

# Determinants of Dividend Payout Ratios A Study of Swedish Large and Medium Caps

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#### 1

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## **Abstract**

The dividend payout policy is one of the most debated topics within corporate finance and some academics have called the company's dividend payout policy an unsolved puzzle. Even though an extensive amount of research regarding dividends has been conducted, there is no uniform answer to the question: what are the determinants of the companies' dividend payout ratios? We therefore decided to conduct a study regarding the determinants of the companies' dividend payout ratios on large and medium cap on Stockholm stock exchange.

The purpose of the study is to determine if there is a relationship between a number of company selected factors and the companies' dividend payout ratios. A second purpose is to determine whether there are any differences between large and medium caps regarding the impact of the company selected factors. We therefore reviewed previous studies and dividend theories in order to conclude which factors that potentially could have an impact on the companies' dividend payout ratios. Based on the literature, we decided to test the relationship between the dividend payout ratio and six company selected factors: free cash flow, growth, leverage, profit, risk and size. The data used in the research are secondary data collected during a time period of five years, between 2006 and 2010.

The study follows a quantitative research method with a deductive approach and we have based the study on four dividend theories: the dividend irrelevance theory, the bird in hand theory, the signaling theory and the agency theory. In order to determine whether there is a relationship between the companies selected factors and the dividend payout ratio we conducted both an Ordinary least square (OLS) and a Tobit regression. Multicollinearity tests were also conducted in order to ascertain that no multicollinearity affected the results of the study.

The results indicate that some of the company selected factors have an impact on the companies' dividend payout ratios and there are some differences between large and medium caps. The dividend payout ratios of large caps have a significant relationship to free cash flow, growth and risk. While the dividend payout ratios of medium caps have a significant relationship to free cash flow, leverage, risk and size.

# **Table of Contents**

Chapter 1: Introduction	1
1.2Problem Statement	2
1.3 Research Question	3
1.4 Purpose	3
1.5 Audience	4
1.6 Delimitations	4
1.7 Disposition	5
Chapter 2: Methodology	6
2.1 Previous Understanding and Choice of Subject	6
2.2 Methodological Assumptions	6
2.3 Research Approach	8
2.4 Research Method	9
2.5 Type of Study	. 10
2.6 Research Strategy	. 10
2.7 Summary of Methodology	. 11
2.8Literature Search	. 11
2.9Critiques of Sources	. 12
Chapter 3: Theoretical Framework	. 13
3.1 NASDAQ OMX Stockholm	. 13
3.2 Dividends	. 13
3.3 Modigliani-Miller Dividend Irrelevance Theory	. 14
3.4 The "Bird in Hand" Theory	. 16
3.5 Signaling Theory	. 18
3.6 Agency Theory	. 19
3.7 Dividend Payout Ratio vs. Dividend Yield	. 20
3.8 Summary of Theoretical Framework	. 22
3.9 Previous Studies	. 22
3.10 Company Selected Factors	. 26
3.10.1 Free Cash Flow	. 26
3.10.2 Growth	. 26
3.10.3 Leverage	. 27
3.10.4 Profit	. 28
3.10.5 Risk	. 28
3.10.6 Size	. 29
Chapter 4: Practical Method	. 30
4.1 Sampling	. 30
4.2 Sample and Observations	. 31

4.3 Data Collection	35
4.4 Manual Processing of Data	35
4.4.1 Risk	35
4.4.2 Growth	36
4.4.3 Debt to Equity Ratio	36
4.4.4 Free Cash Flow	36
4.4.5 Dividend Payout Ratio	37
4.5 Statistical Tests	37
4.5.1 Pearson Correlation Coefficient	37
4.5.2 Regression Analyses	38
4.5.3 Tobit Model	39
4.5.4 Hypothesis Testing	39
4.5.5 Multicollinearity	41
4.6 Criticism of Practical Method	42
Chapter 5: Empirical Results	43
5.1 Descriptive Statistics	43
5.1.1 Large Cap, Non-Financial	43
5.1.2 Large Cap, Financial	44
5.1.3 Medium Cap, Non-Financial	45
5.1.4 Medium Cap, Financial	45
5.2 Multicollinearity Tests	46
5.3 Regression Results	47
5.3.1 Large Cap, Non-Financial	47
5.3.2 Large Cap, Financial	48
5.3.3 Medium cap, Non-Financial	49
5.3.4 Medium cap, Financial	49
5.4 Regression Remarks	50
Chapter 6: Empirical Analysis	51
6.1 Hypotheses	51
6.1.1 Free Cash Flow	51
6.1.2 Growth	52
6.1.3 Leverage	53
6.1.4 Profit	54
6.1.5 Risk	54
6.1.6 Size	55
6.2 Financial Large and Medium Caps	56
6.3 Summary of the Analysis	56
Chapter 7: Conclusions and Recommendations	58
7.1 Conclusions	58

7.2Practical and Theoretical Contribution	59
7.3 Limitations of the Research	60
7.4 Further Research	60
7.5 Truth Criteria	60
7.5.1 Reliability	60
7.5.2 Replication	
7.5.3 Validity	
Reference List	
Appendix	
List of figures	
Figure 2.1: Deductive Approach	9
Figure 2.2: Summary of Research Methodology	
Figure 3.1: Relation between Discount rate and Retained earnings	17
Figure 4.1: Sectorial allocation of Large and Medium Caps	34
List of tables	
Table 2.1: Methodological Matrix	8
Table 3.1: Overview of selected studies	23
Table 4.1: Sample of Medium Caps	31
Table 4.2: Sample of Large Caps	31
Table 4.3: Sample of Large and Medium Caps	
Table 4.4: List of Large Caps	
Table 4.5: List of medium caps	
Table 4.6: Number of excluded observations	
Table 4.7: Expected Relationships	41
Table 5.1: Descriptive Statistics of Swedish Non-Financial companies listed on Large Capa	s44
Table 5.2: Descriptive Statistics of Swedish Financial companies listed on Large Caps	44
Table 5.3: Descriptive Statistics of Swedish Non-Financial companies listed on Medium C	aps45
Table 5.4: Descriptive Statistics of Swedish Financial companies listed on Medium Caps	45
Table 5.5: VIF and tolerance for Swedish Large Caps	46
Table 5.6: VIF and tolerance for Swedish Medium Caps	
Table 5.7: Regression for Swedish non-financial companies listed on large caps	
Table 5.8: Regression for Swedish financial companies listed on large caps	
Table 5.9: Regression for Swedish Non-financial companies listed on Medium caps	49

Table 5.10: Regression for Swedish financial companies listed on Medium caps	50
Table 6.1: Regression outcome for free cash flow	52
Table 6.2: Regression outcome for Growth	53
Table 6.3: Regression outcome for Leverage	54
Table 6.4: Regression outcome for Profit	54
Table 6.5: Regression outcome for Risk	55
Table 6.6: Regression outcome for Size	55
Table 6.7: Summary of Findings for Large Caps	56
Table 6.8: Summary of Findings for Medium Caps	

# **Chapter 1: Introduction**

The purpose of the first chapter is to provide a general introduction to the research topic. The chapter begins with a discussion of the problem background and statement followed by the research question. We will thereafter explain the purpose and delimitations of the research.

The late 2000s financial crisis originated in the United States and was the starting point for a domino effect affecting the global economy. Due to the difficult business environment companies took different actions in order to manage the crisis and one of the actions was to adjust the dividend payouts to shareholders, since it is believed to be a shock absorber. Usually managers try to keep a stable and growing dividend and managers are not eager to decrease the dividends since it generally is interpreted as a negative signal. But during the crisis the trend of stable dividends was abandoned and some companies drastically decreased their dividend payouts while others at the same time increased the dividends. The number companies that decreased the dividend payouts on the US stock markets increased from 44 in 2007 to more than 500 in 2009. At the same time, the increases in dividends decreased from 1.900 in 2007 to approximately 700 in 2009 (J.P. Morgan, 2011).

The changes in dividends for Swedish firms followed similar patterns as on the stock markets in the United States. Most of the largest companies decreased their dividends while others maintained a stable dividend payout and a few companies increased the dividend payouts to the shareholders.

The four major Swedish banks suffered severely from the crisis but they managed the financial difficulties in different ways, two of these banks are Swedbank and Nordea. Both banks were heavily affected by the crisis and received favorable loans from the Swedish government. But still, they approached the dividend payouts to the shareholders differently. Swedbank decided not to pay any dividend to the shareholders in 2009 but Nordea who was in a similar position as Swedbank chose to do so (Björk, 2009).

These examples reveal that there is no unified picture regarding dividend payout policies and this is one of the most debated issues within the field of corporate finance and it has troubled academics and researchers for many years. A famous quotation by Fisher Black in 1976 states:

"The harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just don't fit together."

We think that it would be interesting to conduct a research regarding dividend payout ratios and even though several studies have been conducted it is still many pieces in the dividend puzzle that are missing.

#### 1.2 Problem Statement

The dividend payout policy is one of the most debated topics within corporate finance and many academics have been trying to find the missing pieces in the dividend puzzle for more than a half century (Baker, 2009 p.30). But dividends is not a new phenomenon, payouts to shareholders have been a standard procedure for most companies in hundreds of years (Baker, 2009 p.30). However, some of the most successful companies during the last years such as Apple and Google have chosen not to pay dividends (Ciaccia, 2012). This indicates that it is possible to be successful without paying dividends, so why do firms pay dividends at all?

This question has been extensively debated and one of the most powerful arguments towards the impact of dividends was presented by Modigliani and Miller (1961). They stated that under perfect capital markets without any taxes, transaction costs and other market imperfections, the company value is independent of the dividend policy. Instead the firm value is solely depended of the earning power of the company's assets and its investment policy and not by how its profits are distributed to shareholders (Modigliani & Miller, p.414). If this would be the case, no companies would pay dividends since it does not create any additional value for the shareholders and no further research regarding dividends would be necessary. This is contrary to the view of Brealey et.al (2008 p.973) who has written one of the most influential undergraduate textbooks in corporate finance. They state that the dividend payout controversy is one of the ten major unsolved problems in corporate finance and further research within the area is crucial in order to increase the understanding of the subject.

In the real world disregarding the assumptions made by Modigliani and Miller (1961) various academics have argued that dividends have an impact on the company's value. One of the first studies who claimed that dividends play a major role was presented by Lintner (1956). The study basically concluded that dividends are determined by a target payout level which depends on the company's long term earnings. Lintner's research was supported by Gordon (1959) who stated that the shareholders prefer dividends rather than capital gains. If this is true, the company's dividend payouts are of major importance both to shareholders and managers since it contributes to a higher value and shareholders would be willing to pay a higher price for stocks that pay dividends.

If dividends affect the value of the company it is of importance that the company's stakeholders are aware of the factors that affect the dividend payouts. Various studies have been conducted in order to determine the company factors that influence the dividend payouts. According to Jensen (1986), the free cash flow is a major determinant of the dividend payouts. Jensen states that this is due to the agency costs connected to free cash flows and shareholders prefer cash payments in the form of dividends rather than to keep the free cash flow within the company. Managers should therefore pay excessive free cash flows as dividends in order to reduce the agency costs. But free cash flow is far from being the only factor that may affect the company's dividend payouts. Another famous study was presented by Miller and Rock (1985) who argued that dividends provide a signal to investors that the company's profitability will increase in the future. Consequently, the company's growth may according to Miller and Rock be an important determinant of the dividend payouts. These examples reveal two company factors that may have an impact on the dividend payouts but they are of course not the only factors that influence the dividend payouts.

A lot of research in various countries has also been conducted in order to describe the relationship between a number of factors and the company's dividend payouts to shareholders. But even though many studies have been conducted, the results indicate that there are some differences between countries regarding which factors that have an impact on dividend payouts. For example Rozeff (1982) conducted an investigation regarding the determinants of dividends in United States and he found a strong negative relationship between the riskiness and the dividend payouts. These results are contrary to the study made by Al Shabibi and Ramesh (2011) in the United Kingdom. The study revealed a positive relationship between the dividend payouts and the riskiness of the company.

In the two countries discussed above, the relationship between the company's selected factors and the dividend payouts has been somewhat different but we do not know the determinants of the Swedish companies' dividend payouts. To our knowledge, few studies regarding determinants of dividend payouts have been conducted in Sweden and they are not up to date. We therefore think that it would be interesting to investigate the issue. Dividend payouts play a major role for many Swedish shareholders and during the last years the dividends among Swedish firms have been increasing (Bloomberg, 2010). Therefore we think that it is necessary to conduct a research regarding the relationship between a number of preselected company factors and the dividend payouts on the Swedish stock market. The included company selected factors are free cash flow, growth, leverage, profit, risk, size.

## 1.3 Research Question

In order to thoroughly determine the relationship between a number of company selected factors and the dividend payouts policies and update the previous findings regarding the dividend puzzle we have formulated the following research question.

What is the relationship between the dividend payout ratio and company's selected factors for large and medium caps in Sweden?

# 1.4 Purpose

The purpose of the thesis is to investigate the relationship between the dividend payout ratio and company's selected factors. The study will focus on stocks that are listed on NASDAQ OMX large and medium cap in Stockholm. A second purpose is to examine if there are any differences between companies that are listed on large and medium cap. Since large caps have a higher market capitalization, it would be interesting to see if the dividend payout ratios on the two segments are affected by different company selected factors. However, financial and non-financial companies have different characteristics and we are therefore going to conclude whether the dividend payout ratios of financial and non-financial companies are affected by different company selected factors. To our knowledge, few studies regarding the determinants of dividend payout ratios have been conducted in Sweden and they are not up to date. We therefore decided to conduct a research in order to increase the knowledge of the dividend payout policies for companies listed in Sweden.

#### 1.5 Audience

The research is principally intended for portfolio investors who are going to invest in stocks and could have preferences for dividend paying stocks. We are going to determine the relationship between a stocks dividend payout ratio and a number of company selected factors. Therefore it will provide investors with some hints regarding the factors to consider when determining if the stocks are going to pay dividends. Managers are also a target group and the study will hopefully provide the managers with some important information regarding which factors they should consider when determining the dividend payout ratios. But other target groups besides investors and managers are also academics, students and the general public who have an interest in the determinants of the company's dividend payout ratio.

#### 1.6 Delimitations

NASDAQ OMX Stockholm is divided into three different segments depending on the size of the companies: small, medium and large cap. However in this research we have excluded small cap stocks since the stocks in the sample have to be listed on the same segment during the whole time period. The turnover of stocks listed on small cap is usually higher and they change segments more frequently compared to large and medium caps. Another reason of why we chose to exclude small caps is because a smaller amount of small cap stocks pay dividends compared to the large and medium caps.

The time frame of the research is limited to the time period between 2006 and 2010. The main reason why we chose to exclude the period before 2006 was because of the restructuring of the Stockholm stock exchange. Before the restructuring, Stockholm stock exchange was separated into different segments compared to today (NASDAQ OMX, 2012). We also chose to use 2010 and not 2011 as the last year in the study because not all companies have published their annual report for 2011 when we started with the thesis. A time period of five years is sufficient for the study and we will capture both the time before during and after the recent financial crisis.

A major aspect that we have chosen to disregard in the research is all kind of taxes, both at personal and corporate levels, this is mainly due to the complexity of the taxation. Since the companies are located in different tax brackets it would be a hideous task to analyze each single case individually. In order to disclose the determinants of the dividend payout ratios we have limited our research to six company selected factors which may have an impact on the firm's dividends. We have chosen to determine the relationship between the dividend payout ratio and free cash flow, growth, leverage, profit, risk, size. We decided to limit the research to these six factors since we came to the conclusion that the factors mentioned above are the most important for the firm's dividend policy. We will provide an extensive discussion in chapter three regarding the selection of the six factors. Finally, when we discuss about dividends we will always refer to cash dividends since it is the most common type of dividend and when investors speak of dividends they usually refer to cash dividends. Accordingly, we will exclude all other kinds of dividends and other forms of distribution of profit to shareholders, such as stock repurchases.

Chapter 1: Introduction 5

# 1.7 Disposition

## **Chapter 1: Introduction**

The purpose of the first chapter is to provide a general introduction to the research topic. The chapter begins with the problem background and statement followed by the research question. We will thereafter explain the purpose and delimitations of the research.

#### Chapter 2: Methodology

The chapter will provide the reader with an overview of the methodological considerations and assumptions underlying the research process. The choice of subject will be discussed together with the necessary methodological assumptions taken in the study. The last part of the chapter deals with the search for literature and potential drawbacks with the sources of information.

## **Chapter 3: Theoretical Framework**

The third chapter provides the reader with the necessary theoretical background and we will present the most relevant theories and previous studies related determinants of dividends. The last part of the chapter will discuss the company selected factors included in the research.

#### **Chapter 4: Practical Method**

The aim of the chapter is to explain how we are going to conduct the research. The first part of the chapter will discuss the sampling process. We will thereafter discuss how we collected and processed the necessary data in order to answer our research question. An explanation of the statistical tests will also be provided followed by criticism of the practical method used in the study.

#### **Chapter 5: Empirical Results**

The fifth chapter presents the results of the study. The descriptive statistics will be presented in the first part of the chapter in order to provide the reader with an overview of the key numbers. We will also conduct various tests for multicollinearity in order to ascertain that no multicollinearity affects the study. The results from the regression will also be presented in the last part of the chapter.

#### **Chapter 6: Empirical Analysis**

The purpose the chapter is to analyze and discuss the empirical results and test whether the theoretical framework discussed in chapter three manage to explain the changes in the dividend payout ratio.

#### **Chapter 7: Conclusion**

The purpose of the final chapter is to summarize the findings, answer the research question and further develop the analysis from chapter six. We will thereafter discuss the contribution and limitation of the current study. Suggestion for further research will also be provided and it is followed by a discussion regarding the quality of the research.

Chapter 2: Methodology 6

# Chapter 2: Methodology

The chapter will provide the reader with an overview of the methodological considerations and assumptions underlying the research process. The choice of subject will be discussed together with the necessary methodological assumptions taken in the study. The last part of the chapter deals with the search for literature and potential drawbacks with the sources of information.

# 2.1 Previous Understanding and Choice of Subject

It is of importance that the authors acknowledge their previous understanding of the subject since any kind of previous understanding may affect the author's interpretation of the collected data (Bryman & Bell, 2007 p.429). Bryman & Bell also states that the readers of a research article may understand the research in a better way if they are aware of the author's previous experience.

The authors of the thesis are students at Umeå School of Business and Economics and both have taken several courses in finance, both at bachelor and master level and have therefore an excellent theoretical understanding of corporate finance and the company's dividend policies. The authors also have international experience of corporate finance and dividends due to studies abroad and internships. Throughout the study period, we have had numerous discussions on recent and ongoing financial issues. During one of these debates we came to the conclusion that some companies for some reasons pay dividends while the others are not. This topic has also been thoroughly elaborated during one of our financial classes, where the lecturer has mentioned about a dividend puzzle phenomenon and that more research within the area needs to be conducted.

Even though the practical knowledge regarding the chosen area is limited the authors have some practical knowledge since both own and trade with stocks. Although the amount of the capital invested in stocks is small it still has contributed to some practical understanding regarding the company's dividend payout policies. Both authors own stocks that pay dividends but we are not sure of which factors to look for when determining which stocks that can be expected to pay dividends to its shareholders. This was the other major reason why the authors chose to conduct a research about the determinants of the company's dividend payout ratio.

# 2.2 Methodological Assumptions

The methodological assumptions and the research philosophy are of major importance when conducting a research since it shows from which point of view the researchers see knowledge and how the knowledge is obtained. It also reveals the researchers perceptions of the world and the assumptions taken in the research process (Bryman & Bell, 2007 p.16). The assumptions taken in the research process are important since it provides guidelines and shapes the research strategy and research approach (Saunders et.al, 2009). Therefore it is important to reveal our assumptions and view towards knowledge in order to give the reader a better understanding of the research. The two main methodological assumptions concern the choice of epistemological and ontological considerations and our choice of which position to take in each of the two approaches will have a major impact on the research process.

Epistemology deals with the question of what is considered to be acceptable knowledge. Within epistemology there exist two contradicting approaches with different views of what kind of knowledge that is regarded as acceptable. The main contradiction between the two approaches is whether social science should be studied according to the same principles as natural science. In other words, is emotions regarded as acceptable knowledge or is it only factors that we can observe. Two opposing views towards epistemology are positivism and interpretivism, a third approach called realism is located between the two extreme positions (Bryman & Bell, 2007 p.16).

The positivistic approach states that the reality has an existence that is independent to social actors and only knowledge that is confirmed by senses can be regarded as acceptable knowledge. It is therefore possible to study social science in the same way as natural science, in a value-free way (Saunders et.al, 2009 p.129). The advantage of the positivistic stance is that the researcher's personal opinions are excluded from the research. Positivistic research is generally based on numbers and mathematical equations which is difficult to alter because of some kind of personal bias towards the research topic. Hence, only facts are considered to be true knowledge and all kinds of emotions are excluded from the research process and will not have an impact on the result of the study (Bryman & Bell, 2007 p.16). But there are also some drawbacks with the positivistic approach and one of the disadvantages is related to the advantage, i.e. to study social science in the same way as natural science. Since the research only is based on facts it does not examine the underlying causes which may be very important. The numbers that is being studied may be affected by some specific event that is disregarded and the research may therefore provide an inaccurate picture of the subject that is being studied.

The opposing epistemological standpoint to positivism is interpretivism which states that methods of natural science cannot be used to study the social reality, because people and institutions are different from natural science (Bryman & Bell, 2007 p.17-18). Instead the interpretivistic approach focus on a more subjective view of the reality and in contrast to the positivistic approach it takes emotions into consideration. The advantage with the interpretivistic stance is that it is an excellent method in order to analyze complex problems which require an in depth understanding of the subject being studied (Saunders et.al, 2009 p.129). The drawback with the method is that it may be difficult for the researcher to be completely objective during the research since emotions might be involved. Another issue is that it is difficult to replicate the study since interpretivistic approaches usually are unique (Saunders et.al, 2009 p.129).

We are going to investigate the relationship between a number of company selected factors and the dividend payout ratio for companies listed on NASDAQ OMX large and medium cap in Stockholm. To conduct the research we are going to collect historical data for each of the companies and use statistical programs in order to determine the impact of the different company selected factors on the dividends payout ratio. Therefore it is obvious that we are going to follow the positivistic approach in our research process. We will employ natural science methods and be completely objective when analyzing the collected data. Therefore our personal emotions or possible biases will not affect the result of the research.

The second approach of how to view reality and to evaluate knowledge is ontology. Within ontology there exist two contradicting positions, objectivism constructionism. These two positions provide different perspectives of the existence of social entities and the choice of the ontological stance have a large impact on the research process. The objectivistic standpoint states that the social reality has an existence that is independent to social actors. Therefore social actors cannot affect the reality which is independent. The opposite position is constructionism which states that the social reality is constructed by social actors. Hence, the social reality is dependent by the social actors (Bryman & Bell, 2007 p.22-23).

As we mentioned above, we are going to base our research on historical data and therefore use methods of natural science. We will also base our argumentation on fact which not requires any kind of subjective interpretation of the collected data and we will conduct the research from an external point of view. Based on these arguments we concluded that we are going to follow the objectivistic approach in our research process.

Most theses in quantitative finance follow the same assumptions regarding the choice of epistemological and ontological standpoints and we are not going to be any different from previous research. Therefore based on our considerations and approach towards the research, we belong to the functionalist category of researchers who emphasis that only knowledge that can be proved by empirical findings can be considered to be acceptable knowledge (Bryman & Bell, 2007 p.26).

	OBJECTIVIST	SUBJECTIVIST
REGULATORY	Functionalist	Interpretative
RADICAL	Radical Structuralist	Radical humanist

Table 2.1: Methodological Matrix

The concepts objectivist and subjectivist are two different approaches used in order to explain how the researcher views the organization that is being studied. Since we will investigate the company's dividend policies from an external point of view, we are objectivists. The concepts regulatory and radical describe the purpose of the research and the regulatory point of view aim to describe the organization while the radical wants to make judgments of it (Bryman & Bell 2007 p.26). The aim of the study is to describe rather than to make judgments and we are therefore regulatory.

# 2.3 Research Approach

There basically exist two main types of research approaches which describe the relationship between theory and the research process, deductive and inductive. In the deductive approach the researcher bases their research on already existing theories in order to create a number of hypotheses which later will be tested against empirical data. The next step is either to confirm or reject the stated hypothesis based on the findings. Two important factors in the deductive approach is that the researcher is independent from what is being studied and sample size have to be sufficient in order to be able to generalize the findings (Bryman & Bell 2007 p.11-14).

The other main research approach is the inductive which in contrast to the deductive approach bases the research on empirical data that is used in order to create a theory. Some academics argue that the inductive approach creates a higher level of understanding compared to the deductive approach which can be seen as a more descriptive approach. The main difference between the two approaches is that the deductive tests already existing theories while the inductive approach tries to generate new theories based on the empirical data (Saunders et.al, 2009 p.125).

We are going to base our research on already existing theories and therefore the deductive approach is most appropriate in our case since we will test the different theories against our hypothesis. The steps in the deductive approach are described in figure 2.1 (Bryman & Bell 2007 p.11).

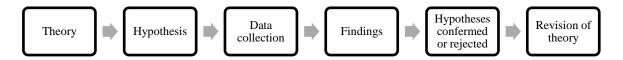


Figure 2.1: Deductive Approach

We have based our research on a number of different dividend theories and reviewed already existing research papers in order to be able to deduct a number of hypothesis from which we based our research. A lot of research regarding dividend policies has already been conducted which makes the collection of previous studies and theories easier. We have chosen to base our theoretical framework on a mix of well-known dividend theories and less known theories. Some of the theories which we have based our research on are Modigliani & Millers dividend irrelevance theory and the agency theory. The selected theories have had a major influence on our research process and they provided the theoretical framework which was necessary in order to deduce the hypotheses on which we will base our data collection.

In order to be able to answer our stated hypotheses we collected most of our data from Thomson Reuters DataStream but we also had to process some of the numbers manually since it was not available in DataStream. After the collection and processing of the necessary data we were able to confirm or reject our stated hypothesis which lay the foundation for our conclusion. In order to be able to conclude whether the stated hypothesis was confirmed or rejected we mainly used the statistical programs SPSS and STATA. The last step was to compare the existing theories with our findings and determine whether the findings were in accordance with the already existing theories. Consequently, our selected research approach follows the school book example of a deductive research approach.

#### 2.4 Research Method

The qualitative and the quantitative methods are the most common research methods used in academic studies. The quantitative method focuses on numbers and how to interpret and analyze them and a quantitative researcher perceives the subject being investigated from an external point of view. On the other hand the qualitative method focuses on words and it is more appropriate if the researcher's goal is to create an indepth understanding of the subject that is being studied. The main difference between the two methods is that the quantitative method puts more emphasis on the results while the qualitative approach emphasizes the interpretation of the results (Bryman & Bell, 2007 p.28).

The purpose of our study is to investigate the determinants of the company's dividend payout ratio by using a number of company factors such as profit and free cash flow. Based on the methodological assumptions and the research approach we concluded that the most appropriate research method for our study is a quantitative research method. According to Bryman & Bell (2007 p.416) the quantitative research method focuses on

natural science and how things are instead of going beneath surface behavior. Since we just want to conclude the determinants of dividends we think that the quantitative approach is most appropriate for our research. On the other hand, if we were going to explain why companies pay dividends we would have followed the qualitative approach since it requires a more in-depth understanding of the issue and tries to answer the question why companies behave in a certain way.

# 2.5 Type of Study

According to Saunders et.al (2009, p.139) there basically exist three different types of studies which aim to answer the research question in different ways. The three different types are exploratory, descriptive and explanatory. The main focus of an exploratory study is to approach problems in new ways and it is a very good method to increase the understanding of a specific topic. The most common data collection methods are interviews in order to get an in depth understanding of the subject being investigated. The second type of study is explanatory which aims to establish relationships between different variables in order to detect a certain patterns. The third type of study is according to Saunders a descriptive study and it is usually used as a forerunner to the two other types of studies. The main aim of the descriptive study is to get an accurate picture of the situation that is being studied.

The main purpose of our research is to find the relationship between a number of company selected factors and the dividend payout ratio. Since the aim is to establish a relationship between a number of variables, the explanatory approach is the most appropriate. On the other hand, before testing the relationship the variables included in the study have to be identified and presented. Therefore the research will combine the explanatory and the descriptive type of studies.

# 2.6 Research Strategy

There exist a large number of research strategies when conducting a research within business administration and it would be too extensive to mention them all. However, the choice of strategy is heavily influenced by the choice of the method and approach taken in the research. On the basis of our previous assumptions and the aim of the research question we think that the archival strategy is most appropriate in our case. According to Saunders et.al (2009, p.150) the archival research strategy uses administrative records and documents as the main source of data. Our research is solely based on official data collected from DataStream and annual reports. However, one important consideration in the archival strategy is that the data used in the research should be a product of day to day activities and not solely collected for research purposes (Saunders et.al 2009, p.150). Since company data has been used in this research we think that the research manages to fulfill the criteria for an archival research strategy and we think that it is the most appropriate strategy in our case.

# 2.7 Summary of Methodology

Figure 2.2 provides an overview of the methodology used in the research process.

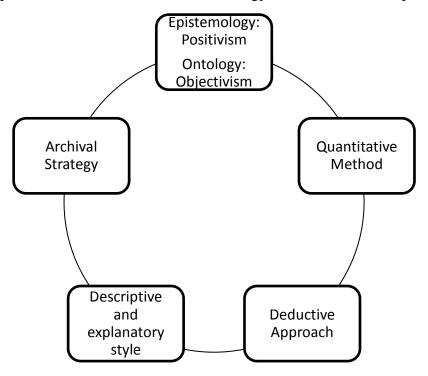


Figure 2.2: Summary of Research Methodology

#### 2.8 Literature Search

Even though we have conducted a quantitative research based on numerical data we have also used a large number of academic articles, textbooks, reliable financial newspapers and previous thesis related to dividends in order to get some hints of what other researchers have concluded. Since the dividend payout policy is a widely debated topic in corporate finance we had no problem finding relevant research articles which provided us with the theoretical framework that were necessary to conduct the research. In order to find the relevant literature we mainly used Business Source Premier and Emerald accessed from Umeå University's library. The main search words in the databases were: dividends, dividend determinants, dividend payout ratio, Modigliani & Miller, signaling theory, free cash flow hypothesis, agency theory. In addition to the databases provided by Umeå University we also used Google Scholar in the search for literature and found some relevant articles that not were available in the databases provided by Umeå University.

By using the sources and databases mentioned above we were able to conduct an extensive literature review and we managed to access a large number of articles regarding the company's dividend payout policy. In the process of reviewing these articles, we were also able to find relevant references which made our search for literature considerably easier. However, we only used original sources. In the search for relevant articles we also found a lot of financial blogs which discussed the area under investigation and even though they were relevant for our research we choose to exclude these kinds of sources since they can be regarded as unreliable and biased.

# 2.9 Critiques of Sources

In order to conduct a trustworthy research it is of major importance to use reliable sources and we therefore searched for relevant and reliable academic articles within the chosen area. To facilitate the credibility of the research we only used well-known and recognized databases such as Business Source Premier and Emerald accessed from Umeå University's library. The academic articles found in these databases are the foundation of the theoretical framework. But even though the great majority of the sources come from academic articles, we also had to use other sources of information in order to access information that is up to date. Therefore we also used influential financial newspapers and websites. Another important source of information is the companies' annual reports. But it can be argued that the annual reports may be biased since it is published by the company itself. However, today all companies have to follow the same accounting principles and auditing rules and we therefore think that the annual statements are reliable.

In the collection of academic articles we found only one relevant study that had been conducted on the Swedish market and it was based on data from the beginning of the 1990s. This was both positive and negative for the research process since it revealed that an investigation of the Swedish market was necessary. But the negative aspect was that we just were able to refer to one study that has been conducted in Sweden and we therefore had to include studies from other parts of the world as well. The majority of the previous studies had been conducted in the United States. However, we also tried to find studies from other parts of the world in order to get a broader picture of the chosen area of investigation. We are aware of the fact that the jurisdictions are different between countries which may make it difficult to compare the results from different countries especially regarding the taxation. But we still think that it is of major importance to include these studies since they provide a good benchmark for our research.

Apart from the geographical considerations we also focused on studies that were up to date. This aspect is of importance since the financial markets are constantly changing and different rules and regulations are imposed. Even though our focus was on recent studies, we also chose to include older studies since they provide the foundation for more recent studies. But it can be argued that these studies not are up to date and it could be problematic to compare the results over time. However, the older studies provide a good benchmark and it is therefore important to include these studies. Some of the theories mentioned in the theoretical framework were published for more than a half century ago but they are still considered as the most influential and we therefore think that they can be included in the research. They are written by some of the most influential economists and we therefore think that they are applicable.

# **Chapter 3: Theoretical Framework**

The third chapter provides the reader with the necessary theoretical background and we will present the most relevant theories and previous studies related determinants of dividends. The last part of the chapter will discuss the company selected factors included in the research.

# 3.1 NASDAQ OMX Stockholm

There are three regulated marketplaces in Sweden: Burgundy AB, NASDAQ OMX Stockholm AB and Nordic Growth Market NGM AB (European union, 2011). We have chosen to limit our research to NASDAQ OMX Stockholm AB which usually is called Stockholm stock exchange. The choice of marketplace was straightforward since we wanted to include the largest companies listed in Sweden and out of the three available stock exchanges only NASDAQ OMX Stockholm includes the major companies. Since 2008, Stockholm stock exchange is owned by the NASDAQ OMX group. But even though NASDAQ OMX Stockholm is an independent stock exchange it has a close cooperation with the exchanges in Helsinki, Copenhagen, Island, Tallinn, Riga and Vilnius. Together they represent the so called Nordic List (NASDAQ OMX, 2012).

The numbers of stocks that are listed on the stock exchange vary from year to year but today there are 289 stocks that are listed on the exchange. The number of companies are less than the number of stocks since many companies has A and B shares. The listed stocks are divided into three different segments depending on the size of the company. The largest companies that have a market capitalization above one billion euros are listed on the large cap segment. The second segment is the medium cap that consists of companies that have a market capitalization between 150 Million and one billion euros. The segment for the smallest companies is the small cap which consists of companies that have a market capitalization below 150 million euros. In addition to the three segments, the stocks are also categorized into ten sectors. In both large and medium cap approximately 80 stocks are listed in each segment, but the small cap has a larger amount number of listed stocks and has currently 128 listed stocks.

#### 3.2 Dividends

Even though the thesis is about dividends we have not said anything about dividends or explained what a dividend is. We therefore think that it is important to provide a brief introduction to dividends in order to give the reader the necessary background knowledge before we start with the discussion of the different dividend theories.

When a company makes a profit there are mainly two alternatives in which the company can make use of the profit. The first alternative is to retain the earnings within the company in order to improve or develop something internally. The second alternative is to pay out the profit to the shareholders and if the company chooses this approach there is two alternatives ways in which the company can distribute the profits to the shareholders. The company can either pay dividends or they can buy back their outstanding stocks (Brealey et.al (2008, p.443). This thesis will deal with dividends which are payments made by a company to its shareholders. But the payments can take

different forms and the two most common forms of dividends are cash and stock dividends (Keown et.al 2007, p.417). When speaking in terms of dividend most people refer to cash dividends which as the name suggests are cash payments to the shareholders. However dividends are not always paid in cash and another form of payments to shareholders are stock dividends. A stock dividend is relatively similar to a stock split because the number of outstanding shares is increasing but the company's assets remain the same (Keown et.al 2007, p.426). Consequently, a stock split is just slicing a pizza and it does not matter how many pieces the pizza is cut into because the total size is still the same. In this thesis we will solely focus on cash dividends and all other forms of dividends are excluded from the research.

A company's dividend policy is usually decided upon by a company's board but there are some exceptions to this rule which is important to mention. In some countries such as Chile and Brazil companies are forced to pay a minimum portion of their earnings to the shareholders by law (Brealey et.al 2008, p.444). Another exception is that the lenders (bondholders) may impose covenants in the bond contract which states that a company is obligated to pay the lenders (bondholders) before increasing the dividend payments (DeFond & Jiambalvo, 1994).

Apart from the exceptions discussed in the section above, a company's dividend is usually decided upon by the board of directors at the declaration date (Brealey et.al 2008, p.442). A couple of days after the declaration date the stocks transfer books are closed at the record date and the investors who own stocks at this date will receive dividends. But a problem with the record date is that if a trade is made one day before the record date, time will not allow the trade to be revealed on the stockholder list and the new shareholder will not receive dividends. Therefore, brokerage firms have changed the right of ownership until two days before the date of record and this date are called the ex-dividend date and all investors who buy shares after the ex-dividend date will not receive dividends (Keown et.al 2007, p.426).

# 3.3 Modigliani-Miller Dividend Irrelevance Theory

In 1961, Franco Modigliani and Merton Miller presented one of the most influential dividend theories and even though it was generated for more than 50 years ago it is still seen as one of the most respected theories. When the theory was presented in the article "Dividend policy, growth and the valuation of shares" it provided a new benchmark and changed the view that both practitioners and academics had towards dividends. Before the publication of Modigliani-Miller's dividend irrelevance theory the general view was that dividends were highly correlated to the value of the stock (Baker. 2009, p.98).

As the name of the theory suggests, it states that under perfect capital markets the dividend policy is independent to the value of firm and it does not matter whether the company have high or low dividend payouts. Modigliani and Miller (1961, p.412) use three criteria in order to define a perfect capital market:

(i) Perfect capital market - no single actor on the market is large enough to affect the market price of a security and everyone has access to the same costless information, i.e. no actor has an information advantage. Another important assumption is that there are no transaction costs or taxes and all actors can therefore operate on the market under the same conditions.

- (ii) Rational behavior – it simply states that all actors on the market prefer more wealth to less. It also assumes that it does not matter whether the actors receive the increase in wealth in the form of capital gains from the stocks or dividend payments.
- (iii) Perfect certainty - all actors on the market have the same information and know the return of every security in the future. Therefore it is possible to make the assumption that there only exists one type of security which Modigliani and Miller refer to as stocks.

In respect to the assumptions discussed above, the dividend payments become irrelevant for the shareholders. Because in order to pay dividends, the company has to issue new shares in order to raise the needed capital. As the new stocks are issued, the price of the stocks will drop in equal proportions to the dividend payments and the decrease in stock price and the dividend payments will cancel each other out (Modigliani & Miller p.414). For example if the company pays a dividend of 10 SEK the shareholders receive 10 SEK for each of the shares owned. But at the same time the stock price will decrease 10 SEK since more shares are issued in order to raise capital, the shareholders are therefore equally well off no matter the dividend payments.

Modigliani and Miller also argue that the shareholders are able to construct their own homemade dividends. For example, if the company does not pay dividends but the shareholder prefers 2 percent dividend he can sell 2 percent of his stocks and thus create a homemade dividend. The opposite is of course also true, if the company pays a higher dividend than the shareholder prefers he can use the surplus dividends to buy additional stocks (Brigham & Houston 2011, p.484). These two arguments discussed above are the underlying assumption of the irrelevance hypothesis and according to these arguments shareholders should be indifferent between capital gains and dividends. This in turn contributes to that the shareholders are unwilling to pay a higher price for dividend paying stocks which in turns make the question of dividends irrelevant.

In order to explain the irrelevance of dividends, Modigliani and Miller (1961, p.414) use a number of formulas in order to conclude that the firm value at time t is equal to:

$$v(t) = \frac{1}{1 + p(t)} [X(t) - I(t) + V(t+1)]$$

V(t) = Value at time t

P(t) = Stock price at time t

X(t) = Total net profit at time t

I(t) = Investments or increase of physical holding at time t

Since dividends do not appear directly among the arguments in the formula and all arguments are independent to dividends it indicates that the value of the firm is independent of the dividend policies. In the formula above it can be seen that the only factors that affect the firms' value are the stock price, the total net profit, the investments and the value of the firm in the future which today is known, given the perfect market assumptions. Modigliani and Miller's main argument in favor of the dividend irrelevance theory states that under a perfect market environment there are no kinds of financial illusions and only "real" factors can affect the value of the firm. With real factors Modigliani and Miller refer to the earning power of the firm's assets,

investments policy and the company's business risk (Modigliani & Miller p.414). Consequently, the chosen dividend payout policy does not affect either the current value of a company's stock or the shareholders total return.

The discussions above show, that under perfect capital market the company's dividend payout policies do not affect the value of a company. A lot of research has been conducted in order to test the validity of Modigliani and Miller's propositions and the propositions have both been supported and rejected by various academics. Black and Scholes (1974) supported the results of Modigliani and Miller and stated that companies are able to adjust dividend payments in accordance with the preferences of tax-induced investors and for this reason there are no relationship between dividends and stock returns. Another prominent research made by Miller and Scholes (1978) also supports the propositions in the dividend irrelevance theory and they state that even though the tax rate for dividends and capital gains are different under the US tax system the dividends do not affect the value of the company.

In the research we are going to test the relationship between a number of factors and the firm's dividend payout ratio and one of the factors is the company's profit. We are going to test if there is a significant relationship between a firm's profit (ROE) and the dividend payout ratio. If there is a strong relationship between the dividend payments and profit it is possible to conclude that dividends may contribute to a higher profit. Since Modigliani and Miller state that dividend does not have an impact on profits we think that it is necessary to test the relationship. Even though we disregard that capital markets are perfect which is an important assumption we still think that it is important to test the theory on the Swedish market.

# 3.4 The "Bird in Hand" Theory

The opposing view towards Modigliani and Miller's dividend irrelevance theory is that dividends affect the company's value and this assumption is represented by the so called "bird in hand theory". The theory was first mentioned by Lintner in 1956 and it has been supported by various researchers including Gordon (1959) (1962). Since it is one of the most famous and respected dividend theories, we think that it is of major importance to include it in the research and even though it was generated for more than 50 years ago it still provides a benchmark for modern dividend research.

The name "bird in hand" is the umbrella term for all studies that argues that dividends are positively correlated to the company's value. It is based on the expression that "a bird in the hand is worth more than two in the bush". Expressed in financial terms the theory says that investors are more willing to invest in stocks that pay current dividend rather than to invest in stocks that retain earnings and pay dividends in the future. This is due to the high degree of uncertainty related to capital gains and dividends paid in the future. Current dividends are more predictable than capital gains, since the stock price is determined by market forces and not by the managers it has a higher degree of uncertainty (Keown et.al 2007, p.418).

Gordon's (1962) dividend model is based on the following assumptions

The company is all equity financed and no external financing is used. The (i) company finances all investment with retained earnings.

Internal rate of return, cost of capital and the retention ratio is constant. (ii)

#### (iii) The company has an eternal life.

The underlying assumptions of Gordon's model is based on the idea of what is available today compared to what may be available in the future (Khan & Jain, 2008, p.30.16). It is based on the logic that the more distant the future is, the higher the uncertainty regarding capital gains and future dividends. Even though the capital gains in the future may provide a higher return than the current dividends, there is no guarantee that the investor will accumulate a higher return due to the high degree of uncertainty (Gordon 1962). Since the length of the time and the level of risk are correlated, investors are unwilling to invest in companies where the time until the dividend payments are far away. An investor would therefore be willing to pay a higher price for firms that pay current dividends. For companies who do not pay current dividends, the investor would use a higher discount rate in order to discount the earnings and the value of these companies should therefore be lower than the companies who pay current dividends (Khan & Jain, 2008, p.30.16). This is illustrated in figure 3.1 which indicates that the discount rate becomes higher as the earnings retained in the company increases. The opposite is of course also true, companies who pay current dividends have a lower level of retained earnings which contributes to lower discount rate which in turn contributes to a higher value of the firm.

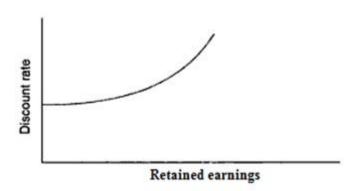


Figure 3.1: Relation between Discount rate and Retained earnings

Lintner's (1956) main arguments towards the bird in hand theory is based on that most companies are conservative in their financing policy and the dividend payments are therefore based on an optimal payout ratio. The principal factor that contributes to deviations from the optimal payout ratio is due changes in the company's profit, and if the profit increases the dividend payout should increase in the same proportions (Myers & Bacon, 2004). But uncertainty regarding future profits also has an impact on the company's dividends. If the estimated risk in the future is higher than the current risk, the company may decrease the dividend payout ratio in order to hedge to decreasing future profits (Friend & Puckett, 1964).

The bird in hand theory has been subject to a large amount of criticism and opponents to the theory states that it excludes important factors. Keown et.al (2007) argues against the theory and says that increases in current dividends do not decrease the riskiness of the company, it does in fact work in the opposite direction. Because if an increase in

dividend payments are made the managers have to issue new stocks in order to raise the needed capital. Therefore a dividend payment just transfers the risk from the old to the new shareholders. But even though the theory contains some limitation Keown et.al (2007 p.423) argues that there are still many individual investors and financial institutions who consider that dividends are important and it is therefore of importance to include the theory even though it has some limitations.

As we stated in the section above, the bird in hand theory is the opposing view towards Modigliani and Miller's dividend irrelevance theory and it says among other things that companies with higher profits pay higher dividends to its shareholders. Since this view is the opposite view compared to Modigliani and Miller's we think that it would be interesting to test whether companies with a higher profit pay higher dividends to its shareholders. Later in the research we are going to test the correlation between various company selected factors and the dividend payout ratio. Since profit is one of the factors that are going to be tested we will investigate whether Modigliani and Miller's dividend irrelevance theory or the bird in hand theory is best suitable for the Swedish market.

# 3.5 Signaling Theory

The signaling theory of dividends has its origins in Lintner's (1956) studies who revealed that the price of a company's stocks usually changes when the dividend payments changes. Even though Modigliani and Miller (1961 p.430) argued in favor of the dividend irrelevance they also stated that in the real world disregarding the perfect capital markets, dividend provides a "information content" which may affect the market price of the stock. Many researchers have thereafter been developing the signaling theory and today it is seen as one of the most influential dividend theories.

Bhattacharya (1979) presented one of the most acknowledged studies regarding signaling theories which states that dividends may function as a signal of expected future cash flows. An increase in the dividends indicates that the managers expect higher cash flows in the future. The research is based on the assumptions that outside investors have imperfect information regarding the company's future cash flows and capital gains. Another important assumption is that dividends are taxed at a higher rate compared to capital gains. Bhattacharya (1979) argues that under these circumstances even though there is a tax disadvantage for dividends, companies would choose to pay dividends in order to send positive signals to shareholders and outside investors.

Baker (2009, P. 98) states that a company's sources of information such as accounting data and future prospect reports is not completely reliable. These kinds of information do not fully represent a company's profitable business opportunities in the future. Given that outside investors have imperfect information regarding the firm's profit opportunities, the company has to find other ways in order to convince outside investors about future cash flows and profits. Therefore favorable signals such as increasing dividends provide a positive sign to outside investors. Although dividends have a higher tax rate compared to capital gains, investors are willing to pay a higher tax rate for dividends in exchange for the positive signal dividends send regarding that the value of the stocks. But in our research we have chosen to exclude all consideration regarding taxes. As a result of the signaling capability, dividends may be able to transform inefficient markets to perfect markets with full information efficiency.

The signaling hypothesis was further developed by Miller and Rock (1985) who stated that there is a high degree of information asymmetry between managers and outside investors. They further state that almost any company is able to pay small dividends to its shareholders regardless of whether its future outlooks are positive or negative. Consequently, if the dividend payments should be seen as a signal for profitable future business opportunities the dividend has to be large enough so that only companies with profitable future prospects can afford to pay it. Otherwise, companies with poor future prospects would just copy the signals and pay the same amount of dividends in order to send false signals to investors.

A lot of research has been conducted in order to test if the signaling theory applies in the real world and there exist different opinions regarding the applicability of the signaling theory. Asquith and Mullins (1983) provided empirical evidence in favor of the signaling theory. They argue that an increase of dividend payments tends to increase the shareholders wealth. Asquith and Mullins also states that dividends contain information which is not available in other sources of information such as accounting data. But the signaling theory cannot be seen as applicable in all situations and a lot of researchers have found various drawbacks with the theory. For example, Pettit (1972) and Black (1976) states that the informational role of dividends are exaggerated and there exist less expensive way to signal the same information to shareholders.

As we mentioned above, Bhattacharya (1979) stated that increases in dividend payments can be seen as a signal of higher cash flows in the future. In this research, we are going to test the relationship between companies' dividend payout ratio and various factors and one is the growth. Therefore we are going to investigate whether dividends provide a signal of higher growth. Since there is no unified picture whether dividends and growth are related to each other, we think that it would be interesting to investigate the relationship on the Swedish market.

# 3.6 Agency Theory

The agency theory is one of the most respected dividend theories and it has been extensively debated among various scholars. One of the most influential studies regarding agency costs was presented by Jensen and Meckling (1976). The study provided a new view of the agency problem and most studies concerning agency costs use Jensen and Meckling's research as a benchmark. They define the agency cost as a cost that arises between the principals (stockholders) and the agents (management). Where the principals hire and delegate the agents with a certain power to maximize the wealth of the principals. They further state that only stocks and bonds can be used as claims towards the company. Hence, only shareholders and creditors can be seen as principals. Jensen and Meckling presented a prominent research regarding agency costs and they provided a clear definition of what the agency cost is. But they did not provide a thorough corroboration regarding the effect of agency cost on dividend policies and many scholars have been trying to develop the theory.

Easterbrook (1984) presented another study regarding agency costs and his result supports the findings made by Rozeff (1982) and Jensen (1976). Easterbrook conducted an investigation of whether dividend payments can be used in order to minimize the agency costs between managers and investors. Easterbrook states that two factors affect the agency costs in a company, monitoring costs and the risk aversion preferences of managers. The monitoring cost refers to the costs incurred by the shareholders in order

to supervise the managers and prevent them from following their own personal agendas instead of maximizing the value of the shareholders equity. The second source of agency costs is the risk aversion preferences of managers. The problem arises because most shareholders have diversified portfolios and they are therefore only interested in systematic risk which cannot be eliminated through diversification. In contrast to shareholders, managers usually have a large amount of their personal wealth connected to the company. Therefore if the company is unprofitable or even goes bankrupt, the managers' personal wealth becomes heavily affected. The managers will as a result be more risk averse compared to the shareholders and they may reject potential high value project due to their risk aversion preferences.

According to Easterbrook (1984) these two sources of agency cost can be reduced by paying dividends to shareholders. However, Easterbrook further states that dividends are worthless in themselves and companies should therefore only pay dividends in order to reduce agency conflicts. Dividends should according to Easterbrook (1984) be affected by unexpected changes in profits and we have therefore incorporated profits among the company selected factors that we are going to use in the research.

Another theory that explains the agency cost is the free cash flow theory by Jensen (1986). Jensen argues that the agency costs arise as the free cash flow increases. Because the shareholders have to increase the supervision in order to prevent the managers from engaging in excessive spending or unprofitable investments, such as empire building. This can be explained by the positive correlation between the size of the company and the enumeration plan of management (Murphy, 1985). In order to prevent these kinds of conflicts between managers and shareholders, Jensen argues that the companies should pay excessive free cash flow as dividends to shareholders. Otherwise the managers may follow their own personal agenda instead of maximizing the wealth of the shareholders. In our research we are going to test the correlation between the free cash flow and the company's dividend payout ratio in order to determine whether Jensen's theory is applicable on the Swedish market.

# 3.7 Dividend Payout Ratio vs. Dividend Yield

We are going to conduct a study concerning dividends and it is therefore of major importance that we use the most relevant measure of dividend in order to get an accurate result. The two most common measures of dividends are the dividend payout ratio and the dividend yield. Both these methods provide reliable measurements, but they measures dividend payments in different ways. The dividend payout ratio is defined as the percentage of the company's earnings that is distributed to shareholders. As can be seen in the formula below, it only takes internal factors into considerations and the measurement is therefore independent to external factors (Penman, 2009 p.264).

$$Dividend payout ratio = \frac{Dividends per share}{Earnings per share}$$

In contrast to the dividend payout ratio, the dividend yield is influenced by external factors since it takes the stock price into consideration (Warren et.al 2011 p.685)

$$\label{eq:decomposition} \textit{Dividend yield} = \frac{\textit{Dividends per share}}{\textit{Stock price}}$$

Many scholars have discussed the differences between these two measurements and both have advantages and drawbacks which may affect the results of the study (Fama & French 1988) (Lamont 1998) (Friend & Puckett 1964) (McManus et al 2004). Even though dividend payout ratio and dividend yield share the same numerator in their formulas they take different aspects into consideration. Previous studies have revealed that dividend yield and dividend payout ratio are extremely different and it is therefore important to choose the most relevant measurement since it will have a major impact on the result. In particular McManus et.al (2004) emphasizes the significance of dividend payout ratio over the dividend yield, due to the influence of the former in explaining the returns over the latter. Moreover McManus et.al have pin-pointed, that the signaling effect of dividend payout ratios is more informative compared to dividend yields since it only contains internal company factors (McManus et.al, 2004).

Fama & French (1988) have on the contrary revealed that the dividend yield has an ability to predict the stock returns and it therefore provide more information compared to the dividend payout ratio, (Fama & French, 1988). In addition, the dividend yield changes as the stock price changes and the measurement is therefore out of the company's control since it takes market factors into consideration (Steven & Jose, 1992). It is difficult to say which of the two measurements that is best since they explain difference aspects of dividends. Which measurement to choose depends therefore on the purpose of the research and the company selected factors included in the research. If we solely would have included internal or external company selected factors it would be easy to justify the measurement of dividends. But in order to include the most relevant measurements, we had to include both internal and external measurements. Totally we have chosen to include four internal factors and two external which are affected by the stock price.

Based on the company selected factors and the differences between the two measurements we have chosen to use the dividend payout ratio in the research. The majority of the previous studies have also used the dividend payout ratio (Rozeff 1982) (Lloyd 1985) (Amidu & Abor 2006).

## 3.8 Summary of Theoretical Framework

The four theories discussed above provide different views towards the company's dividend policy. In this section, we will provide a brief summary of most important factors of the each of the theories discussed.

## Modigliani and Miller's Dividend Irrelevance Theory

- The company's dividend payout policy is irrelevant under perfect capital markets.
- There are no kinds of financial illusions and only "real" factors affect the value of the firm.
- Investors are able to construct homemade dividends and are therefore not willing to pay additional capital for dividend paying stocks.

## The "Bird in hand" Theory

- Dividend payments affect the value of the firm and investors are willing to pay a premium price for stocks that pay dividends.
- A higher degree of uncertainty is connected to capital gains and dividends paid in the future compared to current capital gains and dividends.
- Investors use a higher discount rate in order to discount earnings for companies who not pay current dividends.

## The Signaling Theory

- Outside investors have imperfect information regarding the firms profit opportunities.
- Dividends function as a signal of expected future cash flows and increasing dividend payments indicates higher cash flows in the future.
- If the dividend payments should be seen as a signal, the payments have to be large enough so that only profitable firms can afford to pay.

#### The Agency Theory

- Two major factors affect the agency costs, monitoring costs and the managers risk aversion preferences.
- Agency costs can be reduced by paying dividend to shareholders.
- The agency costs increase as the free cash flow increases and managers therefore have to pay excessive free cash flows as dividends.

#### 3.9 Previous Studies

In the section below, a sample of previous studies regarding the relationship between a number of company factors and dividend payments are presented. Most of the previous studies regarding determinants of firms dividend polices have been conducted in the United States. But we also wanted to include studies from other countries in the sample in order to capture studies from different economical environments. For example, we included studies from Ghana, India and GCC countries since it would be interesting to see whether these countries have some similar features to the Swedish market. Since the study focus on Swedish companies, we tried to include Swedish studies but we only managed to find one relevant study from the Swedish market. Another important criterion in the selection process was to include studies from different time periods in order to rule out cyclical behavior. Table 3.1 provides an overview of the selected studies.

Authors	Country	Positive Relationship	Negative Relationship
Rozeff (1982)	USA	Number of SH,	Risk (Beta), Insider ownership, Growth
Lloyd et.al (1985)	USA	Size (log of sales)	Risk (beta), Insider ownership, Growth
Holder et.al (1998)	USA	FCF, Size (log of sales)	Insider ownership, Growth, Risk( Std of return)
Gill et.al, (2006)	USA	Prof (EBIT/Total assets), tax	Growth
Amidu & Abor (2006)	Ghana	Prof(EBIT/Tot Assets), CF, tax	Risk (Var in CF), M/B value, Growth, Insider ownership
Hedensted & Raaballe (2006)	Denmark	Retained Earnings, ROE, Size	-
Anil & Kapoor (2008)	India	Profit (EBIT/total assets), CF, tax	Growth, M/B value,
Daunfeldt et.al (2009)	Sweden	Earnings, CF, Size (log of employment), Tax	M/B value,
Al-Kuwari (2009)	GCC Countries	Gov ownership, Size, Profit (ROE)	Leverage (D/E)
Al Shabibi & Ramesh (2011)	United Kingdom	Size, Profit, Risk	

**Table 3.1:** Overview of selected studies

Rozeff (1982) conducted a study regarding the determinants of dividends in the United States and the sample consisted of 1000 US companies from 64 different industries. The sample was collected from value line investment survey of June, 5 1981. Rozeff tested the correlation between the dividend payout ratio and a number of company factors. The study reveals that there is a positive relationship between the number of shareholders and the dividend payout ratio. Rozeff argues that companies with a larger amount of external shareholders have to pay higher dividends in order to reduce the agency conflict. The results also indicate that there is a negative relationship between dividends payout ratios and risk, insider ownership and growth (in revenue). The negative relationship between dividends and insider ownership is also related to the agency conflict, since a large part of the share is held by insiders the company does not have to pay high dividends. Rozeff (1982 p.257) also states that future growth opportunities have a greater impact on the dividends than past realized growth.

Lloyd et.al (1985) presented another research regarding the relationship between the dividend payout ratio and the company's selected factors. Lloyd's research is based on the study made by Rozeff (1982) and he wanted to test if Rozeff's results were applicable during another time period. Lloyd added size as one additional variable to the tested factors. Lloyd et.al (1985 p.21) argues that large companies tend to have a better access to capital markets, which makes them less dependent on internally generated funds which in turn contributes to that they are able to pay higher dividends. This argument is supported by empirical data and it shows a positive relationship between a firms dividend payments and the size of the company. Apart from size, Lloyd's research

found the same results as Rozeff and dividend payments are negatively correlated to risk, insider ownership and growth (in revenue). Lloyd et.al states that risk is negatively correlated to dividend payments since riskier companies face higher uncertainty and therefore chose to retain earnings instead of paying dividends to shareholders.

Holder et.al (1998) presented a study regarding the determinants of dividend policies in United States. The sample consisted of 477 US companies and the time period for the data collection was 1983-1990. The results of the study indicate that there is a positive relationship between dividend payout ratio and size (log of sales) and the free cash flow. Holder et.al states that large companies have easier access to capital markets and should therefore be able to pay higher dividends compared to small firms. Companies with high free cash flow also tend to pay higher dividends and the authors' states that this supports the agency theory, companies with larger free cash flow have to pay higher dividends in order to reduce the agency conflict. A negative relationship was discovered between dividends and risk (standard deviation of returns), internal ownership and growth (in sales).

Gill et.al (2006) conducted a study in the United States. They argue that it is beneficial for companies to pay dividends due to a number of reasons; dividends indicate financial wellbeing, attractive for investors and dividends help to maintain the market price of the stock. The sample consisted of 266 randomly selected public companies from different industries in United States. The company selected factors in the study are: profit (EBIT/Total assets), cash flow, tax (corporate profit/net profit), growth, market to book value and debt to equity ratio. There was a positive relationship between dividends and profit and tax and negative relationship between dividends and growth. However, Gill et.al (2006) argues that the impact of the profit is industry specific and varies a lot depending in which industry the company is located. No significant relationship between dividend payments and cash flow, market to book value and debt to equity ratio could be established. This is contrary to previous research which has found a rather strong relationship between cash flow and dividends.

Amidu and Abor (2006) investigated the relationship between a number of company selected factors and the dividend payout ratio in Ghana. The sample consists of companies that have been listed on Ghana stock exchange during 1998-2003 and even though the sample just consists of 20 companies, they represent 76 percent of all listed firms in Ghana during the time period. The factors included in the research are profit (EBIT/total assets), risk (variability in profit), cash flow, tax (corporate profit/net profit), institutional holding, growth (in sales) and market to book value. Amidu and Abor (2006) found a positive correlation between the companies' dividend payout ratios and profitability and cash flow. A positive correlation was also established between dividends and taxes. The authors state that the result came as a surprise and it contradict existing literature. A negative correlation between dividends and growth (in sales) and market to book value was revealed. There also existed a negative but insignificant relationship between the dividend payout ratio and risk and institutional holdings.

Hedensted and Raaballe (2006) conducted a study in Denmark regarding the determinants of dividends. The sample consists of 365 companies that were listed on Copenhagen stock exchange during 1988-2004. The variables used in the research in order to reveal the relationship with dividends are: earnings, return on equity, market to book value, leverage (debt/equity) and size. Hedensted and Raaballe used dividend yield instead of dividend payout ratio as a measurement of the dividend payments. But they did not use the regular dividend yield since it is heavily influenced by the stock price and is therefore not a good measurement. Instead they used dividend yield with equity measured in fixed market prices. The authors found a positive relationship between the dividend yield and retained earnings, return on equity and size. There existed no significant relationship between dividend yield and market to book value and the firms leverage (debt/equity). As a conclusion, the authors state that the results of the study support both the agency and the signaling theories of dividends.

Anil and Kapoor (2008) conducted a study among Indian IT-companies and the data was collected during the period 2000-2006. The authors used five company factors in order to test the relationship with the company's dividend payout ratio. The authors state that there is a positive but insignificant relationship between the dividend payout ratios and the companies' profit (EBIT/total assets) and taxes. The results indicate that profit is not of major importance when an IT-company decides to pay dividends. However the results indicate that there is a strong relationship between cash flow and dividend payments. Anil and Kapoor states that a good liquidity position is an important factor which influences companies' dividend payout ratios. Companies with stable and high cash flows are more likely to pay dividends compared to companies who have low or unstable cash flows. The author also found an insignificant negative correlation between dividends and growth and market to book value.

Daunfeldt et.al (2009) conducted the only relevant Swedish study that we were able to find. The main focus of the study is towards the taxation of Swedish companies' dividend payments, but it also deals with the determinants of dividends and investigates the relationship between a number of company selected factors and the dividend yield. Even though the study was presented in 2009 it is based on data collected during 1991-1995 from Stockholm stock exchange and it is therefore not up to date, but we still think that it is important to include a study from Sweden. A fairly strong positive relationship was established between dividends and size (logarithm of employees) and the authors' state that this is due to the higher agency costs connected to larger companies. A positive but insignificant relationship was established between dividends and cash flows and earnings. The authors explain the results by stating that profitable companies should pay higher dividends and the same applies for firms with higher liquidity (cash flow). However, a negative relationship was established between the market to book value and the dividend yield. Daunfeldt et.al (2009) states that the negative relationship can be explained by the fact that firms with growth opportunities pay low dividends in order to exploit their growth opportunities. But the authors further argue that this is against the signaling theory since companies with higher growth opportunities should pay higher dividends in order to inform shareholders about the growth prospects.

Al-Kuwari (2009) conducted a research among companies listed on Gulf-cooperation council stock exchanges (GCC), which includes six countries at the Arabian Peninsula. The sample consists of 191 non-financial companies and data from the period 1999-2003 was collected. A strong relationship between the companies' dividend payout ratios and government ownership, size and profit existed. Al-Kuwari (2009) explains the positive relation between government ownership and dividends by stating that a high degree government ownership makes it easier for a company to attract external funds. With the external funds the company may pay additional dividends or make additional investments in profitable projects. Al-Kuwari (2009) also states that larger firms pay additional dividends in order to reduce agency costs due to the dispersion of the ownership. A strong negative relationship could be established between the

companies leverage (debt/equity) and dividend payout ratio. Al-Kuwari (2009) explains the result by stating that companies with higher leverage face higher transaction costs connected to external financing. But no significant relationship between dividend payout ratios and companies free cash flows, growth and risk (beta) was revealed.

Al Shabibi and Ramesh (2011) presented a study regarding determinants of dividends in United Kingdom. The sample consisted of 102 non-financial companies listed on the stock exchange in United Kingdom in 2007. Al Shabibi and Ramesh used a large number of company selected factors in order to determine the relationship with the dividend payments. The result revealed no significant relationship between dividends and growth, industrial type, tangibility and gearing ratio. However a fairly strong relationship was established between the companies' dividends and profit, size and risk. The authors explain the positive relationship with risk by referring to the signaling theory. They state that riskier firms may want to signal stability and therefore chose to pay dividends to shareholders.

# 3.10 Company Selected Factors

In the section below we will discuss the six company selected factors that we are going to use in order to determine the relationship with the dividend payout ratio.

#### 3.10.1 Free Cash Flow

A lot of research has been conducted in order to test the relationship between the company's cash position and the dividend payout ratio. Both cash flow and free cash flow are frequently used in these types of studies and there exist different opinions regarding which of the two measurements to apply. On the one side, there are academics that have used cash flow as a measurement when determining the relationship with dividend payments. Among these are Amidu & Abor (2006), Gill, et.al, (2006) and Anil & Kapoor (2008). They state that cash flow is a major determinant of the firm's dividend payout policy and should therefore be included. On the other side, there are academics that have used the free cash flow in order to measure the cash position of the company (Holder et.al 1998) (Al-Kuwari 2009). The difference between the two measurements is that the free cash flow is the excess cash flow over what is required to fund all projects (Jensen 1986 p.323). In this study, free cash flow will be used since it reveals the amount of cash that is available for shareholders and creditors after all expenses has been paid.

Previous studies have concluded that free cash flow is positively related to a company's dividend payout ratio and this can be explained by the agency theory of free cash flow. Jensen (1896) argued that companies with high free cash flows have to pay higher dividends in order to reduce the agency conflict between managers and shareholders. Otherwise the managers may follow their own personal agenda and maximize their personal wealth or investing in negative net present value investments instead of maximizing the wealth of the shareholders.

#### **3.10.2 Growth**

Another frequently used variable among previous studies is the growth rate of the company. Several studies have concluded that there exist a negative relationship between the growth rate of the company and the dividend payout ratio (Rozeff 1982) (Lloyd et.al 1985) (Holder et.al 1998). The majority of the previous studies have used growth in sales in order to measure the growth rate. In this research we are going to

follow the same approach and we will use the growth in sales in order to measure the growth rate of the company. Although the majority of the studies have used sales to measure growth, they have used the data in different ways. Some studies have used growth opportunities in order to measure growth and they have therefore predicted the future growth in sales (Rozeff 1982). But the drawback with this approach is that it is based on estimations and it cannot be regarded as completely accurate. Daunfeldt et.al (2009) used the market to book value in order to measure the growth opportunities and they state that a higher market to book value indicates better growth opportunities in the future. Other studies have used the growth of sales from the previous year (Gill et.al, 2006) (Collins et.al 1996). This research will follow the same approach as Gill et.al, (2006) and we will use the previous year's growth rate of sales when investigating the relationship with the dividend payout ratio.

The most commonly used explanation for the negative relationship between the dividend payout ratio and growth is that growing companies have to finance parts of the increased investments by retained earnings. In order to keep the same dividend payout levels as before the company have to increase their external financing. But since this alternative way of financing usually is relatively expensive companies, choose to decrease their dividend payouts (Rozeff 1982) (Lloyd et.al 1985). The opposite is also true, companies with lower growth rates have usually lower investment expenditures which contribute to a higher level of retained earnings. These companies should according to the agency theory pay higher dividends in order to reduce the agency costs between shareholders and managers. Otherwise the managers may undertake unprofitable investments and be engaged in excessive spending (Jensen 1986).

#### 3.10.3 Leverage

The financial leverage corresponds to the level of debt relative to the level of equity in the company's balance sheet. Even though leverage is one of the key indicators of a company's financial health it is not a commonly used factor in order to test the relationship with the dividend payout ratio. However, we think that leverage is an important factor. Previous studies that have included leverage have not provided a uniform picture of whether leverage has an impact on the company's dividend payouts. Al Shabibi & Ramesh (2011) conducted an investigation in United Kingdom and they found no significant relationship between the leverage and the companies dividend payouts. This is contrary to the study made by Al-Kuwari (2009) who found a strong negative correlation between leverage and the dividend payout ratio. Since there is no unified picture regarding the impact of leverage on the company's dividend payouts, we think that it is of major importance to test the relationship on the Swedish market.

In order to measure a company's leverage there are a wide range of formulas that can be used. One commonly used measurement is the debt ratio which is the expressed total debt/total assets. Debt ratio reflects the broader picture of company's liabilities; however it is not straight forward about the proportion of debt to equity (Jones 1979) (Aivazian et.al 2006). We therefore think that the debt to equity ratio is more appropriate for our study. According to Werner and Jones (2003, pp. 480) debt to equity ratio indicates in which proportions the company is financed by creditors relative to shareholders. Therefore, in this study we have decided to use the debt to equity ratio as a measurement of leverage.

#### **3.10.4 Profit**

Profit is the single most important factor in a company's financial statement and it has been widely used in previous studies in order to determine the relationship with the company's dividend payout ratio (Amidu & Abor 2006) (Hedensted & Raaballe 2006) (Anil & Kapoor 2008). Most previous studies have found a positive relationship between profit and the company's dividend payouts. But many different measurements have been used in order to measure profit. Gill et.al, (2006) and Amidu & Abor (2006) used EBIT/Total assets as a measurement of profit. Another method used in previous research in order to measure profit is the return on equity (ROE) (Al-Kuwari 2009). Al-Kuwari (2009) states that ROE is one of the best measurements of the company's profit since it reveal the capacity of generating cash internally.

One disadvantage with EBIT/Total assets is that the measurement varies heavily between different industries. For example, in industries where large investments in property, plant and equipment is needed, EBIT/total assets are usually low. The opposite is also true, in industries with low investments in property, plant and equipment, the EBIT/Total assets is usually high. ROE do also vary somewhat between industries but not to the same extent as EBIT/total assets. But another major disadvantage with ROE is that it depends on the percentage of debt and equity that is used to finance the business (Hettinger 2011 p.156). Therefore, companies who finance the majority of its business with debt will have a higher ROE and conservative companies who rely on internally generated funds will have a lower ROE. Even though we are aware of its drawbacks we have chosen to use ROE in order to measure the company's profit since it is the most relevant measurement in our case.

#### 3.10.5 Risk

A lot of studies have been conducted in order to determine the relationship between the riskiness of companies and the dividend payout ratio. But the variables used in order to measure the risk have been different. Holder et.al (1998) used the standard deviation of the return in order to measure the riskiness of the stock. Another frequently used method among previous studies is to measure risk by using variance in cash flow (Amidu & Abor 2006). However, these two methods are not optimal in our case since we are interested in the riskiness of the stock compared to the market as a whole. The two measurements discussed above only takes internal factors into consideration but disregard external factors such as the stock price. Therefore we had to use a measurement that included the external environment as well and not just internal factors. Some previous studies have used beta as a measurement of the company's market risk (Rozeff 1982)(Lloyd et.al (1985)(Al-Kuwari 2009). Since beta describes the relationship between the stock return and a markets index it is the most appropriate measurement of risk in for our research.

Many previous studies have revealed that there exists a strong negative relationship between the level of riskiness and dividend payout ratio (Rozeff 1982)(Lloyd et.al 1985). Previous studies have concluded that riskier firms have higher volatility in their cash flows which makes it more difficult to plan for future investments. This in turn contributes to that the need for external financing increases. But according to the pecking order theory, external financing is more expensive and companies therefore choose to decrease their dividend payouts in order to avoid more expensive external financing (Rozeff 1982)(Al-Kuwari 2009)(Al-Shubiri 2011). Even though the majority of the studies have concluded that risk is one of the most important factors, no research

has been conducted in Sweden. We therefore think that it is of importance to include risk as one of the company factors.

#### 3.10.6 Size

The size of the company has been one of the most commonly used factors in previous studies. Various researchers have argued that the size of the company is one of the factors that have the largest influence on the dividend payout ratio (Lloyd et.al 1985) (Holder et.al 1998) (Hedensted & Raaballe 2006). But even though the majority of the previous studies have concluded that size is an important factor, the measurements of size have varied between studies. Lloyd et.al (1985) and Holder et.al (1998) used the natural logarithm of sales as a measurement of the size while Daunfeldt et.al (2009) used the logarithm of the number of employees in order to measure the size. But in our case we would like to include a measurement of size which includes the company's market value. A third common measurement used in order to measure size is the market capitalization which was used by Al-Kuwari (2009). The market capitalization incorporates the market value of the firm which is a great advantage since we want to include both external and internal factors among the measurements of companies' dividend policies. However, the market capitalization has some drawbacks since it depends on the market value of the company's stock. Therefore if the stock is over or undervalued the market capitalization will not give a correct picture of the size of the company. But practically all measurements of size have some disadvantages. For example, some previous studies have used sales as a proxy for size but some companies' e.g. banks may have billion in assets but won't generate much sales. Consequently, nearly all measurements have some drawbacks and no perfect way to measure size exists. In this research we are going to measure size by using the market capitalization even though we are aware of its potential drawbacks. According to Lloyd et.al (1985) it makes no difference whether the size is measured in terms of sales, market value of equity since the results should be approximately the same.

One of the first studies to incorporate the company size as a factor when determining the relationship with dividends was Lloyd et.al (1985). They argued that large firms have to pay higher dividends in order to reduce agency costs, because large companies usually have more diverse shareholders. Many studies have thereafter confirmed the results (Hedensted & Raaballe 2006). Other explanations to why larger companies tend to pay higher dividends have also been provided. Holder et.al (1998) state that larger firms have better access to capital markets since they usually are able to provide high collateral. This in turn makes it possible to finance the company with debt at a lower cost. Consequently, they have better access to capital markets and can therefore pay dividends more easily.

## **Chapter 4: Practical Method**

The aim of the chapter is to explain how we are going to conduct the research. The first part of the chapter will discuss the sampling process. We will thereafter discuss how we collected and processed the necessary data in order to answer our research question. An explanation of the statistical tests will also be provided followed by criticism of the practical method used in the study.

## 4.1 Sampling

As we explained in chapter one, the research focuses on stocks listed on NASDAQ OMX large and medium cap in Stockholm between 2006 and 2010. One of the criteria when deciding which stocks to include was that the stocks had to be listed on the same segment on NASDAQ OMX during the whole time period. This was not a major problem among the large cap companies, since the number of companies was relatively stable during the time period, but not constant. Some of the companies that were listed as large caps during the time period of the research are today listed as medium caps. Therefore, we had to be careful when determining which companies that were listed on the different segments.

According to Saunders et.al (2009, p.213) there are two main types of sampling techniques, probability and non-probability sampling. Probability sampling is based on the idea that all units in the populations have an equal probability of being included in the sample. The other main type of sampling is non-probability sampling which is the opposite of probability sampling. Non-probability sampling is based on the idea that the probability of each unit being included in the sample is not known before the sampling process. In this study, the stocks have to fulfill a number of preselected criteria in order to be included in the study and the probability of each stock being selected is not known. Consequently, a non-probability sampling will be used in the study. Within nonprobability sampling there are various techniques and the most suitable technique for our study is the purposive sampling (Saunders et.al, 2009 p 269). The purposive sampling allows the researchers to select observations that allow them to answer the research question in the most appropriate way. Since we have a number of criteria that the stocks have to fulfill in order to be included in the sample, the purposive sampling is the most appropriate in our case. There are different subcategories within the purposive sampling and we are going to follow the homogenous sampling approach, which as the name suggests focus on a homogenous sample (Saunders et.al, 2009 p.270). Since we exclude stocks that not manage to fulfill the stated criteria, the sample becomes rather homogenous and we are therefore following the homogenous sampling approach.

The changes between market segments were a major problem among the stocks listed on medium cap. This is partly due to the unstable financial environment during the time period which contributed to a high volatility among the stocks (Hemmingsson, 2010). We therefore had to review each of the company's annual reports and data from different financial websites in order to make sure that they had been listed on the same market segment during the whole time period. Another problem that arose was that relatively many of the stocks listed as mid caps today were introduced on NASDAQ OMX during the time period of the research. We therefore had to exclude a relatively large number of stocks since they not had been listed during the whole time period. For

example, we chose to exclude PA Resources from the list of medium caps since they were introduced on NASDAQ OMX in Stockholm in June 2006 (PA Resources, 2012).

The problems discussed above are related to the reason to why we decided to exclude small caps. The number of firms that are listed as small caps are more variable than the number of firms listed on large and medium cap. It would therefore be difficult to find the exact number of companies that were listed as small caps during the whole time period which fulfilled our requirements. If we refer to the meaning of the small cap segment, the number of firms listed during the whole period should be close to zero. The second reason why we chose to exclude small cap firms is that the amount of companies that pay dividends are lower among these companies compared to the companies listed on large and medium cap. Since the purpose of this research is to determine which factors that have the largest influence on the firm's dividend payouts it is of importance that the stocks pay dividends. Therefore we also excluded stocks listed on large and medium cap that did not pay dividends during any of the five years. For example, every large-cap stock except Lundin Petroleum, Lundin Mining and Alliance Oil paid dividends during the time period and we therefore excluded the three stocks from the sample.

Another aspect that we had to take into consideration was that many of the companies had more than one stock listed, e.g. A, and B stocks. Since the results would have not been reliable if we would have included two stocks issued by the same company we decided to use the stock with the highest turnover. This is due to that stocks with high turnover and are actively traded among investors are more likely to be priced according to its true value (James & Edmister, 1983).

Due to the reasons discussed above, the sample of stocks became smaller than we originally intended. But even though we had to eliminate many stocks from the sample that not fulfilled the requirements, we still consider that the sample and the time period is sufficient in order come up with a trustworthy result.

## 4.2 Sample and Observations

The tables below show the number of companies that were excluded from the research based on each selection criteria.

MEDIUM CAP	Excluded	Remaining
Original Sample		86
Listed less than 5 years on segment	42	44
Not Paid dividends	4	40
More than 1 stock listed	2	38
Sample Medium Cap		38

**Table 4.1**: Sample of Medium Caps

LARGE CAP	Excluded	Remaining
Original Sample		80
Listed less than 5 years on segment	7	73
Not Paid dividends	3	70
More than 1 stock listed	21	49
Sample Large Cap		49

**Table 4.2**: Sample of Large Caps

LARGE & MEDIUM CAP	Excluded	Remaining
Original Sample		166
Listed less than 5 years on segment	49	117
Not Paid dividends	7	110
More than 1 stock listed	23	87
Sample Total		87

**Table 4.3**: Sample of Large and Medium Caps

The original sample consisted of 166 stocks but after the exclusion of the stocks that did not managed to fulfill the stated criteria only 87 remained. In other words, only 52 percent of the original sample was included in the research. But there are some differences between large and medium caps. Among the stocks that were listed on medium cap, 48 percent had to be excluded since they not managed to fulfill the selection criteria. Out of the excluded medium cap stocks, 88 percent was excluded because they had not been listed on the same segment during the whole time period. There is a possibility that this criterion may have created a survivorship bias since we only included stocks that fulfilled the criteria. Because unstable and volatile stocks changes segments more frequently and they are therefore not listed on the same segment during the entire time period. Hence, unstable and volatile are excluded from the research and it can be argued that we only included stable stocks. Even though the exclusion of stocks from the sample may have created a survivorship bias towards stable stocks, we still think that the sample of medium cap stocks can be regarded as representative for the whole population. The sample can therefore be used in the research.

Relatively many large caps were also excluded from the research. 39 percent was excluded since they not managed to fulfill the stated criteria's. But the impact of the different selection criteria was different compared to medium cap. Out of the excluded large caps, 68 percent was disqualified because the company had more than one stock listed and the stock with the lowest turnover was excluded. In contrast to the medium caps, the time period criterion was not of major importance for large caps. This is due to the size of the large cap stocks and they can be regarded as more stable compared to the stocks that are listed on medium cap. Even though we excluded a number of large cap companies we do not think that it will have a significant impact on the result of the study since mostly dual class stocks were eliminated. Tables 4.4 and 4.5 show the large and medium caps included in the sample.

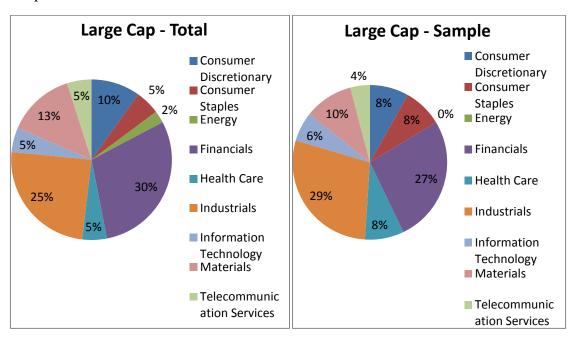
Large Cap 2006-2010						
ABB	Elekta "B"	Investor "B"	SAAB "B"	SCA "B"		
Alfa Laval	Ericsson "B"	Kinnevik, Investment "B"	Sandvik	Handelsbanken "A"		
ASSA ABLOY "B"	Fabege	Latour Investmentab"B"	SCANIA "B"	Swedbank "A"		
AstraZeneca	Getinge"B"	Lundbergföretagen "B"	Seco Tools "B"	Swedish Match		
Atlas Copco "A"	Hakon Invest	Meda"A"	Securitas "B"	Tele2 "B"		
Autoliv Inc. SDB	Hennes & Mauritz "B"	Modern Times Group "B"	SEB "A"	TeliaSonera		
Axfood	Hexagon "B"	NCC "B"	Skanska "B"	Tieto Oyj		
Boliden	Holmen "B"	Nordea Bank	SKF "B"	Trelleborg "B"		
Castellum	Hufvudstaden "A"	Oriflame Cosmetics	SSAB "A"	Volvo "B"		
Electrolux	Industrivärden "C"	Ratos "B"	Stora Enso "R"			

**Table 4.4:** List of Large Caps

Medium Cap 2006-2010					
Addtech "B"	Eniro	Indutrade	Peab "B"		
Atrium Ljungberg "B"	Fagerhult	JM	Sectra "B"		
Avanza Bank	Fast Partner	Klövern	SkiStar "B"		
Axis	Gunnebo	Kungsleden	SWECO "B"		
B&B TOOLS "B"	Haldex	Mekonomen	TradeDoubler "B"		
Beijer AB, G & L "B"	Heba Fastighets "B"	New Wave Group "B"	Wallenstam "B"		
Beijer Alma "B"	Hemtex	NIBE Industrier "B"	ÅF "B"		
Betsson "B"	HiQ International	Nobia "B"	Öresund "B"		
Bure Equity	Höganäs "B"	Nordnet "B"			
Clas Ohlson "B"	Industrial & Financial Systems "B"	Orc Group			

**Table 4.5:** List of medium caps

Another important factor to take into consideration is in which sectors the companies are located. Since there are some differences between sectors it is of importance that the sample is fairly similar to the total population regarding the proportions of stocks in each sector. Otherwise, the result may be inaccurate because of over or underrepresentation of a specific sector. This is especially important for the stocks located in the financial sector since these stocks are in some aspects different from nonfinancial companies. For example, most financial companies included in the sample have a higher level of leverage compared to the non-financial companies. But we are going to make separate tests for financial and non-financial companies since it is difficult to compare the two types of companies due to the different characteristics. The pie charts below show the allocation of sectors, both for the total population and the sample.



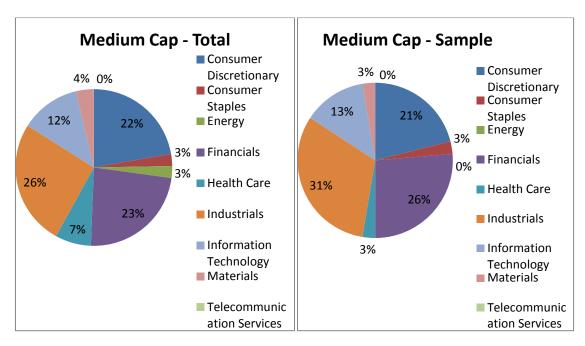


Figure 4.1: Sectorial allocation of Large and Medium Caps

As can be seen in the pie charts, the allocation of sectors in the sample is relatively similar to the total population. We therefore think that the sample is representative even though we had to exclude a relatively large amount of stocks. Neither in large nor medium cap is a specific sector over or underrepresented and we managed to capture the approximately right proportions of the sectors in each of the two segments. But there are of course some minor differences between the population and the sample, but it will not have a large impact on the result and we can therefore neglect the small difference.

The dependent variable in the research is the dividend payout ratio and we will provide an explanation of the calculation further down in the chapter. However, a problem with the dividend payout ratio is that it might indicate that a company pays negative dividends since the denominator (earnings per share) may be negative. A negative payout ratio indicates that a company paid dividend even though it recorded a loss. However in reality it is impossible to pay negative dividends to shareholders and we have therefore conducted two statistical tests, both an ordinary least square (OLS) regression and a Tobit regression. In the OLS regression, the observations including a negative dividend payout ratio will be excluded from the sample (Rozeff, 1982). But since we exclude the observations including a negative dividend payout ratio it may create a bias and affect the result of the study. We have therefore also conducted a Tobit Regression in which the negative dividend payout ratios were censored to zero (Daunfeldt et.al 2009). The most extreme outliers have also been excluded from the test but we aimed to include as many observations as possible Table 4.6 shows the excluded observations from the OLS and Tobit regression (within brackets).

	Total observations	Negative DPR	Outliers	Included Observations
Large Cap	1610	119	91	1400
	(1610)	(0)	(91)	(1519)
Medium Cap	1288	49	56	1183
_	(1288)	(0)	(56)	(1232)

**Table 4.6:** Number of excluded observations

Chapter 4: Practical Method 35

#### 4.3 Data Collection

The data collection and processing can be summarized as follow

- 1. Determine which companies that were listed on NASDAQ OMX large and medium cap during the whole time period of the study.
- 2. Collection of relevant data for each of the companies in the sample.
- 3. Manual processing of some of the data since the necessary information not was available in the company's annual report and DataStream.
- 4. Formulation of research hypotheses.
- 5. Conduct the statistical tests, separate tests for financial and non-financial companies.

In order to conduct the research we used an extensive amount quantitative data and the main source was Thomson Reuters DataStream which is a highly reliable source. But all the necessary historical data was not available in DataStream and we therefore had to use other sources as well. Another important source of information was the companies' annual reports which provided us with numbers and measurements that not were available in DataStream. We also had to process some of the data manually since some of the measurements were available neither on DataStream nor in the companies' annual reports.

We included six company selected factors in the study: free cash flow, growth, leverage, risk, size, profit. Size and profit were collected directly from DataStream but in order to make sure that the data was accurate we compared to results from DataStream with the company's annual reports. The four other company selected factors had to be processed manually since these measurements not was available either on DataStream or in the annual reports. In the section below an explanation of how the data was processed will be provided.

## 4.4 Manual Processing of Data

#### 4.4.1 Risk

In order to determine the riskiness of the stocks we used beta which describes the relationship between the return of a stock and the return of a market. But since the time period of the research is between 2006 and 2010 we had to access the historical beta for the stocks which was available neither in DataStream nor in the companies' annual reports. Therefore we had to calculate the historical beta manually for each company. When calculating the historical beta we used the formula provided by Penman (2009, P.112).

$$\beta = \frac{\text{Cov(ri, rm)}}{\text{Var(rm)}}$$

Where:

= Return on stock i ri

= Market return rm

In order to access the return on the market we chose to use OMX Stockholm PI as the market index since it represents all stocks on large, medium and small cap that are traded on NASDAQ OMX in Stockholm. It can therefore be seen as a good benchmark index when calculating the historical betas, because we want to compare the return between a specific stock and the total return of all stocks listed on NASDAQ OMX in Stockholm. To calculate the return of the market index and the individual stocks we used the following formula:

$$Return = \frac{Value_1 - Value_0}{Value_0}$$

A major aspect that we had to take into consideration was whether daily, weekly or monthly returns should be used when calculating beta. According to Hawawini (1983), the beta varies substantially depending on the chosen time period. He further states that beta for securities with a lower market value than average will decrease as the interval for the return becomes shorter. The opposite is also true and beta for securities with higher market value than the average will increase as the interval becomes shorter. Therefore we had to choose an interval which is not too narrow or broad in order to prevent an inaccurate result. Levy (1974) argues that weekly returns provide a fairly good estimation of beta if the sample includes companies with both high and low market values. Based on the argumentation above we have concluded that weekly return is the most appropriate interval in our case since we include both large and medium cap companies in the sample.

#### **4.4.2** Growth

Another company selected factor that we had to process manually was the company's growth rate. As a measurement of the growth we used the yearly growth rate in sales and most of the necessary data was available in DataStream. We also had to review some companies' annual reports in order to retrieve the necessary data since data for all companies was not available in DataStream. In order to calculate the growth rate the following formula has been used:

$$Growth = \frac{Sales_1 - Sales_0}{Sales_0}$$

#### 4.4.3 Debt to Equity Ratio

The debt to equity ratio (leverage) also had to be calculated manually since the measurement was not available in DataStream or in the annual reports. However, most companies include some kind of debt to equity ratio in their annual reports, but the variables included in the ratio vary somewhat among companies. We therefore had to calculate the ratio manually. As the name suggests, we divided the total debt with total shareholders' equity in order to calculate the debt to equity ratio which also can be called financial leverage (Needles & Powers, 2010 p.205). All the variables in the calculation were collected from DataStream except in some circumstances where we had to collect the necessary data from the annual reports.

$$\textit{Debt to equity ratio} = \frac{\text{Total Debt}}{\text{Common Equity} + \text{Minority Interest}}$$

#### 4.4.4 Free Cash Flow

The free cash flow also had to be calculated manually since it was not available in DataStream or in the annual reports. As it previously has been mentioned, all considerations concerning taxes have been excluded from the research due to its complexity and consequently it is not included in the free cash flow calculation. In order to determine free cash flows we have used the following formula provided by Fabozzi (2009, p.233)

Free Cash flow = Net Cash flow from Operations - Capital Expenditures

The choice of this formula can be explained by the relatively simplicity of obtaining the components and the wide usage of this formula. The components used in the formula have been collected from DataStream.

#### 4.4.5 Dividend Payout Ratio

The dependent variable used in the research is the dividend payout ratio and we used the formula provided by Penman (2009 p.264). The same formula is also used in other studies (Amidu & Abor 2006).

$$Dividend \ Payout \ Ratio = \frac{Dividend \ per \ Share}{Earnings \ per \ Share}$$

Both dividend per share and earnings per share were collected from DataStream for most companies. However, all necessary company data was not available in DataStream and we therefore had to review some annual reports as well. For example, the necessary data from ABB and AstraZeneca was not available and we therefore had to review their annual reports in order to find the dividend and earnings per share. In order to determine the relationship between the dividend payout ratios and the company selected factors we compared the dividend payout ratio at time t+1 with the company selected factor at time t. The reason for this is because the dividend payment date varies between companies and some pay the dividends in the beginning of the year while others pay in the end. It can be argued that the company selected factors from the last year have a greater impact on the dividend payment compared to the current years company selected factor. However, there are of course other factors that have a major influence on the dividend payout ratio such as future prospects and the general dividend policy. But in this research we will only focus on the six selected company factors.

#### 4.5 Statistical Tests

A number of statistical tests have been conducted in order to determine whether there is a relationship between the company selected factors and the dividend payout ratio. The main statistical programs used in the research are SPSS and STATA which are commonly used in these types of studies (Daunfeldt et.al, 2009).

#### 4.5.1 Pearson Correlation Coefficient

One of the most commonly used measurements in order to test the relationship between a number of variables is Pearson correlation coefficient (Keller, 2005, p.602). Pearson correlation measures the strength of a linear relationship between a number variables and the requirement when using Person correlation is normality of the data. We therefore conducted normality tests and the results indicated that the data is normally distributed, consequently it is possible to apply Pearson correlation. The formula for Pearson correlation:

$$r_{xy} = \frac{S_{xy}}{S_x S_y} = \frac{n \sum xy - \sum x \sum y}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

In the formula above,  $r_{xy}$  is the sample correlation coefficient,  $S_{xy}$  is the covariance for the sample and  $S_xS_v$  is the standard deviation and n is the number of observations included in the sample. The range of possible correlation coefficients stretches between -1 and 1. Where -1 implies that there is a perfect negative linear relationship between the variables and a correlation coefficient of 1 implies that there is a perfect positive relationship between the variables (Keller, 2005, p.117). In case the correlation coefficient is equal to zero there is no relationship between the two variables and they are independent to each other. But is it rarely the case that the correlation coefficient takes one of the positions described above and the correlation is in most cases located between the extreme positions.

However, even though the correlation coefficient is widely used in these types of studies, the measurement is not perfect and it contains some limitations. One of the major drawbacks is that it only reveals how strong a linear relationship is between two variables, consequently other relationships than linear are excluded. Another drawback with the measurement is that it not indicates the casualty of the relationship. It only specifies that there is a relationship between the variables but it does not explain that one variable causes the variability in the other variable. Even though the correlation coefficient contains some limitations, we think that it is one of the most appropriate measurements for our study and similar previous studies has applied Pearson's correlation coefficient (Rozeff 1982).

#### 4.5.2 Regression Analyses

In order to determine whether there is a relationship between the dividend payout ratio and the company selected factors we have also conducted a regression analysis. The analysis is related to the correlation coefficient but it also includes additional factors. According to Keller (2005, p.578) a regression analysis is used to predict the value of one variable on the basis of other variables. There basically exist two main types of regression analysis, simple linear regression and multiple regressions. Since we have more than one independent variable included in the research the multiple regression analysis is most appropriate in our case. A multiple regression analysis may include all company selected factors (independent variables) in one single test and compare them with the dividend payout ratio (dependent variable). The regression equation used in the

$$\begin{aligned} \text{DPR}_{i,t+1} &= \beta_0 + \beta_1 Prof_{i,t} + \beta_2 FCF_{i,t} + \beta_3 Growth_{i,t} + \beta_4 Size_{i,t} + \beta_5 Leverage_{i,t} \\ &+ \beta_6 Risk_{i,t} + \xi \end{aligned}$$

Where:

= Dividend payout ratio for firm i at time t+1. DPR i.t Prof i.t = Return on equity (ROE) for firm i at time t.

FCF<sub>i,t</sub> = Free cash flow for firm i at time t.

Growth i.t = Growth in Sales/Revenue for firm i at time t. = Market Capitalization for firm i at time t. Size it Leverage it = Debt to equity ratio for firm i at time t.

Risk i.t = Beta for firm i at time t.

= Error variable 3

#### 4.5.3 Tobit Model

In addition to the multiple regression analysis, we have also applied the Tobit model which is a type of censored regression model. The main difference between the ordinary multiple regression and the Tobit regression is that the Tobit model takes censoring and truncation into consideration. Censoring refers to the case when data in the dependent variable is lost while the independent variables not are subject to any loss in data (Amemiya, 1985 p.364). Truncation refers to the case when data is lost in both the independent and dependent variable. However in this study the Tobit model is applied in order to get an alternative view to the multiple regression analysis in which we excluded all negative observations in dependent variable (dividend payout ratio). The exclusion of the negative dividend payout ratios may have created some kind of bias and we therefore applied the Tobit model in order to get an alternative point of view. In the Tobit model all negative dividend payout ratios is censored and transformed to zero instead of being excluded from the sample. By applying the Tobit model we strive to exclude any kind of bias which may have been created in the multiple regression analysis. The combination of the Tobit and the multiple regression has previously been applied in similar studies and we therefore think that the models are applicable for this study (Daunfeldt et.al 2009).

The Tobit model is a development of the Probit model and it was created by James Tobit in 1958. The equation for the structural Tobit model is the same as the equation applied in the multiple regression analysis:

$$y_i = \beta_i x_i + \varepsilon$$

The dependent variable (dividend payout ratio,) is censored to zero if the observation has a negative value:

$$y_i = \begin{cases} y^* if \ y^* > 0 \\ 0 \ if \ y^* \le 0 \end{cases}$$

Due to the censoring of negative values, a value of zero may mean either that the dividend payout ratio is zero or it may mean that the variable is censored to zero. Because of the double meaning of zero's in the sample we have used the maximum likelihood (ML) estimator in which the sample was divided into censored and uncensored variables. The uncensored observations are treated in the same way as in the OLS regression while the censored values are not known and the most likely value is therefore used for these variables. The combined formula for both censored and uncensored data is according to Long (1997):

$$\ln L(\beta \sigma^2 | y, x) = \sum_{y *_i > 0} \ln \frac{1}{\sigma} \emptyset \left( \frac{y_i - x_i \beta}{\sigma} \right) + \sum_{y_i^* \le 0} \ln \Phi(\frac{\tau - x_i \beta}{\sigma})$$

Where  $\emptyset$  is the density function of the standard normal variable,  $\Phi$  is the standard normal distribution and  $\tau$  determines is the minimum point for the censored data and equals to 0.

#### 4.5.4 Hypothesis Testing

In order to determine whether there is a relationship between the dividend payout ratio and the company selected factors we formulated a number of hypothesis which we described in chapter four. The structure of all hypotheses is the same, the null hypothesis states that there is no relationship between the company selected factor and the dividend payout ratio,  $H_0$ : r = 0. The alternative hypothesis states that there is a relationship between the company selected factor and the dividend payout ratio,  $H_1$  r  $\neq$ 0. However, it is not risk free to conduct hypothesis testing and two possible errors may occur (Keller 2005, p.578). A type I error arises when a null hypothesis is rejected even though it is true. But it is possible to decrease the risk of conducting a type I error by including a large sample in the research. We therefore aimed to include a large sample in the study but as we explained in the sampling, we had to exclude a relatively large amount of stocks from the sample. However, we still think that the risk of conducting a type I error is small since a relatively large amount of companies is included in the research. A type II error is the opposite of a type I error and it arises when a false null hypothesis is not rejected. The best way to avoid a type II error is also to include a large sample that represents the entire population.

In order to make sure that the results are significant and to be able to confirm or reject the stated hypothesis we have used the t-statistic. Since the data used in the research follow a normal distribution we think that the measurement is most appropriate and the formula for t is:

$$t = \frac{\overline{X} - \mu}{\sigma / \sqrt{n}}$$

Where:

 $\overline{X}$ = Sample mean

u= Population mean

 $\sigma$ =Standard deviation

n= Number of observations

Another important factor used in order to access the significance of the tests is the pvalue. According to Keller (2005, p.333) the p-value is one of the most important variables to consider when conducting a regression analysis since. The p-value measures the amount of statistical evidence supporting the alternative hypothesis. In order to be able to reject the null hypothesis in favor of the alternative hypothesis the pvalue should be as low as possible but it depends on a number of factors. One of the most important factors that influence the p-value is the cost of making one of the two errors discussed above. If the cost of making an error is high the significance level should be set relatively low (Keller 2005, p.334). The normal case is to use a significance level of 5 percent and most previous studies has applied a 5 percents level of significance (Amidu & Abor 2006). We are not going to be any different from previous studies and we will therefore apply the same level of significance. In order to prove that the alternative hypothesis is true, the p-value should preferably be as low as possible but there are some benchmark levels that is important to mention. A p-value lower than 5 percent indicates that there is strong evidence that the alternative hypothesis is true and the null hypothesis will be rejected is the p-value is below 5 percent (Keller 2005, p.335). The hypothesis used in the study:

Null hypotheses:

H<sub>01</sub>: **Free cash flow** does not affect the company's dividend payout ratio

H<sub>02</sub>: **Growth** does not affect the company's dividend payout ratio

H<sub>03</sub>: **Leverage** does not affect the company's dividend payout ratio

H<sub>04</sub>: **Profit** does not affect the company's dividend payout ratio

H<sub>05</sub>: **Risk** does not affect the company's dividend payout ratio

H<sub>06</sub>: **Size** does not affect the company's dividend payout ratio

Alternative hypotheses:

H<sub>07</sub>: **Free cash flow** affects the company's dividend payout ratio

H<sub>08</sub>: **Growth** affects the company's dividend payout ratio

H<sub>09</sub>: **Leverage** affects the company's dividend payout ratio

 $H_{10}$ : **Profit** affects the company's dividend payout ratio

H<sub>11</sub>: **Risk** affects the company's dividend payout ratio

 $H_{12}$ : **Size** affects the company's dividend payout ratio

Based on the research hypothesis discussed in chapter three, the following relationships are expected for the company selected factors:

Independent variable	Hypothetical Relationship
Free Cash flow	Positive
Growth	Negative
Leverage	Negative
Profit	Positive
Risk	Negative
Size	Positive

**Table 4.7:** Expected Relationships

#### 4.5.5 Multicollinearity

Since some of the company selected factors used in the study are related to each other there may be a risk of multicollinearity. Multicollinearity is a statistical condition in which the independent variables are highly correlated to each other. Due to the interrelationship between the variables it is impossible to see the effects of a change in one variable while the other variables are held constant. Small changes in the data may also cause severe changes in the coefficients and it is therefore important to exclude possible multicollinearity from the study (Keller 2005, p.646).

It is possible to detect multicollinearity by investigating the correlation between the independent variables. According to Walker & Maddan (2009, p.293) a correlation above 0,7 between two independent variables indicates that there are multicollinearity problems in the model. But the level of correlation that causes multicollinearity varies from case to case and it is therefore important to include other measurements as well and not only look at the correlation. SPSS provides a good measurement of multicollinearity called variance inflation factor (VIF) and a value below 4 indicates that there is no multicollinearity problems in the model. But any VIF above 5 is a signal of multicollinearity and in that case some variables have to be adjusted or excluded from the model (Walker & Maddan 2009, p.294).

$$VIF = \frac{1}{1 - r_{i,i}^2}$$

Another measurement related to VIF is tolerance which describes how much of the variance in an independent variable not depends on other variables. If the tolerance is below 25 percent multicollinearity may be a problem (Walker & Maddan 2009, p.294).

$$Tolerance = \frac{1}{VIF}$$

#### 4.6 Criticism of Practical Method

The data in the research has been collected from DataStream and annual reports which can be regarded as reliable sources. Another factor that contributes to the high reliability of the research is that all the data used in the study is quantitative and it is therefore difficult to alter the results because of some kind of personal biases. However, there are some potential threats to the reliability of the data.

Since a large amount of data is included in the research there is a theoretical possibility that we have made a mistake in the manual processing of the data which may contribute to inaccurate results. To ascertain that no mistakes have been conducted, both authors have been involved in the collection and processing of the data. All data was processed in Microsoft Excel which is seen as a dependable program for calculations of large quantities of data. After the collection and processing of the necessary data we conducted spot tests for randomly selected variables in order to confirm that the calculations had been conducted correctly. Even though we have taken several steps in order to ascertain that the data is correct, we cannot guarantee that everything is 100 percent correct. But the risk of an error in the data is extremely small.

We have previously mentioned that we have excluded all kinds of taxes from the research due to its complexity. We are aware of the fact that the exclusion of taxes may contribute to results which only are applicable in theory and not in practice if both firm and shareholders are taxable. But we still think that the study can be seen as reliable since we chose not to complexify too much the hypotheses.

As a final remark before the empirical analysis of the data we would like to remind the reader that we only have investigated the effects of the selected company factors on the companies' dividend payout ratios. We are aware of the fact that more factors than the ones included in the study have an impact on the companies' payout ratio but have limited the research to the six company factors as we defined and explained in section 3.1

## **Chapter 5: Empirical Results**

The fifth chapter presents the results of the study. The descriptive statistics will be presented in the first part of the chapter in order to provide the reader with an overview of the key numbers. We will also conduct various tests for multicollinearity in order to ascertain that no multicollinearity affects the study. The results from the regression will also be presented in the last part of the chapter.

## **5.1 Descriptive Statistics**

In order to investigate the relationship between the company selected factors and the dividend payout ratio, the sample was divided into four categories depending on the segment and the type of company. During the research process we aimed to include as many observations as possible and only exclude extreme outliers. Separate tests for stocks listed on large and medium cap and for financial and non-financial companies were conducted and the four categories are therefore:

- Large Cap, non-financial
- Large Cap, financial
- Medium Cap, non-financial
- Medium Cap, financial

The descriptive statistics for the OLS and Tobit regression (within brackets) can be seen in the tables below. The difference between the two models arises due to the exclusion of negative dividend payout ratios in the OLS regression but they are included in the Tobit regression. The number of observations is therefore larger in the Tobit regression. However, when we conducted the statistical tests, all negative dividend payout ratios in the Tobit regression are censored and transformed to zero. But this is not shown in the descriptive statistics and the dividend payout ratio has therefore a negative value in the Tobit model. Apart from the negative dividend payout ratios, the sample is the same for the OLS and Tobit Regression and the same outliers has been excluded. But we aimed to include as many observations as possible.

A similar feature for all four categories is that the standard deviation is relatively high for all company selected factors. We think that this partly is due to the unstable financial environment during the time period and the company selected factors varied heavily between companies and years.

#### 5.1.1 Large Cap, Non-Financial

Table 5.1 shows the descriptive statistics for non-financial companies listed on large cap. The lowest dividend payout ratio for the OLS regression is zero since all negative dividend payout ratios are excluded. The company selected factors are otherwise relatively similar for the OLS and Tobit Regression. As can be seen in the table, the average value of the dividend payout ratio is approximately 50 percent in both the OLS and Tobit regression. This indicates that non-financial companies listed on large cap on average pay 50 percent of their earnings as dividends.

Variables	N	Minimum	Maximum	Mean	Std. Deviation
DPR	165	0	1,75	0,5467	0,3120
	(172)	(-1,1364)	(1,75)	(0,5059)	(0,38386)
FCF	165	-14460000	20470000	3149955,27	4425442,79
	(172)	(-14460000)	(20470000)	(3107688.60)	(4415170,19)
Growth	165	-0,45	0.83	0,0745	0,15751
	(172)	(-0,45)	(0,83)	(0,7503)	(0,15486)
Leverage	165	0	5,34	0,7032	0,68321
	(172)	(0)	(5,34)	(0,6976)	(0,67096)
Profit	165	-0,29	1,31	0,2141	0,19551
	(172)	(-0,29)	(1,31)	(0,2137)	(0,1947)
Risk	165	0	1,84	0.9537	0,37408
	(172)	(0)	(1,84)	(0,9601)	(0,37229)
Size	165	4355220	597146567	85107946,67	116872515,39
	(172)	(4355220)	(597146567)	(82833023,37)	(115038572,8)

 Table 5.1: Descriptive Statistics of Swedish Non-Financial companies listed on Large Caps

#### 5.1.2 Large Cap, Financial

Table 5.2 shows the descriptive statistics for financial companies listed on large cap. The dividend payout ratio for the financial companies is substantially lower compared to the non-financial companies discussed above. The average value of the dividend payout ratio in the Tobit model is extremely low but this is due to some extreme negative payout ratios. However, in the statistical tests the negative dividend payout ratios will be censored to zero.

The two largest differences compared to the non-financial companies are standard deviation and leverage. The standard deviation is very high which indicates that difference between the financial companies is large. The average leverage is also exceptionally high and this is partly due to the dominance of the four largest Swedish banks. These four banks had extremely high leverage which increased the average leverage for all financial companies. But they cannot be considered to be outliers since many financial companies had relatively high leverage.

Variables	N	Minimum	Maximum	Mean	Std. Deviation
DPR	52	0	1,79	0,3703	0,33442
	(62)	(-9,89)	(1,79)	(0,0729)	(1,37139)
FCF	52	-70504525	153823075	9538479,23	30227480,66
	(62)	(-70504525)	(153823075)	(8078161,61)	(27849138,13)
Growth	52	-2,03	2,50	0,1073	0,54031
	(62)	(-2,03)	(2,50)	(0,0604)	(0,52792)
Leverage	52	0,11	17,03	4,7481	5,63402
	(62)	(0,09)	(17,03)	(4,0506)	(5,39861)
Profit	52	-0,74	0,63	0,1354	0,21683
	(62)	(-0,74)	(0,63)	(0,1348)	(0,20459)
Risk	52	0,06	2,71	1,0164	0,48846
	(62)	(0,06)	(2,71)	(1,0168)	(0,45518)
Size	52	4931465	292590700	65924118,88	73820057,41
	(62)	(4931465)	(292590700)	(62300106,16)	(69901052,94)

 Table 5.2: Descriptive Statistics of Swedish Financial companies listed on Large Caps

#### 5.1.3 Medium Cap, Non-Financial

Table 5.3 shows the descriptive statistics for non-financial companies listed on medium cap. Similar to the two previous categories mentioned above, the standard deviation is relatively high for all company selected factors.

But the difference between the lowest and the highest value of the factors is smaller than for the companies listed on large cap. This could be explained by that companies listed on medium cap are smaller compared to large caps and the absolute difference between the lowest and highest values is therefore smaller.

Variables	N	Minimum	Maximum	Mean	Std. Deviation
DPR	135	0	1,32	0,4430	0,30589
	(136)	(-0,55)	(1,32)	(0,4357)	(0,31647)
FCF	135	-524000	3354000	284657,49	480100,48
	(136)	(-524000)	(3354000)	(281401,91)	(479823,42)
Growth	135	-0,43	0,82	0,1360	0,18561
	(136)	(-0,43)	(0,82)	(0,1341)	(0,18618)
Leverage	135	0	2,67	0,5340	0,56354
	(136)	(0)	(2,67)	(0,5398)	(0,56558)
Profit	135	-0,46	0,62	0,2271	0,14601
	(136)	(-0,46)	0,62)	(0,2237)	(0,14719)
Risk	135	-0,87	1,81	0,7627	0,39599
	(136)	(-0,87)	(1,81)	(0,7621)	(0,39459)
Size	135	414647	18110239	4359676,73	3501914,48334
	(136)	(414647)	(18110239)	(4352933,65)	(3489806,41)

**Table 5.3:** Descriptive Statistics of Swedish Non-Financial companies listed on Medium Caps

#### 5.1.4 Medium Cap, Financial

Table 5.4 shows the descriptive statistics for financial companies listed on medium cap. This is also the smallest of the four categories and only 41 (47) observations are included for each company factor.

Variables	N	Minimum	Maximum	Mean	Std. Deviation
DPR	41	0	1,56	0,3746	0,31399
	(47)	(-1,45)	(1,56)	(0,2333)	(0,50959)
FCF	41	-7198300	2520000	-396323,19	1665707,30
	(47)	(7548200)	(2520000)	(-520510)	(1880891)
Growth	41	-0,60	0,73	0,0602	0,30133
	(47)	(-60)	(7258)	(0,0724)	(0,29165)
Leverage	41	0	9,54	1,7508	2,55577
	(47)	(0)	(9,54)	(1,6436)	(2,4211)
Profit	41	-0,54	0,59	0,2115	0,20001
	(47)	(-0,54)	(0,59)	(0,2094)	(0,1915)
Risk	41	0,03	1,70	0,6713	0,41475
	(47)	(0,03)	(1,70)	(0,6714)	(0,4015)
Size	41	1243616	14332717	4522472	3050731,67
	(47)	(1243616)	(14332717)	(4758935,68)	(3219064,717)

Table 5.4: Descriptive Statistics of Swedish Financial companies listed on Medium Caps

The descriptive statistics confirm our statement above, that financial companies' in general have higher leverage compared to the non-financial companies. Similar to the three categories discussed above, the standard deviation is relative high which indicates that there is a large difference among the financial companies listed on medium cap.

## **5.2 Multicollinearity Tests**

In order to detect and exclude multicollinearity we investigated the correlation between the independent variables. According Walker & Maddan (2009, p.293) a correlation higher than 70 percent indicates that multicollinearity may be a problem. Exhibit 1-4 in the appendix shows the correlation between the independent variables. The highest correlation in all four subcategories is between size and free cash flow. For financial companies listed on large cap the correlation is slightly below 70 percent, which is the highest correlation in the test. Since 70 percent is the benchmark level for possible multicollinearity it may be a problem. However, it is not enough to look at the correlation in order to conclude whether multicollinearity is a problem and we therefore employed additional tests.

The correlation matrixes indicate that multicollinearity may be a problem since free cash flow and size have a relatively high correlation in all four categories, we have therefore conducted VIF and tolerance tests. Walker & Maddan (2009, p.294) stated that a VIF above 4 and a tolerance below 0,25 is a sign of multicollinearity. The highest VIF among the large caps is approximately three for the size variable among the financial companies. The same variable also had a tolerance of 0,374 which is slightly above the benchmark level of 0,25. In order to ascertain that no multicollinearity was present, we conducted the same test without the size variable for financial companies but the result was not significantly changed. We therefore decided to include size among the variables since the VIF and tolerance is acceptable and no major changes occurred when we excluded size from the model.

Vaniable	Non-Fi	nancial	Financial	
Variable	Tolerance	Tolerance VIF		VIF
FCF	0,69	1,45	0,467	2,141
Growth	0,9	1,111	0,952	1,05
Leverage	0,85	1,177	0,562	1,78
Profit	0,777	1,287	0,908	1,101
Risk	0,96	1,042	0,811	1,233
Size	0,697	1,434	0,374	3,188

**Table 5.5**: VIF and tolerance for Swedish Large Caps

Table 5.6 shows VIF and tolerance for companies listed on medium cap. The VIF for all variables is relatively low and the tolerance is high which indicates that no significant multicollinearity is present among the companies listed on medium cap.

Vaniable	Non-Financial		Financial	
Variable	Tolerance	VIF	Tolerance	VIF
FCF	0,678	1,475	0,637	1,569
Growth	0,678	1,476	0,798	1,254
Leverage	0,888	1,126	0,871	1,148
Profit	0,62	1,612	0,96	1,041
Risk	0,905	1,105	0,839	1,192
Size	0,629	1,59	0,602	1,66

**Table 5.6:** VIF and tolerance for Swedish Medium Caps

### **5.3 Regression Results**

The results from the OLS and Tobit regression are presented in the tables below. The coefficients for free cash flow and size are substantially lower than the other coefficients since they are measured in absolute numbers, while the other four variables are measured in ratios. The results are similar for both the OLS and Tobit regression which indicates that the results are reliable.

#### 5.3.1 Large Cap, Non-Financial

Table 5.7 shows the regression for non-financial companies listed on large cap. As can be seen in the table, the R square for the OLS regression is approximately 21 percent. This indicates that 21 percent of the variation in the dividend payout ratio is explained by the six company selected factors included in the test. The counterpart to the R square in the Tobit regression is pseudo R square which is slightly above 27 percent and F is approximately 7. The overall fit of the model is relatively good and it managed to explain some of the variation in the dividend payout ratio.

The free cash flow has a significant and positive relationship to the dividend payout ratio which indicates that the companies' dividend payout ratios increase as the free cash flow increases. The t-statistic is relatively high and the p-value is low in both the OLS and Tobit model. The growth rate has also a significant relationship to the dividend payout ratio but the relationship is negative. This indicates that the dividend payout ratio decreases as the growth rate increases.

	R <sup>2</sup> =0,213 (pseudo R <sup>2</sup> =0,2762) F=7,123					
Variable	В	Std. error	t-Statistic	P-value		
(Constant)	0,743	0,074	10,069	0		
(Constant)	(0,726)	(0,078)	(9,25)	(0)		
FCF	1,89E-08	0	3,166	0,002		
FGF	(2,31E-08)	(6,55E-09)	(3,53)	(0,001)		
Growth	-0,674	0,148	-4,547	0		
Growth	(-0,689)	(0,159)	(-4,33)	(0)		
Loverage	-0,057	0,035	-1,621	0,107		
Leverage	(-0,047)	(0,038)	(-1,24)	(0,217)		
Profit	0,165	0,129	1,286	0,2		
Piolit	(0,155)	(0,136)	(1,14)	(0,255)		
Risk	-0,171	0,06	-2,825	0,005		
KISK	(-0,204)	(0,064)	(-3,17)	(0,002)		
Sizo	-3,99E-10	0	-1,759	0,081		
Size	(-3,72E-10)	(2,46E-10)	(-1,51)	(0,133)		

Table 5.7: Regression for Swedish non-financial companies listed on large caps

A negative relationship could also be established between the dividend payout ratio and leverage. But the relationship is statistically insignificant since the p-value is greater than 5 percent and the t-statistic is relatively low. Profit has a positive relationship to the dividend payout ratio but the relationship is insignificant due to the high p-value. However, a negative and significant relationship could be established between risk and the dividend payout ratio which indicates that companies with higher risk pay lower dividends. The last independent variable is size and we found a negative relationship to the dividend payout ratio but since the p-value is slightly above 5, the relationship is insignificant.

#### 5.3.2 Large Cap, Financial

Table 5.8 shows the results from the regression for financial companies listed on large cap. The overall fit of the model is poor since the R square is just 4,5 percent which indicates that the great majority of the variance in the dividend payout ratio is not explained by the six variables included in the study. F is also close to zero which confirms the inaccuracy of the model to explain the dividend payout ratio. As can be seen in the table, all variables have an insignificant relationship to the dividend payout ratio since the t-statistics is weak and the p-values are substantially higher than 5 percent. However, when we discuss the results we will base our argumentation on the results from the non-financial companies since these variables fail to explain the determinants of the dividend payout ratio for financial companies. Most previous studies have excluded financial companies from the sample due to different characteristics but we wanted to include these companies (Rozeff 1982) (Lloyed et.al 1985). But as the results indicate it is not possible to explain the dividend payout ratio for financial companies by the six company selected factors as we have included in the test.

A positive relationship could be established between the dividend payout ratio and free cash flow, leverage, profit and risk. A negative relationship was established between dividend payout ratio and growth and size. However, as we stated above, the relationships between the company selected factors and the dividend payout ratio is insignificant among the financial companies.

	R <sup>2</sup> =0,045 (pseudo R <sup>2</sup> =0,0723) F=0,0355					
Variable	В	Std. error	t-Statistic	P-value		
(Constant)	0,277	0,128	2,165	0,036		
(Constant)	(0,177)	(0,133)	(1,34)	(0,165)		
FCF	2,063E-10	0	0,087	0,931		
FCF	(7,36E-10)	(2,49E-09)	(0,3)	(0,768)		
Growth	-0,004	0,092	-0,046	0,963		
Growth	(0,061)	(0,097)	(0,63)	(0,531)		
Loverage	0,011	0,012	0,98	0,332		
Leverage	(0,0224)	(0,012)	(1,66)	(0,065)		
Profit	0,186	0,236	0,79	0,433		
Profit	(0,130)	(0,248)	(0,52)	(0,602)		
Risk	0,065	0,111	0,583	0,563		
KISK	(0,260)	(0,117)	(0,22)	(0,625)		
Size	-7,965E-10	0	-0,676	0,502		
Size	(-9,32E-10)	(1,22E-09)	(-0,77)	(0,447)		

Table 5.8: Regression for Swedish financial companies listed on large caps

#### 5.3.3 Medium cap, Non-Financial

The regression results for non-financial companies listed on medium cap are shown in table 5.9 and the R square is almost 13 percent and the F is approximately three. This indicates that the model manages to explain 13 percent of the changes in the dividend payout ratio which is substantially less compared to the model used among the nonfinancial companies listed on large cap. This could be explained by that companies listed on medium cap are different compared to large caps. But a larger amount of observations was included in the sample of non-financial companies listed on large cap which may contribute to some of the difference.

The free cash flow is negatively related to the dividend payout ratio and the relationship is significant in both the OLS and Tobit regression. The result indicates that the dividend payout ratio decreases as the free cash flow increases. Growth has an insignificant negative relationship to the dividend payout ratio. A significant and negative relationship was established between leverage and the dividend payout ratio because the p-value is lower than 5 percent and the t-statistic is relatively high. The dividend payout ratio therefore decreases as the leverage increases. The results also indicate that profit is positively related to the dividend payout ratio but the relationship is statistically insignificant. However, a significant negative relationship could be established to risk which indicates that the dividend payout ratio decreases as the risk increases. A significant and positive relationship was also found between size and the dividend payout ratio. This indicates that large non-financial companies listed on medium cap have higher dividend payout ratios compared to the smaller companies.

R <sup>2</sup> =0,128 (pseudo R <sup>2</sup> =0,1389) F=3,133					
Variable	В	Std. error	t-Statistic	P-value	
(Constant)	0,514	0,072	7,098	0	
(Constant)	(0,480)	(0,089)	(5,41)	(0)	
FCF	-1,177E-07	0	-1,843	0,048	
FCF	(-1,39E-07)	(7,64E-08)	(-1,82)	(0,05)	
Growth	-0,046	0,165	-0,281	0,779	
Growth	(-0,0547)	(0,199)	(-0,27)	(0,784)	
Loverage	-0,113	0,048	-2,377	0,019	
Leverage	(-0,149)	(0,059)	(-2,51)	(0,013)	
Profit	0,196	0,22	0,891	0,374	
Piolit	(0,316)	(0,269)	(1,18)	(0,242)	
Risk	-0,149	0,067	-2,228	0,028	
NISK	(-0,198)	(0,082)	(-2,41)	(0,017)	
Size	2,256E-08	0	2,482	0,014	
Size	(2,94E-08)	(1,09E-08)	(2,70)	(0,008)	

Table 5.9: Regression for Swedish Non-financial companies listed on Medium caps

#### 5.3.4 Medium cap, Financial

Table 5.10 shows the results for the financial companies listed on medium cap. The results confirm our statement above that the company selected factors fails to explain the changes in the dividend payout ratio for financial companies. The R square for the model is just above seven and the value of F is approximately 0,5 which indicates that the model is poor and fails to explain most of the changes in the dividend payout ratio. The only variable in the test in which the coefficients in the OLS and Tobit regression has opposite signs is growth rate for financial companies listed on medium cap. As can be seen in the table, OLS indicates that growth has a weak positive relationship with the dividend payout ratio while the Tobit model shows a negative relationship.

No significant relationship could be found between the dividend payout ratio and the company selected factors. However a positive but insignificant relationship was established between the dividend payout ratio and free cash flow, growth (OLS), leverage, risk and size. A negative and insignificant relationship was established between dividend payout ratio and growth (Tobit) and profit.

	R <sup>2</sup> =0,074 (pseudo R <sup>2</sup> =0,059) F=0,455						
Variable	В	Std. error	t-Statistic	P-value			
(Constant)	0,232	0,138	1,679	0,102			
	(0,152)	(0,145)	(1,05)	(0,300)			
FCF	4,385E-08	0	1,126	0,268			
	(4,30E-08)	(3,58E-08)	(1,20)	(0,236)			
Growth	0,047	0,193	0,245	0,808			
	(-0,054)	(0,207)	(-0,26)	(0,796)			
Leverage	0,001	0,022	0,045	0,964			
	(0,017)	(0,024)	(0,73)	(0,469)			
Profit	-0,05	0,264	-0,188	0,852			
	(-0,011)	(0,286)	(-0,04)	(0,969)			
Risk	0,102	0,136	0,745	0,461			
	(0,112)	(0,148)	(0,76)	(0,453)			
Size	2,165E-08	0	0,99	0,329			
	(1,23E-08)	(2,13E-08)	<b>(0,57)</b>	(0,569)			

**Table 5.10:** Regression for Swedish financial companies listed on Medium caps

## **5.4 Regression Remarks**

The R squares for non-financial large and medium caps were approximately 21 and 13 percent. The results indicate that the company selected factors fail to explain the majority of the variance in the dividend payout ratio. The dividend payout ratios are therefore heavily influenced by the general dividend policy, and managers may try to maintain a stable dividend even though the company selected factors changes. Another explanation to the low R squares may be that other factors that are not included in the research may have a large impact on the dividend payout ratio. But the p-values were relatively low and the t-statistics were relatively high for a number of company selected factors among the non-financial companies listed on large and medium cap. This indicates that a number of company selected factors are statistically significant and affect the dividend payout ratio.

However, as already has been explained above, the R squares for the financial companies listed on large and medium cap was very low. The R square for financial large caps was approximately 5 percent while the financial medium caps have an R square of around 7 percent. The company selected factors included in the research have therefore a negligible impact on the dividend payout ratio on financial companies. All pvalues are high and no significant relationship could be established.

## Chapter 6: Empirical Analysis

The purpose the chapter is to analyze and discuss the empirical results and test whether the theoretical framework discussed in chapter three manage to explain the changes in the dividend payout ratio.

The results presented in the previous chapter will be analyzed and discussed together with the hypotheses presented in chapter three. However, as it previously has been mentioned, the analysis will be based on the results from the non-financial companies since the financial companies have different characteristics. The results indicate that it is not possible to identify the determinants of the dividend payout ratio for financial companies. Because the relationships between the dividend payout ratios and the company selected factors was statistically insignificant. Previous studies have also emphasized that companies in the financial sector are different compared to nonfinancial companies (Al-Kuwari 2009). The results presented in the previous chapter confirm these assumptions and financial companies are significantly different compared to the non-financial companies. But we thought that it was important to include the financial companies in the original sample. However, since no significant relationship could be established, the financial companies will not be included in the analysis. The discussion will therefore be based on non-financial companies listed on large and medium cap.

## 6.1 Hypotheses

The hypotheses will be analyzed and discussed in order to conclude about the determinants of the company's dividend payout ratio. We are also going to determine whether there are any differences between stocks listed on large and medium cap.

#### 6.1.1 Free Cash Flow

The general view regarding the relationship between free cash flow and dividends is that free cash flow should have a positive impact on the company's dividend payout ratio. Jensen (1986) explains the positive relationship by referring to the agency conflict between managers and shareholders. The agency conflict contributes to that shareholders prefer dividends instead of retained earnings if the company has excess free cash flow.

The non-financial companies listed on large cap have a positive and significant relationship to the dividend payout ratio. The result is in accordance with Jensen's (1986) agency theory and companies with higher free cash flow have higher dividend payout ratios. This is due to the high agency costs connected to free cash flow. In order to decrease the agency costs, companies choose to increase the dividend payout ratio instead of retaining the free cash flow within the company. Because the shareholders do not trust the managers, and they therefore think that the managers may be engaged in excessive spending if they have excess free cash flow at their disposal. The positive relationship is also statistically significant and we can therefore reject the null hypothesis in favor of the alternative hypothesis. The coefficient for free cash flow is low since we expressed the variable in absolute numbers. It is therefore easier to interpret the number if we use another scale. If the free cash flow increases by 10 million SEK for a non-financial company listed on large cap, the dividend payout ratio

would increase 0,1889. The results indicate that the dividend payout ratio is relatively sensitive to changes in the free cash flow. A positive relationship between free cash flow and dividends has also been found in previous studies (Holder et.al 1998).

However, the non-financial companies listed on medium cap have a significant and negative relationship between the dividend payout ratio and the free cash flow. If the free cash flow would increase 10 million SEK the dividend payout ratio would decrease 1,177. These results are different compared to the large caps discussed above where a positive relationship was established. The result is also contrary to Jensen's (1986) agency theory and it indicates that a higher free cash flow contributes to a lower dividend payout ratio. The agency costs connected to free cash flow should therefore be lower among medium caps compared to the large caps. Due to the low agency costs connected to free cash flow, companies are able to retain a larger proportion of the free cash flow within the company instead of paying dividends to shareholders. Consequently, the dividend payout ratio is therefore lower. The negative relationship is contrary to previous studies who have found a positive relationship between free cash flow and the dividend payout ratio (Holder et.al 1998).

The null hypothesis states that there is no relationship between the free cash flow and the dividend payout ratio while the alternative hypothesis states that there is a relationship. Both the OLS and Tobit regression indicate that the relationship between the free cash flow and the dividend payout ratio is significant. But as can be seen in table 6.1, the Tobit regression is on the benchmark level to what is regarded as acceptable. Since the p-value is below 5 percent, the null hypothesis can be rejected in favor of the alternative hypothesis for the non-financial companies listed on large and medium cap.

Variable	В	Std. error	t-Statistic	P-value
FCF Large	1,89E-08	0	3,166	0,002
сар	(2,31E-08)	(6,55E-09)	(3,53)	(0,001)
FCF Medium	-1,177E-07	0	-1,943	0,048
сар	(-1,39E-07)	(7,64E-08)	(-1,92)	(0,05)

**Table 6.1:** Regression outcome for free cash flow

#### 6.1.2 Growth

The company's growth rate is regarded to be one of the most influential factors that affect the dividend payout ratio. The general view is that past growth should have a negative relationship to the dividend payout ratio.

A negative and significant relationship between growth rate and the dividend payout ratio was found for non-financial companies listed on large cap. The dividend payout ratio therefore decreases as the growth rate increases and the results comply with previous studies who also have found a negative relationship between growth rate and the dividend payout ratio (Rozeff 1982) (Lloyd et.al 1985) (Holder et.al 1998). The negative relationship could be explained by the fact that growing companies rather choose to retain the earnings internally instead of paying dividends to shareholders. Because in order to be able to grow a company usually has to increase the investments but since investments are expensive, a company has to reduce other cash outflows. Since dividends represent a type of cash outflows, they are usually decreased as the investments increases. However, in to keep the dividend payout ratio on a constant level even though it is growing, a company may use external financing. But according to the pecking order theory, external financial is more expensive compared to internal

financing and companies therefore chose to decrease the dividends instead of relying on the more expensive external financing. Consequently, there is a negative relationship between the dividend payout ratio and the growth.

The negative relationship is contrary to the signaling theory presented by Bhattacharya in 1979 since the theory states that dividends are a signal of future growth. Even though we investigated the impact of past growth it is still possible to reject the signaling theory. The results indicate that a company decreases the dividend payout ratio as the growth rate increases. The opposite is also true and the dividend payout ratio increases as the growth rate decreases. The signaling theory is therefore not applicable among companies listed on large cap and dividends do not provide a signal of growth.

The non-financial medium cap companies also have a negative relationship between the dividend payout ratio and growth rate. However, as can be seen in table 6.2 the relationship is not statistically significant.

The null hypothesis states that there is no relationship between the growth rate and the dividend payout ratio while the alternative hypothesis states that there is a relationship. The null hypothesis can be rejected for non-financial large caps in favor of the alternative hypothesis. But the null hypothesis cannot be rejected on medium cap.

Variable	В	Std. error	t-Statistic	P-value
Growth Large	-0,674	0,148	-4,547	0
сар	(-0,689)	(0,159)	(4,33)	(0)
Growth	-0,046	0,165	-0,281	0,779
Medium cap	(-0,0547)	(0,199)	(-0,27)	(0,784)

**Table 6.2:** Regression outcome for Growth

#### 6.1.3 Leverage

The relationship between growth and leverage is insignificant for companies listed on large cap.

However, a negative and significant relationship was established among the companies listed on medium cap. The results indicate that companies with higher leverage pay a lower dividend payout ratio. The result complies with previous studies who also have found a negative relationship between leverage and the dividend payout ratio (Al-Kuwari 2009). The negative relationship could be explained by the pecking order theory since it states that external financing is more costly compared to internal financing. The transaction costs for companies with high leverage are therefore higher and instead of paying dividends to shareholders, highly leverage companies choose to maintain their internal funds within the company (Al-Kuwari 2009). This is explained by the high transaction costs and highly leveraged companies therefore have to rely on retained earnings in order to meet their obligations due to the expensive external financing. Since they keep a larger proportion of their earnings within the company the dividend payout ratio decreases.

The negative relationship between leverage and the dividend payout ratio can also be connected to the agency cost of debt. Since the objective of a company is to maximize the wealth of the shareholders, the management may undertake actions that favor shareholders to the expense of the bondholders (Schroeck, 2002, p.93). Most bondholders are aware of this behavior and they usually undertake certain actions in order to prevent the transfer of wealth from bondholders to shareholders. One of the

most common actions taken by bondholders in order to prevent the transfer of wealth is to place restrictive covenants in the bond contract (Schroeck, 2002, p.93). The covenants may state that the company is not allowed to pay a higher dividend payout ratio than the maximum level stated in the contract. As a company's leverage increases, the risk connected to the company increases and the bondholders may place more severe convents regarding the dividend payout ratio. Consequently the dividend payout ratio decreases as a company's leverage increases.

The null hypothesis states that there is no relationship between the leverage and the dividend payout ratio while the alternative hypothesis states that there is a relationship. The null hypothesis is not rejected for companies listed on large cap. But the relationship on medium cap is significant and the null hypothesis is therefore rejected in favor of the alternative hypothesis.

Variable	В	Std. error	t-Statistic	P-value
Leverage	-0,057	0,035	-1,621	0,107
Large cap	(-0,047)	(0,038)	(-1,24)	(0,217)
Leverage	-0,113	0,048	-2,377	0,019
Medium cap	(-0,149)	(0,059)	(-2,51)	(0,013)

**Table 6.3:** Regression outcome for Leverage

#### 6.1.4 Profit

The relationship between profit and the dividend payout ratio is positive but insignificant for both large and medium caps. It is therefore not possible to reject the null hypothesis in favor of the alternative hypothesis which states that there is a relationship between the profit and the dividend payout ratio. The result is contrary to previous studies who have found significant relationships between profit and the dividend payout ratio (Gill et.al, 2006) (Amidu & Abor 2006) (Al-Kuwari 2009).

Variable	В	Std. error	t-Statistic	P-value
Profit Large	0,165	0,129	1,286	0,2
Сар	(0,155)	(0,136)	(1,14)	(0,255)
Profit	0,196	0,22	0,891	0,374
Medium Cap	(0,316)	(0,269)	(1,18)	(0,242)

**Table 6.4:** Regression outcome for Profit

#### **6.1.5** Risk

The riskiness of the company has a significant and negative relationship to the company's dividend payout ratio on both large and medium cap. The findings are in accordance with the majority of the previous studies who also has found a negative relationship between risk and the dividend payout ratio (Rozeff 1982) (Lloyd et.al 1985) (Holder et.al 1998). The dividend payout ratio therefore decreases as the riskiness of the company increases. The negative relationship could be explained by that riskier companies may find it difficult to plan for future activities and investments because of high volatility in the stock price. Due to the uncertainty it may be better to retain the earnings internally instead of paying high dividends since unexpected cash outflows may occur in the future. However, one possibility is to use external financing in order to pay dividends. But riskier firms may have difficulties to access capital markets since the lenders may require high interest due to the higher risk connected to the company (Rozeff 1982). Consequently, the dividend payout ratio is negatively related to the risk.

The null hypothesis states that there is no relationship between the risk and the dividend payout ratio while the alternative hypothesis states that there is a relationship. The null hypothesis is rejected in favor of the alternative hypothesis for both large and medium cap companies.

Variable	В	Std. error	t-Statistic	P-value
Risk Large	-0,171	0,06	-2,825	0,005
сар	(-0,204)	(0,064)	(-3,17)	(0,002)
Risk Medium	-0,149	0,067	-2,228	0,028
сар	(-0,198)	(0,082)	(-2,41)	(0,017)

**Table 6.5:** Regression outcome for Risk

#### **6.1.6 Size**

A negative but insignificant relationship was found between size and the dividend payout ratio for companies listed on large cap.

A positive and significant relationship exists between size and the dividend payout ratio on medium cap and the relationship is confirmed by previous studies who have found similar relationships (Daunfeldt et.al 2009) (Al-Kuwari 2009) (Hedensted & Raaballe 2006). The relationship can be explained by the agency theory and the shareholdermanagement conflict (Lloyd et.al 1985). The agency problem arises between shareholders and managers because managers in large companies tend to own a small proportion of the company's stocks. Due to the low insider ownership, the managers' goals may be different from the goals of the shareholders. Since managers may be engaged in activities in order to maximize their personal wealth instead of maximizing the shareholders wealth (Easterbrook 1984). The agency problem increases as the size increases since size and insider ownership usually is inversely related. Larger companies also have a larger and more widespread group of shareholders. Since the ownership of each shareholder becomes relatively small no single shareholders have incentives to supervise the managers. In order to decrease these kinds of agency costs larger companies have to pay higher dividend payout ratios compared to smaller companies. Another reason to why large companies pay higher dividends is that they have better access to external capital markets compared to smaller companies and they are able to offer higher collateral. These factors contributes to that larger companies are able to raise capital at a lower cost compared to smaller companies. Due to the lower cost of raising capital, large companies have a greater ability to pay dividends even though its current earnings are low.

The null hypothesis states that there is no relationship between the size and the dividend payout ratio while the alternative hypothesis states that there is a relationship. The null hypothesis cannot be rejected for companies listed on large cap since the relationship is statistically insignificant. However, the null hypothesis is rejected in favor of the alternative hypothesis on medium cap.

Variable	В	Std. error	t-Statistic	P-value
Size Large	-3,99E-10	0	-1,759	0,081
сар	(-3,72E-10)	(2,46E-10)	(-1,51)	(0,133)
Size Medium cap	2,26E-08 (2,94E-08)	0 (1,09E-08)	2,482 (2,70)	0,014 (0,008)

**Table 6.6:** Regression outcome for Size

## **6.2 Financial Large and Medium Caps**

As we have explained in chapter five, the company selected factors fails to explain the changes in the dividend payout ratio for financial large and medium caps. Since no relationship could be established between the company selected factors and the dividend payout ratio. It is not possible to apply the theories discussed in the theoretical framework on financial large and medium caps. The dividend payout ratio for financial companies therefore depends on other factors than the company selected factors included in the research.

## **6.3 Summary of the Analysis**

Table 6.8 and 6.8 present the null hypotheses that could be rejected on large and medium cap and there are some differences between the two segments. Different hypotheses could be rejected and the relation between the dividend payout ratio and the company selected factors has different signs depending on the segment. Three hypotheses could be rejected on large cap and four hypotheses are rejected on medium cap.

Hypothesis	Large cap	Status	Relation
$H_{01}$	FCF does not affect the dividend payout ratio	Rejected	(+)
$H_{02}$	Growth does not affect the dividend payout ratio	Rejected	(-)
$H_{03}$	Leverage does not affect the dividend payout ratio	Not rejected	t
$H_{04}$	Profit does not affect the dividend payout ratio	Not rejected	t
$H_{05}$	Risk does not affect the dividend payout ratio	Rejected	(-)
H <sub>06</sub>	Size does not affect the dividend payout ratio	Not rejected	d

Table 6.7: Summary of Findings for Large Caps

Hypothesis	Medium cap	Status	Relation
$H_{01}$	FCF does not affect the dividend payout ratio	Rejected	(-)
$H_{02}$	Growth does not affect the dividend payout ratio	Not rejected	
$H_{03}$	Leverage does not affect the dividend payout ratio	Rejected	(-)
$H_{04}$	Profit does not affect the dividend payout ratio	Not rejected	
$H_{05}$	Risk does not affect the dividend payout ratio	Rejected	(-)
H <sub>06</sub>	Size does not affect the dividend payout ratio	Rejected	(+)

**Table 6.8:** Summary of Findings for Medium Caps

The null hypothesis for free cash flow is rejected on both large and medium cap which indicates that free cash flow have an impact on the dividend payout ratio but the type of relationship is different depending on the segment. A positive relationship was established on large cap while a negative relationship exists on medium cap.

The null hypothesis for growth is rejected on large cap and it has a negative relationship to the dividend payout ratio. But the null hypothesis could not be rejected on medium cap and there exist no significant relationship between growth and the dividend payout ratio.

The null hypothesis for leverage is not rejected on large cap and no significant relationship exists to the dividend payout ratio. However, the null hypothesis could be rejected on medium cap and a negative relationship exists between leverage and the dividend payout ratio.

The null hypothesis for profit is not rejected either on large nor medium cap and no significant relationship therefore exists to the dividend payout ratio.

The null hypothesis for risk is rejected on both large and medium cap. Both segments indicate that there is a negative relationship between risk and the dividend payout ratio.

The null hypothesis for size is not rejected on large cap and no significant relationship exists. However, the null hypothesis is rejected on medium cap and there exist a positive relationship between size and the dividend payout ratio.

## **Chapter 7: Conclusions and Recommendations**

The purpose of the final chapter is to summarize the findings, answer the research question and further develop the analysis from chapter six. We will thereafter discuss the contribution and limitation of the current study. Suggestion for further research will also be provided and it is followed by a discussion regarding the quality of the research.

### 7.1 Conclusions

The main purpose of the study was to examine the relationship between the dividend payout ratio and company's selected factors. The second purpose was to examine whether there are any differences between large and medium caps. The research question was therefore: What is the relationship between the dividend payout ratio and company's selected factors for large and medium caps in Sweden?

In order to answer the research question, we conducted both an OLS and a Tobit regression and the sample consisted of 87 stocks listed on large and medium cap on Stockholm stock exchange. The study is based on a time period of five years and it includes the years between 2006 and 2010. The company selected factors included in the study are: free cash flow, growth, leverage, risk, size and profit. The result is based on the non-financial companies due to the incapacity of the company selected factors to explain the dividend payout ratio for financial companies. Some of the results comply with existing dividend theories and previous studies while other results are contrary to previous studies.

The dividend payout ratio among large caps has a significant relationship to: free cash flow, growth and risk. A positive relationship exists between the dividend payout ratio and free cash flow while growth and risk has a negative relationship to the dividend payout ratio. The positive relationship between free cash flow and the dividend payout ratio is in accordance with the Jensen's (1986) agency theory of free cash flow. However, the negative relationship to the growth rate contradicts the signaling theory which states that higher growth should contribute to higher dividends. The theory is therefore not applicable among large caps. Leverage, Profit and Size do not have a significant relationship to the dividend payout ratio among large caps. The insignificant relationship to profit confirms Modigliani and Miller's (1961) assumptions that the value of the firm is independent to the dividend policy and profit do not have an impact on large caps dividend payout ratios.

In contrast to the large caps, the dividend payout ratios for medium caps have a significant relation to: free cash flow, leverage, risk and size. Size is the only factor that has a positive relationship to the dividend payout ratio and the other three factors have a negative relationship to the dividend payout ratio. Jensen's (1986) agency theory of free cash flow is therefore not applicable on medium cap due to the negative relationship between free cash flow and the dividend payout ratio. Both leverage and risk also have a negative relationship to the dividend payout ratio which indicates that medium caps connected to a higher degree of uncertainty have a lower payout ratio. Growth and profit do not have a significant impact on the dividend payout ratio among medium

caps. Profit has therefore an insignificant relationship to the dividend payout ratio on both large and medium cap.

The results indicate that there are some difference between large and medium caps and the dividend payout ratios on the two segments are affected by different factors. The growth rate has a significant negative impact on the dividend payout ratios of large caps while it not has a significant impact on medium caps. This indicates that the dividend payout ratios of large caps are more sensitive to changes in the growth rate compared to medium caps. Another company selected factor that affected the two segments differently is the leverage. Leverage has a significant and negative impact on the dividend payout ratio for medium caps but it has no significant impact on large caps. It could therefore be argued that medium caps are more severely affected by leverage and they therefore have to decrease their dividend payout ratio as the leverage increases. The third factor that affected the dividend payout ratio differently on the two segments is size. The size of the company does not have any significant impact on the dividend payout ratio for large caps while it has an impact on the dividend payout ratio for medium caps. Medium caps are therefore more sensitive to changes in the size compared to large caps.

Overall, the results indicate that some of the company selected factors have an impact on the dividend payout ratio. However, the impact of the company selected factors is different for large and medium caps.

#### 7.2 Practical and Theoretical Contribution

The study has revealed which factors that have an impact on the dividend payout ratio on large and medium caps in Sweden. We have fulfilled the purpose of the study and revealed that the dividend payout ratio of non-financial large caps have a significant relationship to free cash flow, growth and risk. The non-financial medium caps had a significant relationship to free cash flow, leverage, risk and size. But no relationship could be established between the company's selected factors and the dividend payout ratio of financial companies. By conducting the study, we have contributed with both practical and theoretical knowledge regarding the determinants of dividend payout ratios for large and medium caps on the Swedish market.

Both current and potential investors are provided with information regarding which factors they should consider when predicting future dividends. Since dividend policies have been described as a puzzle, it was necessary to conduct a study regarding the determinants of the company's dividend payout ratio. Investors who are trying to predict future dividends will therefore gain some useful information regarding which company selected factors to look for when predicting future dividends. Managers may also use the study when determining the dividend payout ratios since they will be given useful information regarding which factors they may consider when determining the dividend payouts. The study has also contributed with theoretical knowledge since few studies had previously been conducted on the Swedish market. This study has therefore filled the research gap that previously existed and other academics may use the study as a benchmark case. We have also compared the results with the existing dividends theories and revealed which theories that are applicable on stocks listed on large and medium cap in Sweden.

#### 7.3 Limitations of the Research

Even though we have applied two regression models and included a significant amount of stocks in the sample, the study contains some limitations. Six company selected factors were included in the research but it is possible that other factors have a greater impact on the dividend payout ratio than the ones included in the research. But the company selected factors included in the research are the most commonly used factors in previous studies, and they should therefore be relevant for the study.

Another limitation is that the sample contains a larger proportion of large caps compared to the total population and the medium caps are somewhat underrepresented. But the difference between the sample and the total population is small, and the difference should therefore have a negligible impact on the results.

#### 7.4 Further Research

The results and the analysis have revealed some additional questions which need to be answered in future studies. More company selected factors than the ones included in the research should have an impact on the dividend payout ratio. It would therefore be interesting to conduct a similar study with different company selected factors.

The dependent variable in the study was the dividend payout ratio. However, a suggestion for future studies is to replace the dividend payout ratio and instead use the dividend yield as the dependent variable. Most previous studies have also used the dividend payout ratio and it would therefore be interesting to see the impact of a number of company selected factors on the dividend yield.

A time period of five years has been used in the study and for future research we recommend to use a longer time period. It would be interesting to see whether the results from this study are applicable if a study is conducted over a longer period of time or during another time period.

#### 7.5 Truth Criteria

In order to assess the quality and the credibility of the research a number of different criteria can be used. We have chosen evaluate the quality of our research by using the three most common evaluation techniques that are used in research in business administration, reliability, replication and validity (Bryman & Bell, 2007 p.40). But the criteria mentioned above should be applied in different ways depending on the chosen research strategy. Since we have conducted a quantitative research we have taken these rules into consideration when assessing the quality and credibility of the research.

#### 7.5.1 Reliability

Reliability deals with the question of whether the results from a research are consistent if another research would be made based on the same conditions. It is of special importance that the research has a high reliability when conducting a quantitative study since most quantitative researchers are concerned with whether the results are stable or not (Bryman & Bell, 2007 p.163). Consequently if the result from a study is stable, it is seen as reliable. On the other hand, if the results are unstable it is possible to question the reliability of the research.

Based on the time period and the amount of companies included in this research we think that the research is highly reliable. The time period of the research is between 2006 and 2010 and it captures three different states of the economy. In the first years of the time period (2006-2007) the world economy was expanding. During the years 2008-2009 the world experienced a global financial crisis and in 2010 the world economy was beginning to recover from the crisis. Since the selected time period for the research captures different states of the economy, we think that the reliability is fairly strong. The other factor that improves the reliability in the research is the number of companies included in the study. The majority of the companies listed on NASDAQ OMX large and medium cap in Stockholm who pay dividends are included in the research. Consequently, the largest possible amount of companies is included in the study which improves the reliability of the research.

#### 7.5.2 Replication

Another concept used in order to evaluate research is replication. As the name suggests it states that a study is of higher quality if it is possible for other researchers to replicate the findings. For a research to be replicable, there are two criteria that have to be fulfilled. Firstly, the researcher has to spell out the whole research process in detail in order to make sure that other researchers are able to conduct the same study and get the same result. The second criterion is that the researcher has to exclude emotions and be completely objective and base the research on empirical data (Bryman & Bell, 2007 p.40)

Throughout the research process we have described all important aspects and assumptions in order to make sure that other researchers are able to replicate our findings. Since the research follows a quantitative method, we have carefully described how we have found and used the data. We also provided an extensive explanation regarding the methodological assumptions, research strategy and research approach.

Another factor that contributes to the high level of replication is that we only have used publicly available historical data throughout the research process. The advantage of using historical data is that it is not going to change as time passes. The findings could therefore easily be replicated by other researchers' if they used the same data and the same time period. Since all data are publicly available anyone can replicate our findings since the data come from DataStream and the companies' annual reports. The second criteria for replication are that the researchers exclude their emotions. We have based the research on quantitative data and been completely objective throughout the process and we therefore think that the research fulfill the criteria. Consequently, it is possible for other researcher to replicate the study. All necessary steps in the process have been provided and we have based the research on empirical data.

### 7.5.3 Validity

Validity deals with the question of whether the results from a research are trustworthy and if the measurement of a concept measures what it is supposed to measure (Saunders et al. 2009, p.157). There exist many different measurements of validity but in order to evaluate the quality of our research we have focused on internal and external validity.

Internal validity refers to the relationship between the variables used in the research and the result (Bryman & Bell, 2007 p.40). In order to be able to support the conclusion it is of importance that the factors included in the research are related to the company's dividend payout ratio. Previous studies were reviewed in order to make sure that the

chosen factors are the most important determinants of the company's dividend payout ratios. The external validity refers to if it is possible to generalize the result of the study to other contexts and research settings (Saunders et.al. 2009, p.157). Based on the large number of companies and the relatively long time period of the study, we are confident that the results of the study are applicable among Swedish companies. We also think that it is possible to generalize the findings to countries that have similar operating environments as the Swedish companies.

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# Appendix

Exhibit 1: Correlation matrix, non-financial large caps

	DPR	FCF	Growth	Leverage	Profit	Risk	Size
DPR	1 (1)						
FCF	0,216 (0,234)	1 (1)					
Growth	-0,311 (-0,243)	-0,019 (-0,015)	1 (1)				
Leverage	-0,166 (-0,107)	-0,198 (-0,191)	0,071 (0,069)	1 (1)			
Profit	-0,04 (-0,026)	-0,023 (-0,017)	0,31 (0,304)	0,326 (0,318)	1 (1)		
Risk	-0,164 (-0,162)	0,03 (0,034)	-0,095 (-0,084)	-0,014 (-0,018)	-0,16 (-0,143)	1 (1)	
Size	0,001 (0,057)	0,513 (0,515)	0,067 (0,064)	0,004 (0,010)	0,159 (0,153)	-0,094 (-0,100)	1 (1)

Exhibit 2: Correlation matrix, financial large caps

	DPR	FCF	Growth	Leverage	Profit	Risk	Size
DPR	1						
DIK	(1)						
FCF	-0,037	1					
rcr	(0,052)	(1)					
C4l-	0,007	-0,039	1				
Growth	(0,116)	(-0,015)	(1)				
T	0,13	0,262	0,014	1			
Leverage	(0,181)	(0,284)	(0,076)	(1)			
Profit	0,09	0,053	0,068	0,066	1		
	(-0,01)	(0,050)	(0,104)	(0,063)	(1)		
Risk	0,091	0,119	-0,146	0,329	-0,215	1	
	(0,024)	(0,117)	(-0,162)	(0,305)	(0,305)	(1)	
Size	-0,01	0,699	-0,099	0,593	0,132	0,248	1
	(-0,067)	(0,689)	(-0,107)	(0,578)	(0,123)	(0,266)	(1)

Exhibit 3:Correlation Matrix, non-financial medium caps

	DPR	FCF	Growth	Leverage	Profit	Risk	Size
DPR	1 (1)						
FCF	-0,091 (-0,066)	1 (1)					
Growth	0,1 (0,127)	-0,054 (-0,044)	1 (1)				
Leverage	-0,198 (-0,222)	0,087 (0,076)	-0,128 (-0,140)	1 (1)			
Profit	0,143 (0,180)	0,119 (0,130)	0,533 (0,541)	-0,221 (-0,236)	1 (1)		
Risk	-0,175 (-0,164)	0,222 (0,23)	-0,116 (-0,113)	0,031 (0,028)	0,11 (0,111)	1 (1)	
Size	0,099 (0,103)	0,549 (0,549)	0,077 (0,079)	0,19 (0,186)	0,239 (0,239)	0,2 (0,200)	1 (1)

Exhibit 4: Correlation Matrix, financial large caps

	DPR	FCF	Growth	Leverage	Profit	Risk	Size
DPR	1						
	(1)						
FCF	0,117	1					
	(0,092)	(1)					
Growth	0,129	-0,033	1				
	(0,029)	(-0,003)	(1)				
Leverage	0,073	0,13	0,274	1			
	(0,145)	(0,070)	(0,247)	(1)			
Profit	0,015	0,005	0,039	0,037	1		
	(0,008)	(-0,026)	(0,036)	(0,053)	(1)		
Risk	0,173	0,055	0,346	0,27	0,1	1	
	(0,175)	(-0,020)	(0,347)	(0,262)	(0,098)	(1)	
Size	0,086	-0,583	0,21	-0,059	0,141	0,052	1
	(-0,030)	(-0,534)	(0,213)	(-0,082)	(0,122)	(0,141)	(1)

