,002930	0,001445	-2,03	0,044	1,5
Profit Margin	-0,005730	0,001723	-3,33	0,001	1,4
Market Cap	-0,05625	0,0155	-3,62	0,000	4,1
Cash	0,03523	0,01285	2,74	0,007	3,3
PS-ratio	0,038525	0,009962	3,87	0,000	2,0
DPS/equity	0,002901	0,001051	2,76	0,006	1,8
S = 0,168859 R-Sq = 81,7% R-Sq(Adj) = 80,5%					

Analysis of Variance

Source	Degrees of freedom	Sum of squares	Mean of squares	F	P
Regression	10	20,0618	2,0062	70,36	0,000
Residual Error	158	4,5051	0,0285		
Total	168	24,5669			

Table 5.1 “Regression 1997-2000”

Year Sample 2000-2003 Dependent variable Box Cox DPS					
Variable	Coefficient	SE Coefficient	T-value	P-value	VIF

Constant	-0,0917	0,4513	-0,2	0,839	-
Dividend t-1	0,15188	0,01252	12,13	0,000	2,0
EPS	0,026459	0,004192	6,31	0,000	1,6
BETA	-0,19804	0,08151	-2,43	0,016	1,4
Profit Margin	-0,014506	0,004910	-2,95	0,004	1,6
Market Cap	0,05033	0,01890	2,66	0,009	1,5
TD/EBITDA	-0,009362	0,002795	-3,35	0,001	1,0
Yield	0,04615	0,01601	2,88	0,005	1,6
DPS/equity	0,007407	0,002104	3,52	0,001	1,4
S = 0,331052 R-Sq = 83,0% R-Sq(Adj) = 82,0%					

Analysis of Variance

Source	Degrees of freedom	Sum of squares	Mean of squares	F	P
Regression	8	74,7077	9,3385	85,21	0,000
Residual Error	140	15,3434	0,1096		
Total	148	90,0511			

Table 5.2 “Regression 2000-2003”

These results show some interesting facts, the results differ between the time periods. Some variables are consistently validated; Dividend t-1, EPS, Beta, Profit margin and DPS/unrestricted equity. Some are included in one of the regressions but not in the others; leverage (1997-2003), ROE (1997-2000) PS-ratio (1997-2000) and Total debt / EBITDA (2000-2003). Others were included in two of the regressions but excluded from one; FCF/share (not 2000-2003), cash (not 2000-2003), yield (not 1997-2000). One of the variables had a development with changing signs, market cap, negative 1997-2000 and positive 2000-2003; however it was excluded in the final regression.

5.2 Analysis of hypotheses

Running the regressions we soon understood that some variables had no statistical value what so ever. The variables that did not fit our first criteria with a p-value over 0.25 in any of the regressions were the following, EBITDA-margin, growth, FCF/Total debt, interest rates and share index. In the final regression a total of 15 variables were included all with a p-value below 0.05. We did not expect when starting the regression that each and every variable would have a great impact on the dividend per share. However that some of these ratios did not end up as explanatory variables came as somewhat of a surprise to us. We will run you through our different groups of hypotheses one by one and analyse why some had an impact and others did not. The fact that the three regressions differed somewhat is also of great interest. The impact that each variable did have or did not have in each of the regressions will now be analysed.

5.2.1 Prior dividends

As predicted Dividend t-1 had a significant positive impact on the dividend per share. It was one of the variables that showed a significant impact on all the regressions that we run. This confirms earlier theories that management is unlikely to decrease the dividends unless they really have to and that they do not generally increase it if they cannot continue the same payout rate.¹¹¹ This should be a sign that management believes that investors value a stable dividend, and that management should try to smooth out their dividends over time. Management really tried to stick to their absolute number, and the reductions and omissions that occurred for our sample firms all took place under difficult years for the companies in question. Some companies, i.e. Atlas Copco did not even reduce their dividends under a loss-making year. This should prove to be an important sign for management at firms that still does not have a dividend policy; you can only set the dividend from scratch once and since management seems to be very keen to have a stable policy it is vital that you set it at an appropriate rate. Some companies in our sample, mainly the sphere-controlled firms had very stable dividends, this will be further analysed below. Our first hypotheses; “*H₀: Dividends paid the previous year will have a positive impact on the dividend payout.*” can because of the results received in the study therefore not be rejected.

¹¹¹ Baker, Veit & Powell, 2002, page 10

5.2.2 Profitability

In the theory chapter we predicted that most companies use the earnings per share as a target ratio for their dividend policy. The variable was also included with a significant impact on all three regressions. This proved to be true when we looked at the sample firms and their dividend policy over the sample period. Between 60-70% of all firms had a target ratio that varied between $0-\frac{1}{3}$, $\frac{1}{3}-\frac{1}{2}$ and $\frac{1}{2}<$. The rest did not have an outspoken target ratio. These were primarily companies with more volatile earnings than other companies. Another observation is that many of them made losses. These include Ericsson, Industrivärden, Investor, OMX, Bure, Ticket and SAS. In the regression analysis three out of our five variables for profitability proved to have a statistical impact on the dividend per share; these were EPS, FCF/share and profit margin. With approximately two thirds of the companies having an outspoken dividend policy measured in earnings per share it came to no surprise that this variable had a positive significant impact on dividends. This means that we can not reject our second hypothesis: “*H1: Earnings per share should have a positive impact on the dividend payouts.*”

Free cash flow per share proved to be almost as important in determining the dividend payout. This implies that how much cash the company actually generates is of great importance for the firm, already concluded by Holder et al.¹¹² The free cash flow does not as already mentioned include financing activities. This means that this is a very pure profitability number of how much the company actually generates. However this measure takes capital expenditures and working capital requirements into account, meaning that high growth firms might have a low level of free cash flow.¹¹³ When looking at how much the company can afford and should pay as a dividend, we believe that management might consider this number when deciding upon dividend payouts.

The ratio proved not to have enough statistical significance between the years 2000-2003. The reasons behind this can vary. One possible explanation is that cash flows at the later period showed a lot more volatility compared to the first period and also that there were a much bigger variance between the firms. Most firms had positive cash flows the first half of the period, while there was a bigger frequency with negative cash flows the second half. While earnings per share remained relatively stable, as measured in standard deviation the

¹¹² Holder et al, 1998, page 82

¹¹³ Standard & Poor's, 2003, page 27

first four years, the change was not as significant as for the cash flows. The standard deviation for earnings per share ranged between 4.35 for the first half to 4.30 for the second. For cash flows the change was more significant, the range was between 4.45 for the first half and 5.07 for the second. With dividends remaining relatively stable over the time period, having a standard deviation between 1.06-1.09 this could very well serve as a possible explanation. Why cash flows were more volatile is a sign that the cash flow figure is more affected by current economic conditions than the earnings per share figure. Earnings per share is as already mentioned more of an accounting measure, something that makes investors look more at cash flows, the profitability proxy.¹¹⁴ That earnings remain stable could be a sign that management through accounting measures and financing activities not only try to smooth out dividends but also earnings per share. One has to bear in mind that many of the companies have a payout ratio and with a goal of a stable dividend they must also try to keep their earnings as stable as possible since dividends are based on earnings.

“H2: Free cash flow per share should have a positive impact on the dividend payouts.” is thus a hypothesis which can not be rejected after this study.

The two remaining ratios when analysing profitability were the two profitability margins, *EBITDA*- and *profit margin*. Both of them were predicted to have a positive impact on the payout, consistent with Fama and French's theory.¹¹⁵ However only one proved to be statistically significant, the profit margin, and the actual impact differed from the predicted one. Profit-margin was included as a variable in all three regressions. With no statistical significance for the *EBITDA*-margin this can be interpreted, as management does not consider the operating profitability while considering the dividend payout. How effective they run their operations is not measured in a percentage but rather as an absolute number as free cash flow. The negative relationship that existed between the profit margin and dividend payout was not predicted. The authors believed that the more profitable a company was the more funds it could return to shareholders. The negative relationship implies that the more profitable a company is the less it would return to shareholders. One possible interpretation of this equation using net income is that profit margins correlate to economic conditions. When demand for a product rises, the company has a quite fixed cost base; they can however charge more for their products. This makes margins go up. When demand increases the company must to be able to meet this new demand to do more investments. This would decrease the

¹¹⁴ Brigham & Daves, 2004, page 710

¹¹⁵ Fama and French, 2001, page 12

dividend payout. The other part of the equation, using sales, will mean that profit margins go up when sales decreases relative to net income. A decrease in sales would mean that the margin might have gone up by lets say 1%-2%, but the actual net income measured in absolute terms may have decreased due to a fall in sales. For a company with a lot of fixed costs compared to variable costs this could very well be the case, which would result in a decreased dividend payout. Some of our companies had a CAGR that was negative during this time period. A final interpretation is that the firms in our sample are mature companies. Mature companies often operate in a mature environment where competition is fierce. High competition causes margins to go down. Therefore a company that operates in a high growth environment may have higher margins due to the fact that competition is not that fierce, and consequently pay lower dividends. The different outcome of the results of the margins means that the hypothesis is not valid for any of the margins. The insignificance of the EBITDA-margin and the opposite outcome than the predicted one means that this hypothesis has to be rejected: "*H3: Higher margins should have a positive impact on dividends.*"

Return on equity proved not to have any statistical significance for the regression over the seven-year period. However it proved to be significant for the first half of the period. That it did not have any significance over the longer period might indicate that management believes that investors expect a dividend, no matter what return on equity they might be able to generate internally. Investors would probably in some cases be better off if the money had stayed in the company and been reinvested. However this could be interpreted both as management believes that investors require a cash dividend or that the firms that fit our criteria have performed all possible investments and have no other choice but to return money to shareholders because of lack of growth opportunities. It is not a bad thing for a company having a high, stable return on equity; it means that they are generating a profit each year. However if you are an investor looking for a high growth firm this type of firm might not be the case for you. Return on equity and earnings per share both have the same numerator, however only one of these numbers is used to communicate the dividend target to shareholders.

Due to the fact that management seems to believe in stable dividends, the return on equity does not seem to matter when deciding the dividend payout. This could very well serve as a possible explanation, however the fact that ROE proved to have a negative impact the first half must be analysed. We predicted in our theory chapter that it would have a negative

impact, as it proved to, but as already said only on the first half. A possible explanation is the trend of the market for the first 4 years. Between the years 1997-2000, the economy was in a great condition. This resulted in increased profits and the ROE created was very high. With investor focus primarily on growth, it was not difficult to convince investors that the funds would be of great use if kept internally. When the market turned the ROE lost its significance. This could be a sign that when there is a bear market, and profits go down, dividends remain relatively stable. Management were able to retain funds during good years that were able to serve as a reserve for worse to maintain the stable dividend. The outcome from the regressions where this ratio partly had an impact forced us not to reject this hypothesis; “*H4: A high return on equity should lead to a low dividend payout ratio.*”

5.2.3 Size

Compared to earlier studies we were not able to find a relationship between size and dividend payouts. When it comes to the proxies for size the only variable that was included in the final regression turned out to be the natural log of market cap. Our expectations were that this variable would have a positive impact on dividend payouts. Market cap as a variable proved not to have any impact on the major regression, however this probably depends on the fact that it was included in the two smaller ones, however with a negative impact the first half and a positive the second half.

Neither sales nor assets, used as proxies for size, were used in the regression due to correlation between the variables. Market cap was the variable that had the most impact on R²-adj. and was therefore the only one used. With market cap not having a significant impact we can draw the conclusion that the other variables neither would have an impact. From this we can draw the conclusion that a firm’s dividend policy will not be affected by the sales of the company. This was the opposite result of Holder et al in their study from 1998.¹¹⁶ It appears that how much you sell for is not of importance, but how much cash you are actually generating, and by how much you will increase your liquid asset base are. As it comes to sales this variable might justify a proxy for the size of a company but seems less relevant when trying to establish dividend payouts since the profitability is not taken into account. Sales might be a better proxy when assessing the credit quality of a company.¹¹⁷ This

¹¹⁶ Holder et al, 1998, page 82

¹¹⁷ Standard & Poor’s, 2003, page 20

hypothesis is therefore rejected: “*H5: An increase in sales should have a positive impact on dividends.*”

Total assets indicate how much a company actually has on its balance sheet and what possibly could be distributed to shareholders. In Alli et al’s study they showed a positive relationship between total assets and dividends,¹¹⁸ something that did not show in our regression. We found however that the asset base itself may not be as interesting as the liquid assets. Many of the companies involved in our sample are manufacturing companies with a lot of fixed assets, generally not very liquid assets. This was proven to be the correct judgment since the variable log cash was included in the regressions. However the total assets hypothesis: “*H6: An increase in total assets should lead to a higher dividend payout.*”, has to be rejected.

Market Cap is the perception of how the market values a company and thus represents various unidentified variables such as expectations, belief in management etc. Market cap has been used successfully in prior studies to show the relationship between it and dividend payouts.¹¹⁹ However between the years 1997-2003 the stock market did not develop as previous years. The first half of the period showed massive increases in market values only to be followed by almost as massive decreases. With some companies being valued at multiples far higher than rational, management continued to pay a stable dividend. When we ran two separate regressions for each half we found some interesting results. During the first half when markets increased in value, a rise in the market cap would lead to a negative payout ratio, and during the second half we saw the opposite result, a rise in market cap would lead to a rise in dividends. Both market cap and ROE had a negative impact on dividends this period. This indicates that with a rising market cap management felt less “obliged” to pay higher dividends, the investors got their value either way through massive increases in the value of their shares. Also the fact that as already mentioned, management stuck to their payout ratios as measured in a percentage of EPS. The general perception these years among investors was that they favoured growth, dividends proved to be less important.¹²⁰ In the regression run on the second half we saw the opposite result for market cap. This can most probably be explained by the fact that many corporations during the second half saw their

¹¹⁸ Alli et al, 1993, page 527

¹¹⁹ Redding, 1997, page 240

¹²⁰ Baker, Powell & Veit, 2001, page 254

share prices plummeting. The most affected were also the ones that had gained most in the earlier years and now many of these made losses. A rise in market cap during these years proved to be more based on rational investor behaviour. Firms were valued at P/E-levels more in line with “normal” values. Our seventh hypothesis can because of the results not be rejected: “*H7: Market capitalisation should have a positive impact on dividends.*”

Another interesting aspect why size does not seem to matter comes when we look at the sample of firms in our regression. Existing theory has proved that larger firms may have better relationships to banks and financial institutions.¹²¹ Of the companies in our sample most are amongst the largest Swedish firms and consequently should afford to pay a higher dividend with the security of good relationships to debt-holders in terms of financial distress. Especially since many of the companies are owned through the sphere companies that each control one major bank. This proves however not to have any significance.

Size could also be a measure of maturity.¹²² There are very few companies on the A-list that have not existed since the 1980’s in one form or another. In primarily US studies the samples of firms have been much greater. This study was conducted based on the 45 companies on the A-list that fit our criteria. Most of them can be considered to be mature companies. In the US studies there is a much bigger difference in the structure between the different firms. That could very well serve, as an explanation why this study did not find any indications that size would matter. If the study had been conducted with firms from the Attract 40 index as well we had probably seen another result.

5.2.4 Capital Structure

In line with previous studies we found that the capital structure had a significant impact on the firms in our study. Of the four variables used, all was included in one of the regressions performed. DPS/unrestricted equity where the only one that matched the statistical criteria in all three regressions. Leverage was only included in the major regression. Cash was included in the major regression as well as the 1997-2000 regression. Total debt / EBITDA was only included in the second half. However all variables would have been included on all regressions with an alpha value of 0,1 instead of 0,05.

¹²¹ Alli et al, 1993, page 527

¹²² Fama and French, 2001, page 18

The effect that leverage would have on dividends was in line with our expectations; increased leverage will lead to lower payout levels. Leverage may therefore not as in a previous survey by Florence serve as a good size measure.¹²³ He thought that the gearing level of a firm was a sign of size, and the larger the firm the higher the payouts. This proved not to be correct for Swedish firms. Our study are more in line with the beliefs that a company that reaches a very high level of gearing can not afford to pay as high a dividend as with a lower gearing level. This can be due to financial covenants that exist between the company and their debt-holders. Easterbrook proclaimed that with increasing leverage, there will be more stakeholders in the company and therefore the agency costs will go down, and dividends will follow.¹²⁴ His study is a possible explanation to our results. We can not reject our hypothesis regarding leverage: “*H8: Leverage should have a negative impact on dividends.*”

Total debt/EBITDA that almost proved to be statistically accurate was according to our own ideas of great interest. If the sample would have been more extensive, then the ratio might have fit the criteria at all three regressions. We believed that management would look to see how many times bigger their debt was compared to their EBITDA as a ratio when deciding upon their dividend policy. The predicted impact was the same as the actual impact; a rise would have a negative effect on dividends. In the regression the coefficient for Total debt/EBITDA proved to be rather small so the actual impact on the dividend per share may be negligible. Due to this we can not reject this hypothesis: “*H9: An increase in the level of Total Debt / EBITDA should lower the dividend.*”

In our theory chapter we predicted that the amount of cash held within a company would affect the payout levels. The actual impact was as predicted; the more cash a company holds on its balance sheet the more funds it is willing to distribute. Many companies have a lot of cash at their balance sheet, amounts that have increased recent years as the economy has been struggling, and investment opportunities became less evident. With changing economic conditions companies might chose to return greater amounts of money to shareholders. The coefficient for this proxy proved to be quite significant. Our results means that we cannot reject our hypothesis: “*H10: The level of cash should have a positive effect on dividends.*”

¹²³ Florence, 1959

¹²⁴ Easterbrook, 1984

The final capital structure variable in our theory chapter was the DPS/unrestricted equity ratio. In our regression analysis this variable proved to be positive, as predicted, and significant. This can be interpreted as strengthened management belief about future earnings. When they decide to increase their dividend per share relative to the equity per share this may be a sign that the company is headed for strong future earnings and a stable environment. Looking at the sample firms, a majority have stable earnings and will not default due to a rise in the relative amount of distributed equity. Therefore they can pay out larger amounts of their equity than less mature firms, leading to an increase in the ratio. An interesting study would be to study how much the DPS/unrestricted equity ratio differs between firms on two separate indices consisting of companies with different characteristics. Presumably companies on the A-list would pay more in dividends and therefore have a higher ratio than companies on the Attract 40. Our hypothesis: "*H11: Dividend per Share / Unrestricted equity should have a positive impact on dividends.*" cannot be excluded.

5.2.5 Risk

One of the most fundamental theories is that firms that have a high annual growth rate need to reinvest their money to finance its growth.¹²⁵ None of our regressions showed any signs of this and the reasons can be many. When one look at the companies in our sample very few can be considered to be high-growth companies. Most of them are old firms that were created in the booming years after the second world war, others as far back as the 19th century, i.e. Skandia. A second aspect is that during the period chosen for our analysis, many of the companies have suffered from negative growth. Some have divested non-core operations, like ABB, while others have suffered from decreased demand, like Ericsson. Making it a total of nine companies with negative growth, 14 have had double digit growth and the rest, 23, single digit growth; this could be a clear sign that the companies in our sample are mature. The mean and median for growth for our sample lies between 6%-7%, not much if you consider an annual growth in GNP of roughly 2%-3%. The ones with highest growth, CAGR, were companies like Assa Abloy, Autoliv, OMX, Nokia and Securitas, companies that normally are not considered as high growth. However according to existing theory this should not matter, it would show that it would have a negative impact on dividend payouts.¹²⁶ Running the regression with high growth firms only there is still no indications that growth should affect the dividend payout. This is somewhat confusing since this has been proved by

¹²⁵ Alli et al, 1993, page 527

¹²⁶ Holder et al, 1998, page 82

many previous studies. However we believe that the results will be different if the study were to be conducted on one of the other Swedish indices, like the Attract 40, the technology/high growth index. We must however reject this hypothesis based on our results:

“H12: Growth rate will have a negative impact on dividends.”

The second risk measure, the beta-value had a significant negative relationship, as predicted, to dividend payouts. This was one of the variables with the highest coefficients. Existing theory had already showed that there was a significant negative relationship between the beta of a company's share and their dividend payout.¹²⁷ Our study confirmed this relationship and we cannot reject the hypothesis. *“H13: An increase in the beta-value should lower the dividend payout.”*

The third risk measure was the free cash flow / total debt, a credit risk ratio. This ratio proved to have no impact on the dividend per share at all. Cash flow per share was one of the strongest indicators of dividends, and leverage, the outcome of total debt divided by total debt + equity, proved to be a very important variable for the dividend payout. This implies that management looks at cash flow when deciding upon the dividend and applies leverage as a brake, but they do not combine these two factors when deciding payout levels. Another possible explanation could be the volatility of cash flows compared to leverage levels. The leverage levels of companies have been more stable between the years while cash flows have fluctuated quite heavily, and at the same time companies have maintained a relatively stable dividend. Therefore this hypothesis had to be rejected: *“H14: When the FCF/Total debt-ratio increases the dividend should follow.”*

The interesting aspect with the risk measures are that the risk measure that affects the dividend payouts is the beta-value, determined by the market. The two others, based on profit and loss figures combined with balance sheet statements have no importance in our study. With beta as the only variable affecting the dividend out of the risk measures and this number is determined by the market, it could be interpreted as follows. The beta-value incorporates all possible risk measures into one single value. Other risk measures like growth and credit risk ratios are important, but they will not give a complete impact on the risk of a company. This means that credit risk is not the sole determinant when deciding upon the payout ratio

¹²⁷ Bar-Yosef and Kolodny, 1976, page 187

and neither is growth. The dividend payout will be determined weighing all possible risk factors together and then management will decide upon the ratio. The regression show clear results however that the riskier a company is, the lower the dividend.

5.2.6 Ownership structure

Existing theories regarding ownership structure are mainly based on agency theory. According to existing theory a more concentrated ownership would lead to lower dividends because of decreased monitoring costs.¹²⁸ In Sweden the case is a bit different, mainly due to the different types of shares, A, B and C, leaving the A-shareholders in control of the company. Not all companies have different types of shares, but those that have are generally dominated by one of the power-spheres. As we predicted a company being controlled by one of the spheres would pay less in dividends due to the decreased costs of monitoring. This means that a company that is not controlled by a sphere would have a higher dividend, consistent with existing theory. Another interesting aspect when looking at the companies that were controlled by one of the spheres was the stability of dividends. Comparing the sphere controlled companies with those that were not sphere controlled; there was a significant difference when comparing the standard deviation for the companies' dividends. Looking at the companies that managed to increase their dividend or maintain it at the same level over the seven-year period there was a significant difference between the sphere and non-sphere controlled firms. Only one sphere controlled company seized to pay dividends under our sample period, Ericsson, while there was a total of nine omissions. Out of the 29 reductions in dividend that occurred, 9 related to sphere controlled companies and of the 15 companies that were able to sustain their dividends 11 were sphere-controlled. This could be a sign that being under control of a sphere would mean that the company is in good hands, seldom making a loss and in most cases providing shareholders with a stable dividend. However when one looks at which specific firms that are under sphere-control, and listed on the A-list, most of them are old, mature companies, with low growth. They make stable profits and are very low risk. Apart from the ownership structure they should pay high dividends. Instead they pay a *stable* dividend. Their parent companies, Investor and Industrivärden, have to provide a return to their owners in form of a dividend. These companies are however the victim of double taxation. This would mean that demanding to high dividends would only decrease shareholder value. Therefore their focus is to make sure

¹²⁸ Frankfurter & Wood, 2002, page 114

that their portfolio companies are run in the best possible way there is, including paying their shareholders a stable dividend. Our hypothesis: “*H15: Sphere-ownership will lead to lower dividend payouts.*” cannot be rejected.

In the theory chapter the authors predicted that companies with foreign ownership were more likely to pay higher dividends. This prediction was based on the idea that foreign owners are with an overwhelming majority, institutions and asset managers. Stakeholders, according to existing theory, prefer dividends to capital gains.¹²⁹ However running the regression there was a significant negative relationship between foreign ownership and dividend payout meaning that a company with a significant foreign ownership will pay a lower dividend. One could assume that the theory, which is valid for sphere-controlled companies, would apply in this case as well. Still, the foreign ownership is very different; it is rare that a single foreign institution holds more than 5%, making it problematic to make relevant the agency theory of lowered monitoring costs. When examining the specific companies, roughly half can be considered to fit this criterion during at least one year during the time period. 20 of these are amongst the largest firms in Sweden and every company apart from state-owned SAS is on the A-list most liquid share index. Therefore a correlation between size and foreign ownership might be present. A majority of the companies also belong to one of the spheres, which could be one explanation to the lower payout. When looking at the tax-rates one might find a further possible explanation. Investors that own generally more than 15% of a Swedish company get a tax-rate of 15% on dividends compared to 30% otherwise; i.e. they would prefer a dividend.¹³⁰ However they do not have to pay taxes on capital gains, this would imply that they would prefer capital gains since they do not have to pay taxes on them. The opposite results received from the regression force us to reject our hypothesis: “*H16: Foreign ownership should have a positive impact on dividends.*”

Another possible explanation is that these firms have a much more liquid share meaning that the bid-ask spread is much lower than for less liquid firms. According to Redding’s study large investors require a more liquid stock.¹³¹ With more foreign ownership primarily made up of larger investors that are limited to invest in very liquid shares they will push up the prices on the more liquid shares. To attract investors and to be competitive the smaller firms

¹²⁹ Baker, Powell & Veit, 2002, page 245

¹³⁰ Lodin, page 9

¹³¹ Redding, 1997, page 236

might have to attract investors by other means such as higher dividend payouts. This could be a sign that firms with a less liquid share might use dividends to attract investors to buy their share. This could be an interesting further topic to study if firms that are less liquid have a higher dividend payout to compensate for the loss of liquidity.

5.2.7 Share repurchases

This dummy variable was predicted to have a negative impact on the dividend payout, companies repurchasing shares would have a lower dividend payout. The variable proved neither to be significant nor of great importance indicating that share repurchase was independent from dividend payouts. Since this just recently became legal in Sweden, a deeper examination of it might be more relevant in the near future. The companies that have carried out share repurchases have rather than a substitute to dividends used this action as a complement, creating return for its shareholders in an additional way. Thus the companies are financially strong and use the share repurchases as a one-off action. This is in line with Dittmar's study that came to the conclusion that repurchases did not serve as a substitute for dividends.¹³² If the deregulation of share repurchases had not been made the dividend pattern for the companies examined might have been different but since very few companies has used buybacks in consecutive years this is difficult to determine. The hypothesis has to be rejected: "*H17: Share repurchases should have a negative impact on dividends.*"

5.2.8 Line of business

In line with existing theory different industries have different payout ratios.¹³³ Our sample of firms was divided into different line of businesses according to the GICS-index used at the Stockholm Stock Exchange.¹³⁴ The clusters we were able to use taking statistical criteria in mind were Materials, Industrials, Consumer Discretionary and Financials. Materials was a cluster where the predicted impact was the same as the actual impact. Firms operating within this line of business had a higher dividend than other firms, the coefficient can be considered to be rather significant. The specific companies within this segment all but one have been so called dividend achievers during the period, the one that has not is Holmen, one of the companies with the highest yield on the Stockholm Stock Exchange. Holmen is also a

¹³² Dittmar, 2000, page 349

¹³³ Baker, Veit & Powell, 2001, page 9

¹³⁴ www.stockholmsborsen.se

company that frequently uses special dividends. They all have stable earnings and cash flows and can generally be considered to be low growth firms, with an average growth over the time period of 3.7%. Industrials were the biggest line of business. The results in the regression were as predicted, industrial firms will pay a higher dividend than other firms, and the coefficient was significant. This was expected since the structures of these firms are similar to the materials. They are a bit more cyclical than the materials, but all are relatively mature companies with stable earnings. Therefore both hypotheses cannot be rejected:

“H18: Companies in the material sector will pay higher dividends.”

“H19: Companies in the industrial sector will pay higher dividends.”

The segment consumer discretionary was predicted to pay a lower dividend compared to other companies, due to the cyclical nature of the demand for products from these companies. However in the regression it was clear that the result was the opposite, and the coefficient was significant. Looking at the specific companies in this sample and their dividend payout the results may have been affected by the fact that two of the companies ceased to pay dividends during the time period, Finnveden in 2001 and Ticket in 1999 and therefore were excluded from the regression. Both companies suffered from decreased profitability and losses during the period. Out of 49 observations, 8 were not included that definitely would have had a negative impact on the result. A majority of the companies are not controlled by the spheres, which would imply a higher dividend. Even though the companies are in the same line of business according to the GICS, the companies seem to differ quite a lot. They sell very different products, but with the common factor that they are directed towards consumers. Therefore this line of business may not serve as a good cluster, since the differences between the firms are so important. The opposite results force us to reject our hypothesis: *“H20: Companies in the consumer discretionary sector will pay lower dividends.”*

The final line of business included in the regression was the financials segment. The outcome of the regression was the opposite of the predicted outcome. Firms operating in this segment pay a higher dividend compared to other firms, the coefficient was however not as significant as for industrials and consumer discretionary but more in line with the materials coefficient. In line with existing theory, we thought that firms in this line of business were to pay a lower dividend due to the regulatory environment for these types of firms.¹³⁵ The theory is based on

¹³⁵ Baker and Farrelly, 1998, page 87

dividend policy for financial institutions, the companies included in our sample does not include any *pure* institutions. Our results prove to be more in line with Gordon's theory where he concluded that investment and holding companies tend to pay a higher dividend.¹³⁶ The company that most resemble a bank is the insurance company Skandia, which also pays one of the lowest dividends. The other companies can be more considered to be investment vehicles where investors place funds with the expectation that they will receive a greater return after letting management in the respective companies invest the funds. Industrivärden, Investor and Bure are all pure investment companies, and Hufvudstaden and JM real estate companies. Along with the more cyclical results than other companies included in our sample they have also had more fluctuating dividends. Only Hufvudstaden has been able to sustain their dividend over time. The other firms have had more fluctuating dividends than the other firms, both with reductions and omissions. They are however very aggressive in their payout policy, OMX for example paid out an average of almost 90% of earnings for 4 consecutive years, then during loss years they continued to pay dividends. The exception is Skandia, which might be the only one of these companies that is similar to the companies surrounding existing theory in this matter. We must therefore reject our hypothesis: "*H21: Companies in the financial sector will pay lower dividends.*"

The results from the regression shows that the companies not included in any line of business, the ones that were included in consumer staples, healthcare and information technology were all sectors where dividends are lower. Looking at the characteristics for these firms they are comprised of some of the largest and most R&D intensive firms. Looking at the volatility in cash flows they tend to be more volatile than for the rest of the firms, something that would imply that management are likely to retain larger amounts of funds within the company. Nonetheless it is very difficult to draw any conclusions surrounding these firms since they are very different.

5.2.9 Other factors

In the regression we also chose to include variables in the environment for each firm, over which they had no impact. The first one of these was the development of the share index. This proved not to have any impact at all on dividends in any of the regressions. This could be very much due to the development of the index over the last seven years. The index has

¹³⁶ Gordon, 1959, page 104

fluctuated more than in previous years while dividends have remained relatively stable. This would imply that management might not be affected by overreactions in the stock market. This could be interpreted by the fact that management is not bothered by the performance of other firms, but more concerned how to give their own shareholders a competitive return, hence the statistic significance for market cap at the two half-period regressions. It could also be interpreted by the fact that the index used is comprised of companies from all different segments. Many companies state in their annual reports that they want to deliver a return that is better than the industry average, not better than the return from the index. This hypothesis is therefore rejected: “*H22: An increase in share-index will have a positive impact on dividends.*”

Another variable included in the regression was the 3-month t-bill. Neither did interest rates have an impact on dividends. This can be interpreted that the common factor for the cost of equity for all firms, the risk free rate does not affect the dividends for firms. The USD/SEK exchange rate did not either affect the dividend payout. Our theory stated that changes in the currency would affect the results due to the importance of exports for many of the Swedish firms. With better or worse results than predicted the dividend does not seem to be affected by changes in currency effects. This could be a sign that the firms that are exposed to foreign currencies and interest rates have a rather extensive risk management program and the effects for the results are not very significant. The results make us reject the two concerned hypotheses: “*H23: Interest rates will have a positive impact on dividends.*” and “*H24: The USD/SEK exchange rate should have a negative impact on the dividend.*”

The P/S-ratio was a variable that had a positive impact on dividends, but that only had statistical significance over the first half. Redding had in his study showed a positive relationship between dividends and the P/S-ratio.¹³⁷ However in our regressions it only had statistical significance when there was a general boom in share prices. The second half it had no statistical impact what so ever. The statistical impact which occurs only the first half can be interpreted as when the market declined from its very high levels, and for a couple of years the P/S-ratio took a dramatic downturn. However, dividends remained relatively stable. Perhaps this ratio would be more useful if used under a longer time series and under conditions were the market performed more rational. The results indicate that it could have an

¹³⁷ Redding, 1997, page 240

impact and therefore we can not reject the hypothesis: “*H25: P/S-ratio will have a positive impact on dividends.*”

The final variable was however included in the regression, with an actual impact being the same as the predicted, but with a quite small coefficient. When yields go up it could be for two reasons, either because of a higher dividend relative to the share price or a decrease in the share price relative to the stable dividend. As existing theory has proved, there existed a relationship between dividend yields and beta.¹³⁸ The positive relationship that exists between the yield and payout therefore strengthens our hypotheses regarding the beta-value. When running the two smaller regressions we found an interesting result however. The yield was not included in the first half. When a share is priced at a very high value the yield becomes less significant if the dividend does not follow. In this case dividends remained relatively stable in the extreme upturn that took place in the end of the 20th century. When the markets changed directions at the turn of the millennium, the yield became more significant. With stocks now returning to more “rational” levels of value the yield once again proved to have an impact. We are also forced not to reject our hypothesis concerning the yield:

“*H26: The yield should have a positive impact on the dividend payout.*”

5.3 The case of zero dividends

The case of zero dividends is rather unusual for the sample investigated, as mentioned before omissions only happened on nine occasions with multiple cases during the worsened economic climate in the beginning of the decade. And when looking at the companies that have ceased to pay dividends the common factor is that they have all made consecutive losses. Other companies that made losses one year did not cease to pay a dividend, but every company except Skandia, that made consecutive losses ceased to pay a dividend. This is in line with DeAngelo et al’s study that it takes consecutive loss making years for a company to omit their dividends.¹³⁹ This confirms that a firm will not omit their dividend unless it has severe problems, one loss-making year does generally not affect the dividend. Management wants to maintain a stable dividend in absolute numbers, while the volatility in EPS/DPS can fluctuate quite significantly over time.

¹³⁸ Bar-Yosef & Kolodny, 1976, page 188

¹³⁹ DeAngelo et al, 1992, page 1857

6. Conclusions

This chapter will summarize the thesis and discuss some ideas and thoughts that we have come across while writing this thesis. It will also provide some ideas for future research within the area of dividends.

Comparing the actual impact to the predicted one, we were able to reject many of the hypotheses from the theory chapter. Out of a total of 28 hypotheses 14 were rejected through the regression analysis. When splitting the time period in half additionally four hypotheses were not rejected in one of the two minor regressions. Out of the ten that we could not find any statistical significance for approximately half were proxies used in previous studies.

The R²-adjusted of 80.3 % gained from the regression shows that the variables used will give a lot of information on the dividend payout. The most important factor for dividends proved to be the dividend paid the previous year; this strengthens existing theory regarding sticky dividends and dividend achievers.¹⁴⁰ Other important factors were profitability, capital structure and risk, compared to size that proved not have a great impact. Other factors were also of importance; these were mainly based on characteristics regarding ownership and line of business.

However, the level of R²-adjusted also shows that the dividend payout is not only determined by the success of a firm or its ownership. Approximately 20% can be explained by other factors, probably more behavioural ones. These might include factors like management turnover, change in strategy, aggressive business models, or big litigation claims. A frequent change of management may create a system where each CEO has his or hers own preference of how much to return to shareholders. Changes in strategy might demand more or less funds than before and may affect the return. If the company has had a history of growing through acquisitions or expansion into unproven markets this is likely to affect the payout. Companies that face litigation claims like the parent company of Philip Morris; Altria for example, often returns more funds to please investors. Earlier we mentioned Microsoft, also facing extensive litigation claims, and their huge payout of \$32 billion could also be interpreted as a mean of

¹⁴⁰ Baker & Farrelly, 1988, page 80

pleasing investors. This is one area where we think that some more research could be made. Litigation claims can reach enormous amounts of money in certain countries, especially in the US; therefore to perform a study with European firms with operations in the US could be of interest.

With no company exactly like another, it is quite natural that dividend policies are different as well. To understand the dividend policy of a company it is as we have shown important not only to look at the financials of a company, but it is as important to know the ownership structure and industry in which it operates. Being aware of that one should normally not include new things in the conclusions of a thesis, we have despite this chosen to include a model that we find very appropriate for the dividend policy from an investors point of view. Finance professor Aswath Damodaran at NYU Stern has created a model, where one looks at the project appraisal of a company and compares it to the cash flows. We believe that this model is good when investors look at a company to assess if they have received enough in dividends. It is also interesting in the way that it shows that each company is different and consequently will have a different dividend policy.

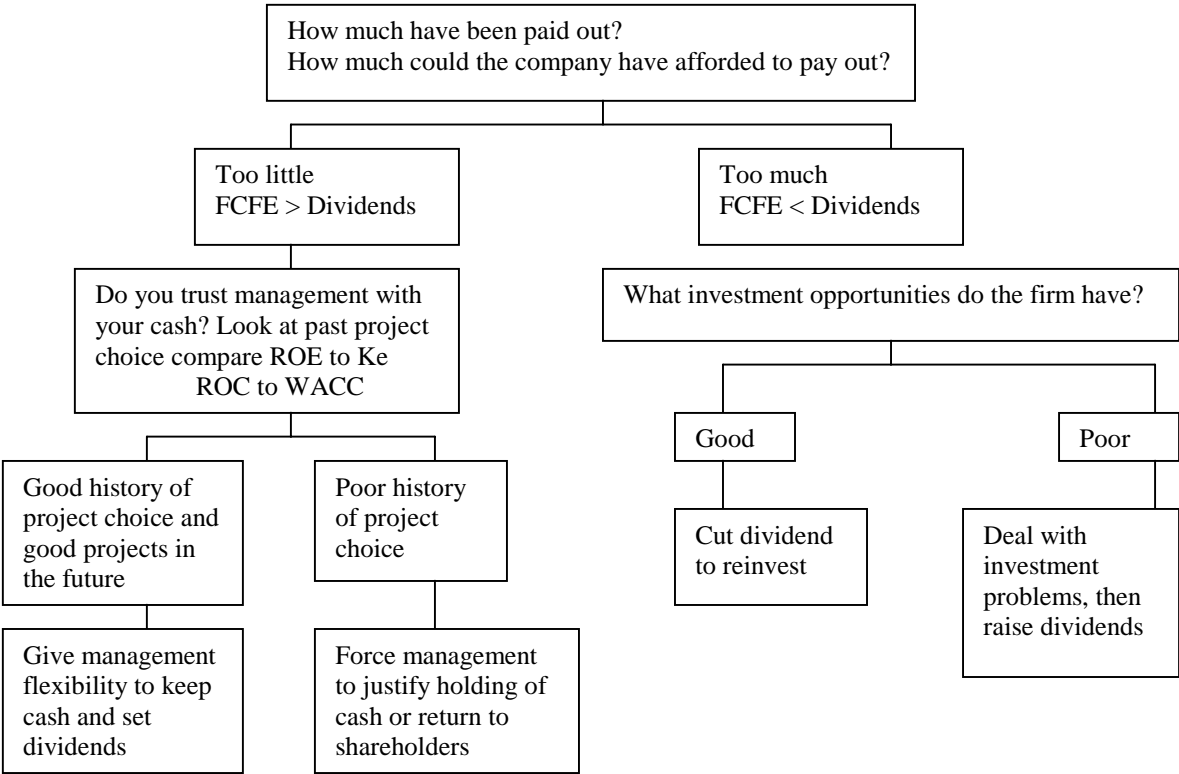


Exhibit 6.1 “Dividend policy-model”

We believe that our study will give some more knowledge regarding the dividend policy of firms, and then particularly Swedish ones. This thesis has shown that some of the variables used in prior research are also valid when looking at Swedish firms, but perhaps more interesting is that the study has shown that some variables are not. For decision makers we hope that this study will provide them with information on which underlying factors that mostly drives their dividends and which factors that does not. The decision makers that we will address the most are the ones that yet have a dividend policy. This thesis can help them setting their dividend policy from scratch by doing estimates on variables that will affect them. The dividend-level can be vital for a company and you only get one opportunity to set it from scratch so the amount of knowledge in what drives dividends displayed by this thesis can be very helpful. For managers the thesis can also be serving as a tool of how a change in the ownership structure might affect the payout. Some managers that are very keen on paying dividends to please investors can be restrained if the company becomes controlled by a sphere. This thesis results can be used as well by investors. Investors differ from one another; one prefers dividends when another prefers capital gains. For investors this study can be very helpful especially when evaluating future dividends. This thesis combined with investors' estimates could hopefully serve as a tool to more accurately predict future payouts. For academics we hope that our thesis has shown that there exist some differences from studies in the US and Sweden, but also that the factors that will affect the policy differ depending on the economic developments.

Further research within the area could prove to be very interesting. We would also like to see a study where one uses the same variables used here and apply them to other indices in Sweden. The companies on the A-list differ quite significantly from the ones on the O-list and the Attract40. This study might in a better way reflect the differences that probably will occur when one compares companies of different size and growth rates to one another.

Unfortunately we were not able to include 2004 in the study. The results for this year that are released upon the finishing of this thesis show generally great increases in cash dividends. It would be very interesting to see if and then how this year's result would affect the overall result. To perform the study over a longer time period would also be a suggestion for further research, we were quite limited to the information provided by the companies and it would be very interesting to perform the study again in a few years, still starting with 1997 as the first year to see if the results would differ. We saw in our study that the results differed quite

significantly between the two time periods; to investigate if there over time would be an even further smoothing would be of interest.

7. References

Articles and published sources

- Andersen, Ib, "Den uppenbara verkligheten; Val as samhällsvetenskaplig metod", 1998, Studentlitteratur, Lund
- Ang, James S., "Dividend Policy: Informational content or partial adjustment?", *The Review of Economic and Statistics*, 1975, vol. 57, issue 1
- Anonymous, "Finance and economics: Shares without the other bit", *The Economist*, Nov. 20, 1999, pg. 93, London
- Anonymous, "Business: The dividend puzzle; Corporate finance", *The Economist*, Jan. 11, 2003, London
- Allen, D.E., Izan, H.Y., "Dividend Policy: The Issues", *Managerial Finance*, vol. 18, no.1, 1992
- Arnold, Glen, "Corporate Financial Management", Pearson Education ltd, 2002
- Alli, Kasim L., Khan, Qayyum A. and Ramirez, Gabriel G., "Determinants of Corporate Dividend Policy: A Factorial Analysis", *The Financial Review*, vol. 28, no. 4, November 1993
- Baker, Kent H. and Farrelly Gail E., "Dividend Achievers: A Behavioral Perspective", *Akron Business and Economic Review*; Spring 1988; 19
- Baker, Kent H., Veit, Theodore E. and Powell, Gary E., "Factors influencing dividend policy decisions of Nasdaq firms", *Financial Review*, August 2001
- Baker, Kent H., Veit, Theodore E. and Powell, Gary E., "Revisiting the dividend puzzle, Do all the pieces now fit?", *Review of Financial Economics*, 11:2002
- Baker, Kent H. and Powell, Gary E., "How corporate managers view dividend policy", *Quarterly Journal of Business and Economics*, Spring 1999
- Baker, Malcolm and Wurgler, Jeffrey, "A catering theory of dividends", *The Journal of Finance*, vol. 59, no.3, June 2004
- Bar-Yosef, Sasson and Kolodny, Richard, "Dividend policy and capital market theory", *The Review of Economic Statistics*, 1976, vol. 58, issue 2
- Bathala, C, Moon K and Rao R, "Managerial ownership, debt policy and the impact of institutional holdings: an agency perspective", *Financial Management* 1994 vol. 23
- Black, Fischer, "The Dividend Puzzle", *Journal of Portfolio Management*, December 1996

Blom, Gunnar and Holmquist, Björn, "Statistikteori med tillämpningar", 1998, Studentlitteratur, Lund

Bradley, Michael, Capozza, Dennis R. and Seguin, Paul J., "Dividend policy and cash-flow uncertainty", *Real Estate Economics*, Winter 1996, vol. 26

Brealy, A., and Myers, S., "Principles of Corporate Finance", Irwin McGraw-Hill, 1996, New York

Brigham, Eugene F. and Daves, Phillip R., "Intermediate Financial Management", 2004, Thomson, USA

Buffet, Warren, "Letter to the shareholders", 1984 Annual report Berkshire Hathaway Inc.

Chan, Konan, Ikenberry, David and Lee, Inmoo, "Economic Sources of Gain in Stock Repurchases", *Journal of Finance*, vol. 39, September 2004

DeAngelo, Harry, DeAngelo, Linda and Skinner, Douglas J., "Dividends and losses", *The Journal of Finance*, December 1992

Dhillon, U., and H. Johnson, "The effect of Dividend Changes on Stock and Bond Prices", *Journal of Finance*, March (1994): 281-289

Dittmar, Amy, "Why Do Firms Repurchase Stock?", *Journal of Business*, 2000, vol.73, no.3

Easterbrook, Frank H. "Two agency-cost explanations of dividends", *The American Economic Review*, 1984, vol. 74, issue 4

Fama, Eugene F. and Babiak, Harvey, "Dividend policy: An empirical analysis", *Journal of the American Statistical Association*, 1968, vol. 63, issue 324

Fama, Eugene F. and French, Kenneth R., "Disappearing dividends: changing firm characteristics or lower propensity to pay?", *Journal of Financial Economics*, 2001, vol. 60

Florence, Sargent P., "Size of company and other factors in dividend policy", *Journal of the Royal Statistical Society*, 1959, vol. 122, no. 1

Forsbäck, Jens, 2004, "Measuring macroeconomic exposure with regression analysis", *International Finance* fall 2004, Lund School of Economics and Management

Frankfurter, George M. and Wood Jr., Bob G., "Dividend policy theories and their empirical tests", *International Review of Financial Analysis*, 2002, no. 11

Fristedt, Daniel, Sundin, Anneli and Sundquist, Sven-Ivan, "Ägarna och Makten i Sveriges Börsföretag, 1997-2004", *Bulls Tryckeriaktiebolag*, Halmstad

Gordon, Myron, "Dividends, earnings and stock prices" *Review of Economics and Statistics* 1959

Heikkilä, Toni, "Information Content of Cash Dividend and Concurrent Earnings Announcements: Evidence from the Finnish Stock Market", *Kirjapaino Grafia Oy*, Turku

1997

Handjinicolaou, George and Kalay, Avner, "Wealth redistributions on changes in firm value: An analysis of returns to bondholders and stockholders around dividend announcements", *Journal of Financial Economics*, vol. 13, 1984

Healy, Paul M. and Palepu, Krishna G., "Earnings information conveyed by dividend initiations and omissions", *Journal of Financial Economics*, 1998 volume 21

Holder, Mark E., Langrehr, Frederick W. and Hexter, Lawrence J., "Dividend policy determinants: An investigation of the influences of stakeholder theory", *Financial Management*, autumn 1998

Holme, Idar Magne and Solvang, Bernt Krohn, "Forskningsmetodik; Om kvalitativa och kvantitativa metoder", 1997, Studentlitteratur, Lund

Ikenberry, David, Lakonishok, Josef and Vermaelen Theo, "Stock repurchases in Canada: Performance and strategic trading", *Journal of Finance*, vol. 55 no. 5, October 2005, page 2396

Jensen, Michael C., "Agency costs of free cash flow, corporate finance and takeovers", *The American Economic Review*, 1986, vol. 76

John, Kose and Williams, Joseph, "Dividends, Dilution and Taxes: A signalling equilibrium" *Journal of Finance*, 1985, vol. 40

Koch, Adam S. and Sun Amy X., "Dividend Changes and the Persistence of Past Earnings Changes", *The Journal of Finance*, vol. 59, no. 5, October 2004

Lakonishok, J. and Shapiro, A.C., "Stock returns, beta, variance in size: an empirical analysis", *Financial Analysts Journal*, vol. 40, July-August 1984

Lambert, Richard A., Lanen, William N. and Larcker, David F., "Executive Stock Option Plans and Corporate Dividend Policy", *The Journal of Financial and Quantitative Analysis*, vol. 24, no.4, December 1989

Lashinsky, Adam, "Microsoft shares the wealth", *Fortune*, New York Aug 9 2004

Lease, Ronald C., John, Kose, Kalay, Avner, Loewenstein, Uri, and Sarig, Oded H., "Dividend Policy, Its Impact on Firm Value", Harvard Business School Press, 2000, Boston Massachusetts.

Lintner, J., "Distribution of Incomes of Corporations Among Dividends, Retained earnings and Taxes" *American Economic Review*, May 1956 page 97 -113

Lloyd, William P., Jahera, John S. Jr and Page Daniel E., "Agency costs and dividend payout ratios", *Quarterly Journal of Business and Economics*, 1985, vol. 24, issue 3

Lundborg, A., "Dags att titta på investmentbolagen", *Affärsvärlden* s.22, 2000-03-29

Malkiel, Burton G., "A Random Walk Down Wall Street", W.W. Norton & Company, 1999

Michel, Allen, "Industry influence on dividend policy" Financial Management 1979 vol. 8, issue 3

Miller, Merton H. and Modigliani, Franco, "Dividend policy, growth and the valuation of shares", The journal of business, 1961, vol. 34, no. 4

Modigliani, Franco and Miller, Merton H. "The cost of capital, corporation finance and the theory of investment", American Economic Research, 1958, vol. 48

Prais, S.J. "Size, Growth and Concentration", Studies in Company Finance, 1959, Cambridge

Redding, Lee S., "Firm Size and Dividend Payouts", Journal of Financial Intermediation, 1997:6

Ross, Stephen A. and Westerfield, Randolph W. "Corporate Finance", 1988, Times Mirror, St. Louis

Rozeff, Michael S., "Growth, Beta, and Agency Costs as determinants of dividend payout ratios", Journal of Financial Research:5, 1982

Sharpe, William and Sosin, Howard B., "Risk return and yield – NYSE common-stocks 1928-1969", Financial Analysts Journals, 1976, vol. 32, no. 32, page 30

Svenning, C., "Metodboken", 1997, Vol.2, Lorentz, Eslöv

Vogt, Stephen C., "The cash flow / investment relationship: Evidence from U.S. manufacturing firms", Financial Management, 1994, vol. 23, issue 2

Woolridge, Jeffrey M., "Introductory Econometrics", 2003, Thomson Learning, USA

Electronic sources

www.di.se - 11/2004 – 02/2005

www.fsb.se – 11/2004 – 02/2005

www.ft.com - 11/2004 – 02/2005

www.investopedia.com - 11/2004 – 02/2005

www.minitab.com/support - 11/2004 – 02/2005

www.stockholmsborsen.se - 11/2004 – 02/2005

www.sou.gov.se - 11/2004–02/2005, Lodin, Sven-Olof, "Olika aktieinvesterares skattesituation och dess påverkan på investeringsbeteende och aktieägares fördelning", Rapport för förtroendekommissionen

www.wsj.com - 11/2004 – 02/2005

Unpublished sources

Petterson, Gertrud, "Att skriva rapporter; Om formen och dess betydelse för innehållet", 1997, Företagsekonomiska Institution, Ekonomihögskolan vid Lunds Universitet

Standard & Poor's, "Corporate Ratings Criteria", The McGraw-Hill Companies, 2003, New York

Annual Reports

ABB 1996-2003

Assa Abloy 1996-2003

Astra 1996-1999

Astra Zeneca 1999-2003

Atlas Copco 1996-2003

Autoliv 1996-2003

Bergman & Beving 1996-2003

Bure 1996-2003

Cardo 1996-2003

Electrolux 1996-2003

Ericsson 1996-2003

Finnveden 1996-2003

Gambro 1996-2003

Getinge 1996-2003

Gunnebo 1996-2003

Haldex 1996-2003

Hexagon 1996-2003

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Hufvudstaden 1996-2003

Höganäs 1996-2003

Industrivärden 1996-2003

Investor 1996-2003

JM 1996-2003

Lindex 1996-2003

Nokia 1996-2003

OMX 1996-2003
Sandvik 1996-2003
Sardus 1997-2003
SAS 1996-2003
SCA 1996-2003
Scania 1996-2003
Scribona 1996-2003
Seco Tools 1996-2003
Securitas 1996-2003
Skandia 1996-2003
Skanska 1996-2003
SKF 1996-2003
SSAB 1996-2003
Stora 1996-1997
Stora Enso 1998-2003
Swedish Match 1996-2003
Ticket 1996-2003
Trelleborg 1996-2003
TV4 1996-2003
Volvo 1996-2003
WM-Data 1996-2003
Ångpanneföreningen 1996-2003

Appendix A

Histogram of DPS (SEK) before transformation:

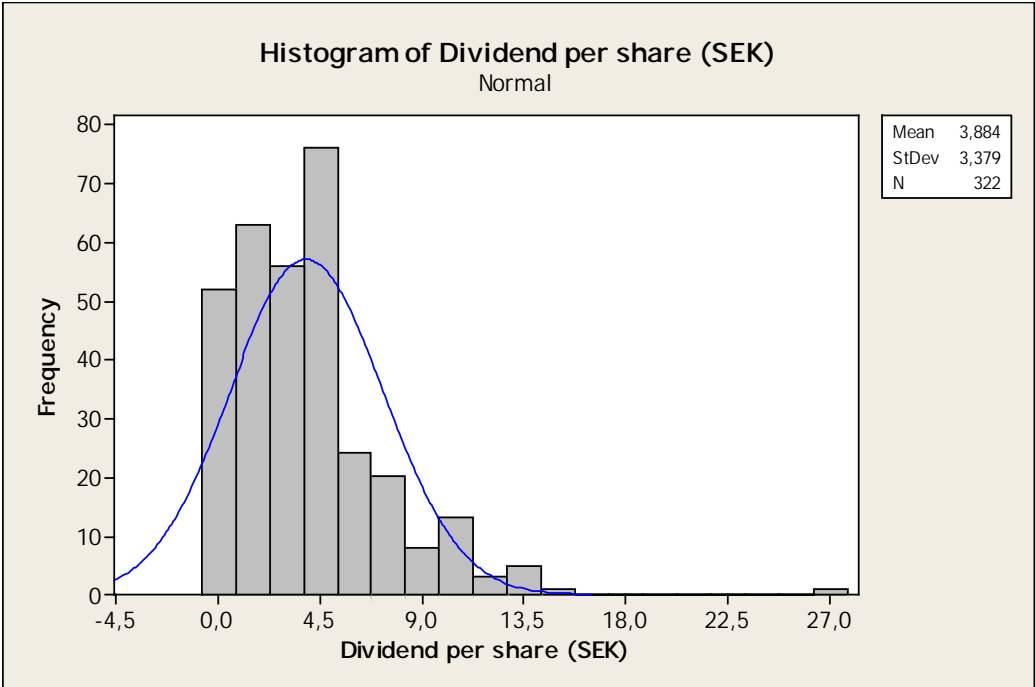


Exhibit A1 "Histogram of Dividend per share (SEK)"

The probability plot of DPS (SEK) before transformation:

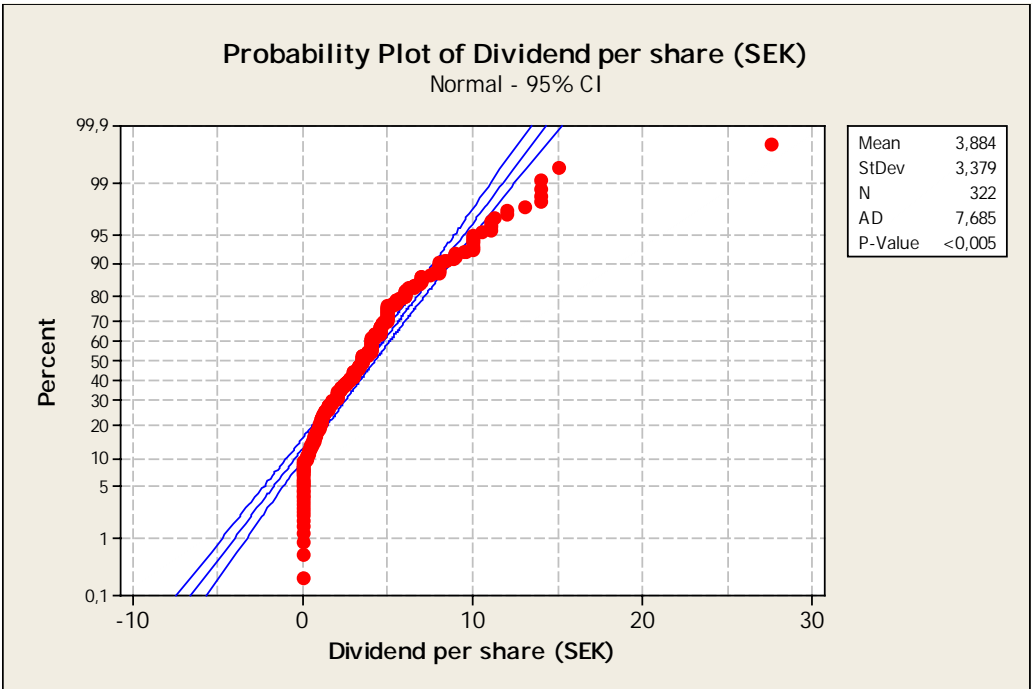


Exhibit A2 "Probability plot of Dividend per share (SEK)"

Box Cox plot of DPS (SEK) transformation:

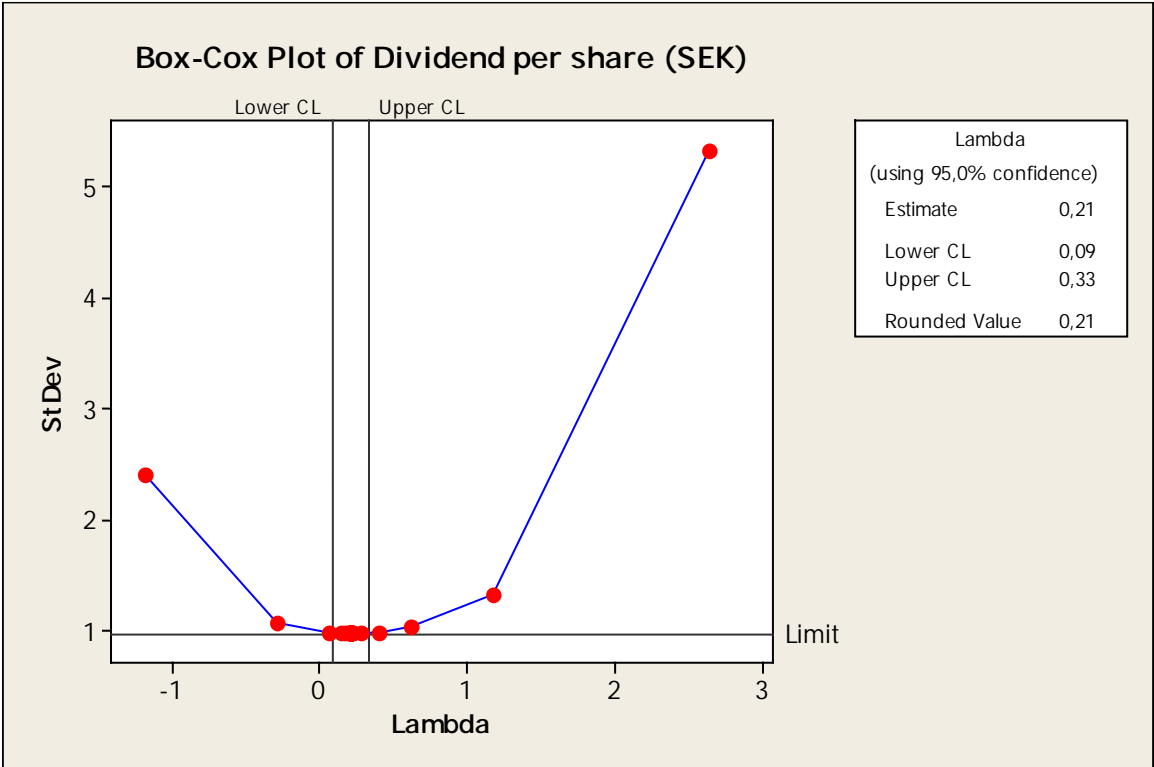


Exhibit A3 "Box-Cox Plot of Dividend per share (SEK)"