Can dividend payouts and future earnings be predicted based on stock market liquidity and capital structure?

Nordic IT Companies’ dividend policy analysis

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“... I am far from underestimating the importance of dividends; but I rank dividends below human character”

Theodore Roosevelt
26th President of the United States
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SUMMARY

Dividend policy has significant impact on the company's capital market, in particular the dynamics of the price of its shares. Dividends represent cash income of shareholders and to some extent, signal them about success of the firm they have invested. From that point of view dividend policy has crucial impact on investment decisions.

Numbers of valuation models based on dividend payouts exist in the financial theory and they imply importance of dividends in making investment decisions. Alternatively some authors argue that role of the dividends is overestimated, as investors do not separate dividends and capital earnings. I believe that dividend policy has broad influence not only on share valuation, but also on capital structure of the company and its stock market liquidity.

Study intended to discover if dividend payouts and future earnings can be predicted based on stock market liquidity and capital structure. I have analysed 72 companies associated with Nordic information technologies market and tried to find main characteristics of dividend policy adopted in those companies. I have divided my research question into three parts and studied hypothesises which are associated with the research question.

I found relationship of dividend policies with future earnings growth power, firm capital structure and market liquidity. As a result of my study I have observed financial statements data and obtained the following outcome: (1) with valid and approved dividend policy, payout ratio is positively related to the future earnings growth rate (2) companies that have less liquid stock markets are more likely to pay dividends (3) companies with low leverage ratios have more probability of paying dividends. Also I have found that historically low payout ratio is harbinger of low or even negative earnings growth rates.

I believe that based on findings mentioned above, effective investment policy could be created. For the investor who favours to invest in company with high earnings growth perspectives and receive high dividends in the future, results of the study could be interesting. According to the results of the research, for “dividend preferring” investor, funds should be invested in the company with constantly high payout ratio, low stock market liquidity and debt-to-equity ratio below 1. In that case the probability of meeting investment expectations would be much higher.

Keywords: dividend policy, stock market liquidity, capital structure, earnings, Miller and Modigliani, dividend signalling theory, Nordic IT Market, dividend payout.
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1. INTRODUCTION

"The harder we look at the dividend picture, the more it seems like a puzzle with pieces that just don’t fit together" – Black, 1976

In this chapter empirical, practical and theoretical background of the chosen research problem will be introduced. As well as gaps in understanding the problem will be outlined and determined. The background of the research question will be reviled; as a result main goal of the thesis is going to be formulated. Reasons for choosing research question, limitations of the results and thesis disposition will be closing the chapter.

1.1 Background

In 1613 the first joint-stock shares of British East India Company were issued and in 1661 the first dividends on these shares were declared. Once begun, the tradition of paying dividends on shares continues in our times (Scott, 1951, pp. 130-132). However major studies and formation of dividend policy rules were developed in the United States. Intensive attempts to explain dividend policy began with the study of D. Lintner, published in 1956. In his research he examined 28 US companies in the period from 1947 to 1953 and identified the pattern according to which the studied companies spent relatively constant share of the profits to pay dividends. J. Lintner tried to ask the question which is still relevant in our times: “what choices made by managers do affect the size, shape and timing of dividend payments?” Later analogous research was made by Miller-Modigliani as a result “dividend puzzle” was introduced and evolved in 1959-1961. Authors scrutinized the effects of dividend payments on investor’s behaviour. The dividend puzzle is the finance concept in which dividends do affect on share price and investors prefer dividend paying companies even though from the theoretical point of view it should not matter for investors (Cohen, 2002, p. 93). A great deal of researches tried to explain this puzzle as a result of uncertainties, behavioural finance, and tax related matters.

Even half a century passed, the question remains acute because of a large number of factors which determine the choice of parameters of the dividend policy, and often stochastic influence of dividends on the market capitalization of the company. This thesis tries to explain the effects of manager decisions on dividend policy and in some point the impact of dividend payment decisions on companies financial figures e.g. capital structure, market liquidity.

Dynamically developing companies require a constant inflow of investments needed for further development, expansion and modernization of production, development of new technologies and products. In order to attract new investments companies should continue improving investment attractiveness. I believe that optimization of the dividend policy plays a major role in achieving this goal. Without clear dividend policy there cannot be a reasonable investment policy; all is equal investor chooses a company, where stable extra dividends paid in addition to the capital gains arising from price
differences of the shares. Developing of the investment policy of the company should be conducted in close connection with the dividend policy.

The object of my research is the role of the dividend policy as an integral element of company’s activities, dimensions, shape, nature and its determinants. I believe that research object is relevant because management of capital structure has a significant impact on the company's capital market, in particular the dynamics of the share price. Dividends could be certain kind of signal on commercial organization and profitability of the company. From a theoretical point of view, the choice of dividend policy involves two key questions:

- **Does the magnitude of dividend payments change the total wealth of the shareholders?**
- **If yes, what is the best way of maximising shareholders wealth in terms of dividends?**

Most practitioners consider the problem of optimizing the dividend policy as extremely important. However, there is no single algorithm to formulate dividend policy as it depends on many factors. Therefore each company must choose policy based on individual needs. On the other hand in the theory, two fundamental tasks in the process of selecting the optimal dividend policy exist:

- **Maximize the total wealth of the shareholders;**
- **Sufficiently finance investment projects of the company.**

These tasks are the keystone in the consideration of all the main elements of dividend policy, e.g. finding sources of dividends, the order of payments etc.

All important factors mentioned above determined the research question of the thesis. Thesis intends to describe the influence of dividend payments on other key elements of business of the company, for example, if high dividends harmful for future earnings or if dividend payments somehow determine the capital structure of the company. The choice of the theme of this study was influenced by the increased interest in the problems of formation and realization of the dividend policy in big corporations.

In order to study the effects of dividend policy Nordic IT Market will be examined. The results could differ for various industries, thus I have decided to concentrate on one industry, and results I believe could be implemented to IT Market. Sweden is considered as one of the world largest IT spending countries thus IT Market is interesting to examine (Researchandmarkets, 2009, pp. 3-4). Additionally according to researches made, Information Technology sector remained as a source of steady dividends through recession period, whereas companies in other sectors cut their dividend payments (Calahong, 2009, pp. 1-2). Thus results could be examined in that period without recessionary impact.

After reading number of articles, discussions and books on dividend policy and how company should establish payout ratio, I have discovered that most of the studies concentrate on single effect of dividends. While from the practical point of view, it
could be effective to create some model based on performance results of companies with different dividend structures and policies. Additionally I did not find any researches made for Swedish market which could explain dividend structure and its relation with future earnings, stock liquidity levels and capital structure combined. In my thesis I try to combine all this factors and find out which dividend policy performs the best. However it is important to remember that thesis is based on Nordic IT market and results could be different even for other sectors as well as for other countries.

1.2 Research problem formulation

The goal of any dividend policy is to establish a balance between current consumption and future profits. According to the books two groups of researchers exist trying to explain the significance of dividend policy in the overall assessment of the company to maximize the wealth of shareholders. They argue the following:

- Dividends do not play a significant role in the overall assessment of the company
- Dividends are important for assessing the company

There are many studies that support both schools. For example, while Miller and Modigliani (1961) argue for the theory of irrelevance of the dividends, Gordon and Linter (1956) believe that investors always prefer current dividends to possible income in the future. On the other hand Stern and Chew (2003) relate dividend policy with stock market liquidity. However as I mentioned before there is no study which summarises impact of the dividends in terms of future earnings, stock liquidity and company capital structure as one group. In my thesis I have tried to make it more practically applicable, thus in the end of my study I expect to obtain data on effective payout amounts, stock liquidity levels and optimal capital structure. Therefore my study intends to answer the following research question:

*Does the dividend payout ratio have influence on future earnings, market liquidity and capital structure of the company? And at what levels of market liquidity and capital structure investors do have more probability to be payed dividends?*

In order to answer these questions I have divided my research into three components and formulated hypotheses. Each of them answer separate question, however when combined we can see clear picture of dividend and company performance relationship. I have formulated these hypotheses in the literature review chapter of my thesis.

I will examine Nordic IT market (only listed companies) and conduct quantitative research based on primary data – Financial statements and Annual Reports of the companies. After that I will analyze the findings, connect them with the theory and give conclusions as well as relevant suggestions for further research.

1.3 Purpose

The purpose of this study is trying to find new solutions and eliminate the existing contradictions in dividend policy related theories, as well as develop and discover
optimal dividend policy in relation with the IT companies. In accordance with these goals, it is necessary to broach a question and address the following tasks:

1. Retrospective analyse existing theoretical approaches to the formation of dividend policy and determine the impact of dividends on the market value of the company, its capital structure and future earnings, as well as determine stock market liquidity impact on dividend payouts;

2. Reveal the formation of dividend policy, identify and analyze the most important factors determining the dividend policy of joint-stock company in Nordic IT Market;

3. Address underlying causes and conditions under which IT Companies could pay dividends;

4. Consider the typology of dividend policy and offer the options of optimizing the proportion of profits available for dividends.

Dividend policy is crucial because of its impact on capital structure and financing cost of the company. Even more important it is for public companies because of informational value of those dividends. Consequently, the development of dividend policy is an important task for the board of directors and financial manager who plays a key role in giving right advises for payment optimization. In my thesis I will try to underline main trends in dividends policy from 2002 till 2009 and reveal dividend policy which benefits shareholders and investors.

1.4 Limitations of the thesis

As it was mentioned before the study focuses only on Nordic IT companies listed on NASDAQ OMX Stock exchange and as a result limited to 86 companies. Additionally, there is a time limitations from 2002 and 2009, thus 14 companies listed after 2002 were not included in my research. Net of 72 companies will be analyzed. Additionally, some limitations could be implemented in hypotheses testing and will be disclosed separately.

Study will not cover all components of dividend policy but limited to three of them: (1) relationship of dividends and future earnings (2) relationship of stock market liquidity and dividend payments (3) relationship of capital structure and dividend payments.

Analysing data is also limited in terms of the source, as financial data were taken from Financial Reports and Annual reports and study accepts that data as the truth. Additional data on stock market volume, trades and stock prices were collected from NASDAQ OMX web page. This research totally rely on above mentioned sources, however I am responsible for any data discrepancy or inconsistency if any exist in this study.
1.5 Disposition

The rest of the thesis organised as follows: Chapter 2 represents Methodological Part of the study and covers explanation of motivation for chosen analysis methods as well as methods themselves, compare them with alternative methods that may be less or more appropriate, ontological and epistemological issues will be discussed and related to the study. Then choice of scientific approach will be discovered and used analysis techniques explanation will be closing the chapter. Chapter 3 covers theoretical framework part of the thesis, which is divided into three parts each testing one hypothesis. Different views on the research question will be discussed and presented. Chapter 4 contains data collection procedures, limitations, biases and variables which were used to test hypotheses. This is important part of the thesis because it explains variables calculation, formulas, thus data mining bias could affect results. In chapter 5 analyses of collected data and empirical findings will be presented. Chapter 6 draws conclusions, discusses the results, as well as gives topics for further research and outlines the contribution of study for the science framework.
2. THEORETICAL METHODOLOGY

If we knew what it was we were doing, it would not be called research, would it? - Albert Einstein, 1941

This chapter covers methods and methodologies that will be applied in research and explains possible procedures to confirm the choice and use of those methods and methodologies. In that way, it will explain and analyse the research process. Methodology chapter will provide readers the sense of understanding and will direct them through the research.

Interesting and valuable methods to be used in my thesis were developed and categorised by Crotty (1998, p. 5). Author represented categories of knowledge as a table, which I believe, can be used in research design of my thesis (Table1). I have marked knowledge categories, I think, would be useful to use in my thesis.

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<th>Epistemology</th>
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<td>Experimental research</td>
<td>Sampling</td>
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<td>Constructionism</td>
<td>Realism</td>
<td>Survey research</td>
<td>Measurement and scaling</td>
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TABLE 1 Representative sampling of research categories
Source: Michael Crotty, 1998 (Table reprinted under Fair Use Doctrine)

2.1 Epistemology

Epistemology is a part of philosophy that examines how we get knowledge about various subjects, what are the boundaries of our knowledge and how reliable or unreliable human knowledge is (Fumerton, 2006, pp. 3-5).

There are number of different epistemological theories formulated by analytical philosophy. These theories often differ among themselves on certain important issues of
If by objectivity we understand the full and unconditional separation of subjects that cannot and would be the most effective in my way of thinking I have already influenced on the assessment role. In my thesis I rely on facts, data and methods that already been proven, creating new knowledge is especially effective when researchers are involved in the understanding of the problem, in that way I can create something new and useful. In my thesis I use objective understanding jointly with my own thoughts and that would be the most effective in my way of thinking I have already influenced on the process, i.e. it could be truth that if other authors write the same thesis they could choose other methods based on their own belief system. Objectivism opposes to data mining bias, when the same database repeatedly used until having the results that from the researcher’s point of view fit the hypothesis. However I cannot say that my study do not have some objectivity, since I try to eliminate that risk where it is possible.

On the other hand, subjectivity is the point of view according to which there is no absolute designations of right or wrong and morality is derived from the personal preferences and personal opinions (Crotty, 1998, p. 9). From this point of view I believe that this study is not fully subjective. In my methods of analysing data I take into account previous researches made by other authors, use calculation methods that reputed being right for my case, and consider other points of view on research question. However even if I do so, as I mentioned above, I suggest that full objectivism is not possible in research.

From the constructivists’ point of view truth cannot be described just as “objective” or “subjective” (Crotty, 1998, pp. 42), as constructionism adds the idea that process of creating new knowledge is especially effective when researchers are involved in the creation of products accompanied with personal thoughts. I consider constructionism as something in-between objectivity and subjectivity. I hold that it will be more effective if in my thesis I use objective understanding jointly with my own thoughts and understanding of the problem, in that way I can create something new and useful.

2.2 Theoretical perspective

If we try to discuss the work from the prism of classical philosophy concepts that represent the accumulation of knowledge, we should describe each of them in connection with finance as a science. There are three main concepts: positivism, interpretivism and realism.

Positivism is based on the analysis and interpretation of data collected without assessment findings of the results that involve the use of highly structured technologies and methods of research. The concept is based on the assumption that researcher cannot influence the results of the study, and remains independent from the object of research. According to the positivists, philosophy should investigate only the facts free from any assessment role. In my thesis I rely on facts, data and methods that already been proven, however, in the conclusion part of my study I will try to examine the research question.
not only form the existing models point of view, but create some relations and knowledge that would be new.

**Interpretivists** argue that in today's rapidly changing world, no economic studies can lead to the identification of economic laws. A thorough understanding of the processes determining the development of society is impossible, if studies are carried out exclusively with the aim of opening general laws. However I believe that there are models that can be used to predict some data and generalize interpretations.

According to the concept of **realism**, the reality does not depend on any thoughts or ideas of the people. Realism recognizes just some philosophical aspects of positivism but at the same time argues that people cannot be the object of research.

In my study I am going to rely on a combination of positivism and interpretivism, though I do not preclude the use ideas of realism. Considering the development of the theory of finance as a process of research, the findings of the thesis was based on a set of ideas that form the area of scientific knowledge using quantitative analysis techniques.

### 2.3 Scientific Methodology

Firstly, I begin my study with data **observation** method. Observation is a method of directional reflectance of object characteristics, which allows getting a certain idea about the observed phenomenon. This method includes the following: (1) description of monitoring procedures (2) measurement, and (3) comparison. Observation also includes historical data analysis, as by studying history, we are able to create objective logic of thesis.

Secondly, in the research process set of methods of economic and statistical analysis, methods of analysis and synthesis of economic information, the concepts of different schools of financial management have been applied.

The methodological basis of the study contains **dialectical** method of knowledge and **systematic** approach. The study sues such scientific methods and techniques as scientific abstraction, analysis and synthesis, methods of grouping, comparisons, etc.

I have also used **deductive** method of making conclusions on gathered data. Using the deductive method I start with a hypothesis, which is considered to be true, form null hypothesis, and then check it using systematic observation methods. I think that it is important to look for data that refutes the hypothesis, thus it will be included in hypothesis testing process.

And in the end of my study I use modelling method. My simulation method is based on creating a model that is a substitute of the real object. If we take it in the broadest sense, the main function of modelling is the materialization of the ideal. Thus I will test three hypothesises and try to find the most effective dividend policy structure. By doing this I believe that I can create activities that could be considered as model. This implies a second important function of creating model in my thesis: using effective ratios related
with dividends, we can construct effective portfolio with the same characteristics and apply the in the real financial market.

2.4 Methods

I have used quantitative research method as a main tool for obtaining necessary information and data for planning, decision-making process, and formulating hypotheses about Nordic IT companies’ dividend policy. At the foundation of my quantitative research there is statistical data that allows me to get results that do rely not on opinions and assumptions, but on exact quantitative (numerical) values of the studied parameters. I believe that using quantitative method reduces the risk of making wrong decisions, assumptions and choice of planning parameters. As a result I have formulated the following methods of quantitative research for my thesis:

1) Firstly, I have constructed and analysed frequency tables of chosen parameters on the basis of logic and previous analogous studies made. I have collected three groups of parameters for testing each of the hypotheses. For example, for testing hypotheses related to liquidity I used liquidity ratios and dividend payment ratios to construct a table, which helps me to conclude if there is any relationship between stock market and dividends.

2) Secondly, I have used two-dimensional analysis to identify relationships between various characteristics. The processed results have been displayed in the form of correlation coefficient tables. Statistical significance of the identified correlations checked using special methods of statistical inference, e.g. statistical testing of hypotheses. In that way I checked correlation and concluded if existence of those confirmed by mathematical and statistical analysis, e.g. when analysing data from the balance sheet and income statement I did the following steps:

• analysed the significant deviations and differences between the averages of parameters;
• measured correlation coefficients and tried to find the relationships between financial indicators;
• conducted factor analysis.

I think that quantitative analysis of financial data has paramount importance in practice. For example, it reveals the quantitative relationship between the various balance sheet accounts, sections or groups of balance sheet items and can be used for grouping and comparison. However in the end of my study I also try to identify reasons for parameters correlation using qualitative analysis methods.

Study uses the following scientific approach for testing above mentioned hypotheses (DeFusco, McLeavey and Pinto, 2007, p. 244):

1) Stating the hypotheses
2) Identifying the appropriate test statistic and its probability distribution
3) Specifying the significance level
4) Stating the decision rule
5) Collecting the data and calculating the test statistic
6) Making the statistical decision
7) Making decision on hypotheses

Collection of data used in thesis was done through Annual Reports, Management Discussions, Footnotes and NASDAQ OMX Stock Exchange. Additionally, missing parts of data were filled with figures from Thompson Reuters DataStream Database. Secondary data sources are composed of books, related articles, as well as researches and studies available in the internet. Research papers available on Social Science Research Network were the main source of scientific basis and theoretical framework of this thesis while Umea University Library resources were used to find journal articles and publications.

2.5 Critique of sources of the data accessed

The aim of data critique is to identify the source of criticism of fitness, the usefulness and capability of data used to obtain the necessary information, as well as assessment of the reliability of this information.

As data used in this research is primarily taken from Financial Statements of the related companies and these reports audited and standard, the reliability of data seems to be accurate. However, in the accounting practice there are some differences in principles, i.e. depreciation and inventory accounting methods etc. Thus reported results on profit/loss, equity or expenses could affect study results. On the other hand, companies use International Financial Reporting Standards and the procedures of income recognition and accounting basis should be the same for all the companies included in the research. Moreover data in Thompson Reuter Data Stream database could be filled in with mistakes and I did not check all the data, so I randomly checked 5% of data and results were appropriate and accurate compared to official reports.

Additionally I was not able to eliminate the risk of using previous researches. Authors of previous researches (that I refer to) use different methods and sometimes the accuracy of data cannot be checked. I understand that thoughts and ideas printed in the books, articles and reports are the authors’ private opinion and cannot be accepted as axiom.

In general I believe that data I rely on is accurate and probability of affecting research results is small. However, I am going to cut 5% of highest and lowest results when forming samples and testing them.
3. LITERATURE REVIEW

“Do you know the only thing that gives me pleasure?
It's to see my dividends coming in” – John D. Rockefeller

This chapter of the thesis covers literature review on research question. Chapter divided into three parts: (1) Literature review of “dividends and future earnings” question along with previous research results summarizing table will be provided (2) Literature review of “dividends and stock liquidity” question will be discussed (3) Literature review of “dividends and capital structure” question will be evaluated. Results of previous results will be given as well as my own point of view will be stated.

3.1 Do dividends associated with future earnings?

I believe that creating efficient dividend policy is one of the most pressing issues in corporate governance practices. Especially this vexed question manifest itself in the companies with a clear separation of the major shareholders, which are interested in the capitalization of net income, and minority shareholders, whose main aim is to receive immediate profits. This situation is fraught with constant corporate conflicts and may adversely affect the price of the stock of the company.

Comparatively high distribution ratio associated with high payout ratio could mean that company oriented to pay direct dividend, instead of using dual-dividend policy, which includes stock repurchases as well. On the other hand, high distribution ratio along with low payout ratio could be associated with low dividends and regular stock repurchase. However, firms with low distribution ratio will have low dividend payout ratio (Brigham & Ehrhardt; 2008, pp. 641-643).

Therefore it could be very important to develop transparent mechanisms for determining the accumulation and distribution of the dividends. In this part of chapter I am trying to find relationship between dividend payments and ability of the company to generate profits in future periods. After analysing the results of the research, we should be able to conclude if it is important to pay dividends in terms of future earnings or not.

3.1.1 Theoretical explanations and theories

3.1.2 The Dividend Irrelevance Theory

The theory of irrelevance of the dividends was developed by F. Modigliani and M. Miller in their article published in 1961. They suggested that the value of the dividends paid do not affect the total wealth of shareholders, which is determined by the ability of firms to generate profits, because dividends just represent “informational content” of earnings. However they do not reject the fact that dividends affect share price (Miller & Modigliani, 1961, p. 430). They argued that there is no point for optimal dividend policy as investors are interested in total returns on the firms regardless of sources (dividends, capital gains, or both) of that returns (Besley & Brigham, 2008, p. 536). However, there is considerable limitation for this theorem, as it is true only for firms with constant and stabilized dividend payout ratios in terms of present value of the dividends (DeAngelo & DeAngelo, 2006, pp. 293–331).

The logic of Miller and Modigliani’s reasoning is as follows: If the company earned “P” profits and has the possibility of investing in “IP” project, which generates the same yield as the average project, firm can spend all profit from that project to pay dividends and finance next project through issuing additional shares; or spend some part of profits to pay dividends and another part to finance next project, again issuing additional shares to finance it. So, there should not be any difference in the amount of dividends, the adoption of any three options for the payment of dividends (full dividend payment, partial dividend payment and no dividend payment) does not change overall profitability for investors, and leads only to change capital structure.

However, there are some limitations in the framework of the theory: (1) absence of taxes (2) equivalence in preference of dividends and capital gains for investors (3) no emission and transaction costs and (4) information fairness (Ogilvie, 2007, pp. 18-19).

To draw a conclusion, I can say that dividend irrelevance theory could be false in the real world with limitations mentioned above. If we take this theory as relevant we should equal internal and external financing costs of capital (Baker, 2009, p. 104).

I argue that theory developed by Miller and Modigliani could have been changed in our days because of above mentioned limitations.

3.1.3 The “Bird in the hand” theory

Representatives of this approach are the opponents of Modigliani-Miller theory and they believe that dividend policy is undoubtedly significant; it affects the value of the total wealth of shareholders. The main ideologists of this trend are M. Gordon and J. Lintner, as the first article on this subject was published by them in the second half of 1950 (Gordon, 1956; Lintner, 1956). The main thought of this approach lies in the fact that investors proceed from the principle of minimizing risk; they always prefer current dividends to possible income in the future, including hypothetical increase in capital of the company. In addition, dividend payments could reduce the level of uncertainty of
investors regarding the desirability and profitability of investing in this company. They agree on lower level of returns on their invested capital, which is used as a discount factor leading to an increase in market valuation of equity. If dividends are not paid, the uncertainty increases and leads to lower market valuation of the equity, i.e. reduces shareholder wealth (Brigham & Houston, 2007, pp. 466-467).

Some researches try to identify the reasons and values standing behind investor decision-making process. Baker H. Kent argues that perception of cash dividends have psychological nature and can be described by behavioural finance (Baker, 2009, p. 180).

Thus the main conclusion from the theory of Gordon and Lintner is as follows: in the framework of overall profitability dividend yield has a priority. By increasing the share of profits available for dividends, we can enhance the market value of the firm, i.e. improve the wealth of its shareholders.

However, I think that if we assume most investors who receive dividends plan to reinvest gained profits in a similar companies and firms, “the bird in the hand” theory is irrelevant; because when transferring funds from one company to another, there is a loss on sale and buying. This is the exact reason why Miller and Modigliani disagreed with this theory (Brigham and Houston, 2007, pp. 480-481).

3.1.4 The tax-preference explanation

The theory of tax-preference was developed in early 80's of the 20th century by Robert Litzenberger and K. Krishna Ramaswamy. They claimed that from the perspective of shareholders, priority given not for the dividends, but for capital returns, and it is true only if capital returns are taxed at lower rates than dividends received (Litzenberger & Ramaswamy, 1980, pp. 478-480). Complying with tax-preference explanation, those investors who have high sensitivity for tax could prefer low or no dividend paying stock to avoid paying taxes. In accordance with this theory if two companies have different profit distribution policy, shareholders of the company, which has a higher level of dividends should require increased earnings per share in order to compensate expenses associated with increased taxation. Thus, it is not beneficial for the company to pay high dividends, as market value is maximized at a relatively low payout ratio of dividends.

There could be the following supporting points associated with the taxes for the shareholders: (1) dividend gains taxed immediately after receiving them, however capital gains could be taxed only when investor sales the shares. For example share bought in 2000 for 10 USD and sold in 2010 for 80 USD taxed only when realized. Thus investor pays taxes only in the future period, and it is preferable to pay the same taxes in the future than to pay it today (2) tax rates for capital gains are lower than taxes for dividends (based on U.S. tax history) Fabozzi & Peterson (2003, p. 558).

However, there are different categories of taxpayers who receive dividends and this could change the main point of tax-preference theory. For example, individual investors pay their dividend taxes along with their wages; on the other hand legal entities could have some preferences in taxes; or pension fund income from the dividends could be tax free (e.g. Fabozzi & Peterson, 2003, p. 558). This fact explains why some stock prices
are relatively volatile for dividend announcements. If investors like new dividend policy with high dividend payouts, they will buy more portions in that share, and share price goes up. The same is true for opposite, if investors dislike new policy; they will go for other shares by selling existing stock. Investors in this situation could be just substitutes for each other - one investor sells the stock and other with capital gains preference buys it. Thus tax-preference should not impact on shareholders wealth (Baker & Powell, 2005, p. 410).

3.1.5 The signalling explanation

Signalling theory of dividends is based on the fact that basic models for assessing the current fair market value of shares use the size of dividends paid on them as a starting point. Thus, increase in the level of dividend payments automatically determines the market value of quoted shares on the stock market. At the sale of such shares shareholders receive additional income. In addition, the payment of high dividends indicates that the company is growing and expects significant growth of its profits in the next period. This theory is based on fairness of information for all participants of the stock market, which has a significant influence on the fluctuation of the market value of the shares. Raising or declining payment ratio of dividends could be a signal from the insiders, as managers working in the company could have significant information on the company (Bernt & Ødegaard, 2006, p. 193).

Additionally, very important results were found by Arnott & Asness in 2003. They argued and then illustrated on actual financial data that payout ratio is positively related to future earnings growth. Their research involves data collected in 1946-2001 for US S&P 500 companies. Figures 1 and 2 illustrate the results they presented at the end of their research.

![Figure 1](image-url)
They found that historically low payout ratios follow low earnings growth and this relationship was strong statistically. They explain that low payout ratios could lead to inefficient “empire” building and financing low profit projects, in order to raise assets. That leads to low levels of profit from those projects. However company with high payout ratio tries to finance only high profit project, thus could be more profitable (Arnott & Asness, 2003, pp. 83-84).

However, Savov and Weber having made research of signalling theory on German companies did not find any relationship between dividend increases and companies’ operating performance improvement. They find that mean and median of the returns of dividend paying companies do not exceed annual return of companies which do not pay dividends. Authors also mention that it could be the country differences, as in Germany, this relationship could be less strong than in U.S (Savov & Weber, 2006, pp. 22-24).

Additionally, based on research made in 2007 on Portuguese, French and UK companies Vieira and Raposo did not find support to the dividend signalling theory. Vice versa, they found out that in the majority of cases the relationship was reverse. However there was slightly visible relationship between high dividends ratios and firms performance in UK market. Also they concluded that this theory is not relevant for countries with high level of ownership concentration in companies (Vieira & Raposo, 2007, pp. 23-25).

Also we can find an explanation of irrelevance of the theory in researches of Easterbrook published in 1984. He suggests that, dividend payout may be doubtful signal for investors unless the market participants can make the difference between growing firms and firms on their maximum capital (Easterbrook, 1984, p. 220).

On the other hand research made by Ned Davis Research team clearly shows that companies which were paying dividends outperformed companies with no dividends. In Figure 3 you can see that in average dividend paying firm’s earnings rose by 10% a
year, while the same ratio for the non-dividend paying companies amounted only for about 4.4%.

So, is there any relationship between dividend payments and ability of the company to generate profits in future periods? I will discuss it in analysis part after obtaining the results.

I am going to evaluate this theory and show arguments for the dividend signalling theory. I believe that there is a relationship between dividends and future earnings.

### 3.1.6 The agency explanation

The essence of this theory lies in the fact that the company should implement a dividend policy in such a way that it meets the expectations and preferences of its majority shareholders and future investors. Thus if majority of shareholders give preference for current income, dividend policy should be based on current means of shareholders compensation, e.g. dividends. And vice versa, if shareholders prefer to increase revenues in the future, dividend policy should be based market capitalization of profits. Those shareholders, who will not agree with the majority opinion, could reinvest their capital in other enterprises; resulting shareholders to be more homogeneous. That means there is no optimal dividend policy for all companies.

According to the theory, at the time when dividends paid to the shareholders there is a shortage of free cash flow for the company to finance existing projects available for the management. In order to increase funds the company should issue additional shares. And those shareholders who want to reinvest their income to the company should by these securities. By reducing free cash flow shareholders prevent possible investments in unprofitable or least profitable projects available (Fabozzi & Peterson, 2003, p. 560). The role of the dividend payments measured as a tool for monitoring and controlling
management performance. Thus shareholders are ready to pay more taxes for dividends in order to be able to control management more strictly.

Theory explains that controlling of dividend policy by shareholders provides incentive for the managers of the company to reduce agency costs, thus dividend policy softens possible agency problems between managers and shareholders (Baker & Powell, 2005, p. 414).

In their research Eckbo and Verna (1994, pp. 2-4; 66-67) find that problems arising around dividend policies could be more rule than an exemption for the publicly traded companies. They have developed ‘dividend consensus hypothesis’, which suggests that dividend policy totally depends on shareholders composition, and their preferences; actual dividend policy represent compromise between two sides and that it is optimal for company (Da Silva, Goergen & Renneboog, 2004, p. 47).

As we can see in Figure 4, Bhattacharyya (2007, pp. 4-13) summarised researches made on dividend and earnings for 1974 - 2000. Most of the authors rejected agency hypothesis, however I am going to test above mentioned relations and draw my own conclusions in the analysis chapter.

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3.1.7 Formulation of the hypothesis 1

With valid and accepted dividend policy, payout ratio is positively related to the future earnings growth rate.

3.2 Does stock market liquidity determine dividend payments?

The main purpose and goal of increasing the liquidity of the stock market of the firm is the growth of capitalization in terms of real market value. Creating actively traded stock market is aimed to improve and maintain the liquidity of the securities. If we take as a truth that ultimate goal of any business is growing its capitalization, increasing liquidity directly serves its main objective. In case of selling the business, stock prices provide the first benchmark for the pricing the company value. Thus shareholders interested in improving the liquidity of the share market.

If the firm is going to make a placement of additional shares in the stock market and thereby raise funds for development, the high liquidity of shares takes particular importance, because securities have been known for many investors, and this eliminates the problem of finding customers and reduces the cost of placing newly issued shares (Stern & Chew, 2003, p. 79).

Most investors who want to buy stock in the market pay closely attention on the trading volume of investing instrument, i.e. its liquidity. If stock is not liquid enough investor possibly would not buy it unless that stock provides additional compensation for the risk. Dividends allow company managers compensate investors their liquidity needs in the stock market. In that way investors with current liquidity preferences may buy illiquid but dividend paying stock. Thus in order to create additional liquidity for their stock market company shareholders could decide to pay dividends and attract more investors.

Some developed hypotheses suggest that dividends increase stock liquidity by attracting more investors interested in dividend payments. Traders provide liquidity by narrowing stock price bid-ask spread and increasing the proportion of actively traded shares in the market (Baker, 2009, p. 392). However Elgers & Murray (1985, pp. 543-551) suggest that dividend paying companies experience low trading volumes. Thus I am going to test if companies with low liquidity levels pay more dividends or not.

3.2.1 Theoretical background and studies

In their research Banerjee, Gatchev and Spindt suggest that demand for dividend paying stocks is higher within low liquid markets, and opposite for markets with high liquidity (Banerjee, Gatchev & Spindt, 2007, pp. 369-397). They concluded that investors find dividends and stock market liquidity as substitutes. Authors have made a research on US stock market on terms of relationship between stock liquidity and dividend payout ratios (Figure 5).
As authors mention, sample used in Figure 5 consists of all companies with publicly traded common stock on NYSE or AMEX. Authors underline that as liquidity of the market rise the proportion of companies that pay dividends declines; and dividends play the role of market liquidity stimulators.

They made a hypothesis that dividend payout policy of the company strongly related to stock liquidity. If company experiences problems with capitalization managers try to pay dividends in order to max out capitalization, calculated in a simple form as stocks outstanding multiplied by share price. Additionally they suggest that dividend paying companies reduce the influence of their income on liquidity of the firm in a broad meaning. Possible explanations could be that such firms reduce investor risk associated with returns, as they get some portion of it in form of dividends, thus their income is diversified. As a conclusion of their work they argue that dividend policy can affect firms‘ value due to market imperfections.

Additional research on market-wide liquidity and company stock valuation relationship in NYSE and AMEX stock markets were made by Pastor and Stambaugh in 2001. They concluded that liquidity ratio is a key factor in stock price valuation models. They have discovered that expected returns could be reduced if liquidity risk lowers. Investors would expect higher returns on stocks that have more sensitivity for aggregate liquidity even taking into account the size, value and momentum of the firm (Pastor & Stambaugh, 2003, pp. 642-685).

For example, increased market liquidity on US stock market from 1978 to 1999 could explain declining desire to pay dividends (Fama & French, 2005, pp. 26-27). As liquidity improved over time, companies declined their dividend payout ratios. Authors
also did not find relationship between dividends payout ratios and firms’ capital investments. As they found firms with large portion of investments were less expected to pay dividends, however firms with low rate of investment were also less likely expected to pay dividends. Does that mean that fact of paying no dividends by companies was not related to further investment intensions? I will try to find possible explanations for this question in my research further.

However, there are other tools for company managers to improve stock market liquidity other than just paying dividends. In a related study, Brockman, Howe and Mortal argue that stock market liquidity directly impacts firms’ dividend payout policy by influencing the decision to repurchase stocks. Authors conclude that firm prefer stock repurchases over dividends payout, and this is because of tax and flexibility advantages related to the process. According to the empirical results of this study, stock market liquidity directly impacts compensation plans for shareholders where dividend and share repurchases play substitution effect for each other. Companies with relatively high liquidity ratios prefer stock repurchases, and firms with less liquid markets prefer dividend payouts (Brockman, Howe & Mortal, 2008, pp. 446-459).

On the other hand Brav and others argue that managers of the firms which combine dividend and stock repurchases endeavour not to cut dividend payout because of “negative consequences”. They try to use stock repurchase initiations as a tool of compensation if there is enough liquidity (Brav, Graham, Campbell & Michaely, 2005, pp. 483-528). Firms are extremely hesitant to cut dividends because of negative signals that this cut conveys to investors. Also, companies with large number of high-yield investment project have less probability of paying dividends due to fund needs to finance these projects (Moyer, McGuigan & Kretlow, 2009, p. 72).

To make a conclusion relationship could be stated as follows: (1) managers tend to improve performance of the company on the long run (2) As it stated by Fang, Noe and Tice, stock market liquidity strongly positively related to the company performance (Fang, Noe & Tice, 2009, pp. 150-169), thus firm tries to make stock market as liquid as possible (3) In order to achieve liquidity, firm may use high dividend payout policy, consequently I can suggest that firms with low liquidity of their stock market tend to pay more dividends comparing to companies with low liquid markets. In testing of related hypothesis I am going to find relationship between firm stock market liquidity and dividend payments.

3.2.2 Formulation of the hypothesis 2

Companies that have less liquid stock markets are more likely to pay dividends.

3.3 Is there any connection between capital structure and dividends?

The structure of the capital of the company, in my opinion, is the most important internal factor to be measured in this hypothesis. I have two reasons for that: firstly, impact on the performance of dividend policy can be easily quantified and, secondly, it is relatively easy for the management to control the structure of the capital.
Companies that pay dividends reduce their retained earnings, and thus increase the amount which these firms should compensate further in order to provide investing activities in their business. Consequently, I think that decisions on capital structure are strongly interrelated with the policy of paying dividends.

First of all we should explain Miller and Modigliani’s point for this question. In addition to the assumptions about the presence of perfect capital markets, Modigliani and Miller’s work provide the following assumptions: (1) the dividend policy accepted by the firm has no effect on its capital budget and structure (2) the behaviour of all investors is rational.

Taking these conditions as a true Miller and Modigliani concluded that the policy of paying dividends and capital structure of firms does not affect true value, i.e. they are irrelevant. In essence every dollar paid today in the form of dividends reduces the amount of retained earnings, which can be invested in new assets, and this decrease in earnings should be compensated through the issuance of new shares. New shareholders should be paid in a form of dividends, and those payments reduce the present value of expected dividends for the former shareholders. Thus each dollar of dividends received deprives shareholders of future dividends on the scale equivalent to a discounted value. Consequently, as provided in the model of Miller-Modigliani, shareholders will be indifferent to the choice between receiving dividends in the amount of $1 today and receive dividends in the future, as the present value of the same dollar. Hence the policy of paying dividends will have no effect on the price of the shares and capital structure.

With perfect capital market, firm value depends solely on its decisions on investment projects, as these decisions determine the future cash flows from operations of the company and risk of these flows to default, methods of forming capital (capital structure) will have no effect on the value of the firm (Miller & Modigliani, 1961, pp. 411-433).

On the other hand I consider other side of this question. I argue that companies that have large proportion of equity more expected to pay dividends if comparing with the companies that heavily depended on external debt. If company borrow funds from external sources there is a high probability that it will use all revenues on debt repayment as a cost of financing. Additionally, if company pays dividend and uses debt tool to finance future projects, debt could rise significantly over time, thus investors would require more compensations for that risk, for example in form of new dividends. Thus it could be vicious circle of dividends growth.

In related hypothesis evaluation I am going to test if capital structure of the company impacts the probability of paying dividends.

### 3.3.1 Theoretical overview

The mechanism of corporate capital structure influence on dividend policy was developed by Cheng F. Lee, Joseph E. Finnerty (1990, pp. 1357-60) when calculating net income per share measure. This indicator, along with the size of the dividend per share, earnings per share and the ratio of dividends paid to net income appears as one of
the main characteristics of dividend policy evaluation, and is used in the calculation of the value of shares. The relation of debt to capital, in its turn, reflects the structure of the capital of the company. In practice, it is better known as the coefficient of leverage. Hence Lee and Finnerty used these measures to find relationships (Dyagtyarev, 2005, pp. 4-6).

Faulkender, Milbourn and Thakor made interesting research in 2006 and found that capital structure and dividend policy are defined as a sequence of decisions of managers and investors, thus they are driven by the same decisions and interrelated (Faulkender, Milbourn & Thakor, 2006, pp. 1-4). Additionally, Graham and Harvey (2001, pp. 187-243) provided data which confirms that stock price is the main determinant when making choice of issuing debt or equity. They also argue that dividend policy and capital structure choices interact with common factors thus should be correlated.

Some authors try to explain this relationship with agency problems and costs. For example Crutchley and Hansen (1989, pp. 36-46) suggested that managerial ownership structure as well as leverage and dividend policy applied in such a mix way to minimize agency costs. However this could be result of failure of not being able to separate the direct effects between the policies and indirect effect through operating characteristics of the company (Kumar & Ariff, 2004, pp. 33-35).

We could think this question from the compensation point of view, in other words if company has large proportion of debt there is no need to pay dividends as the most of the capital raised using debt instruments, and that would increase debt to equity ratio. On the other hand if there is large proportion of shareholders and investments projects financed by equity, dividends could be appropriate compensation. In testing hypothesis 3, I argue that there is relationship between capital structure and dividend payments, larger proportion of debt, less probability of paying dividends.

In my research paper I am trying to test available theories concerning dividend policy of Nordic Information Technology Companies listed on NASDAQ OMX Nordic Exchange Market and if success, explain the results in terms of developed hypothesises.

### 3.2.2 Formulation of the hypothesis 3

*Companies with low leverage ratios have more probability of paying dividends.*

The rest of the thesis organized as follows. Section IV defines data and sample selection and variables used in my research. Section V provides analysis part and investigates relationship between variables and results. In section VI I discuss the results, give conclusion, as well as topics for further research and contribution of the work for the science framework.
Chapter covers data collection process, as well as theories testing process. Additionally biases will be disclosed and described in close attention to avoiding the risk of data misuse. Chapter also provides information of variables used to measure the test statistics.

4. DATA COLLECTION AND VARIABLES

“Be able to analyze statistics, which can be used to support or undercut almost any argument” – Marilyn vos Savant

4.1 Data collection

The study covers 86 IT companies listed on NASDAQ OMX Nordic Stock Exchange. Data collection was made through Annual and Financial Reports which were downloaded from official web pages of those companies. Additionally in order to eliminate the risk of mismatching collected data 14 companies listed after 2002 were not included in my research. Appendix 1 shows participation status of the companies in tests. In the research I try to evaluate companies with comparably long history of performance, thus research based on financial data from 2002 till 2009. I do not include period before 2002 due to possible data distortion as a result of rapid growth of IT market. In total, using above mentioned restrictions, I am using 72 firms’ performance data. Additionally, some restrictions for the firms could be used in testing the theories.

I do not use sample of population because sampling introduces error. I analysed all firms in Nordic IT market listed on NASDAQ OMX and do not try to spread the results on other companies. However, hypotheses I am testing, were developed for companies from different markets and countries, thus I believe results could be extended to other companies as well, with correction for the error.

4.2 Biases

4.2.1 Data mining bias

Data-mining bias relates to data searching and finding relationships process in way that could lead to misusing, in other words analyst could restate and reconfigure data till getting desired results (DeFusco et al., 2007, p. 236). Researchers have developed many theories regarding dividend policy, its relationship with different factors, ratios and further analysts may be exposed to the risk of developing their strategies or models based on data of previous analysis, which could be not correct. This resulted from intergenerational data mining process (McQueen & Thorley, 1999, p.2) Although my research could be affected by intergenerational data mining bias, I tried to eliminate risk of overusing, in other words research based on previous researches and results will be compared with those, but I try to avoid risk of overstating. Additionally, all the results,
ratios would be based on numbers checked for plausible economic and financial meaning, rationality.

4.2.2 Survivorship bias

Survivorship bias based on collecting data only for those companies operating for the testing period, that is only survived companies, although results of those companies could be important in analysis. Bias results in wrong conclusions if sample includes only variables which survive until the end of the sample period (Carpenter & Lynch, 1998, p. 8). A test design is a subject of survivorship bias if it fails to include the data of the companies what have gone bankrupt or were closed. Carhart (1997, pp. 57-82) in his research composed two groups of portfolio, one containing only survived stocks, and one containing full sample, and concluded that persistence is much weaker in the sample of survivors. In the research, I try to make computations and conclusions that were not affected by survivorship bias. I believe that in context of the research this bias cannot lead to false conclusions, as I do not try to analyze financial performance in terms of effectiveness.

4.2.3 Time-period bias

Time-period bias based on possible errors due to time-specific results. A short time series is likely to give specific results. A long term dataset gives more correct results. However I think that for the newly developed IT Market the analysis period between 2002 and 2009 is enough to draw conclusions and this period favours the research problem. Additionally, if I take period before 2002 this could lead to incomparable data sample due to different reporting standards. As I have noticed companies began to mass adopt IFRS reporting standards in 2002-2003, thus results after that period should be based on the same accounting principles.

4.2.4 Look-ahead bias

Look-ahead bias arises if researchers use information that was not available on the testing date, or it was incorrect. I am using official data from Annual Reports and Financial Statements, so I believe that gathered and used data correct. In my analysis I do not make any assumptions on data, and take data if available on web page of the company.

I have used financial reports denoted in SEK, however some companies reported in EUR, DKK and ISK. To compare data properly, I have used official currency exchange rates on the reporting date to restate the financial statements to SEK.

4.3 Variables

In this section I present variables used to measure the hypotheses. This is crucial part of the analysis, thus it should be explained what measurement system I used to compare data and find relationships. I am going to use the set of variables for each of the tests.
However I have to define variables which are common for all tests and then explain the rest separately.

In the research company considered as dividend payer in year $t$ if for the analysing year company reported $d$ amount of cash dividends and paid it to shareholders.

**Correlation** is a statistical measure of two or more of random variables (or variables that with some degree of accuracy can be considered as such). At the same time, changes in one or more of these variables lead to a systematic change in other variable, or other variables. The mathematical measure of correlation of two random variables is the correlation coefficient. Correlation coefficient can be positive or negative. In the sample I am going to measure if high dividend payout ratio is negatively correlated to the earnings growth rate using correlation coefficient but that do not mean that they are necessarily depend on each other. On the other hand I believe that relationship between dividend payments and earnings has financial meaning and using this measure in the test is reasonable. Correlation test would give the statistical significance levels of the test.

### 4.3.1 Variables used in Hypothesis 1 testing

*Hypothesis 1 suggests that under balanced dividend policy dividends are positively related with future earnings.*

The main criteria for the sample in this hypothesis is dividend payment ratio, thus only dividend paying companies were included in this test. However, data for companies that do not pay dividend is also important, as I should be able to compare earnings growth rate of those companies with dividend payers. But still, these results would be out of hypothesis testing measurement, as it could be noticed that companies that do not pay dividends could be simply out of enough cash to pay dividends, thus I believe results would be biased. I am going to test payout ratios and their relationship with future earnings.

First set of variables contain: (1) dividend payout measurement ratio (2) earnings and their growth rate ratio

1. Dividend payout ratio equals to the total amount of dividends on common shares divided by the earnings available to holders of shares ($\text{DPS}_t/\text{EPS}_t$). Dividend payout ratio could be not stable; it depends on the amount of net profit for the year, adopted dividend policy of the firm, feasible public investment program and other factors. In publically traded companies the General Meeting of Shareholders approves the amount of dividends payable, thus the actual percentage of profits available for dividends, may differ from those recommended by the Board of Directors. I have decided to use payout ratio as it is important signalling information for investors. For instance, McManus, Gwilym & Thomas (2004, pp.1355-1387) argue that payout ratio transmits additional information for investors and it is important to adjust for it when explaining returns. Additionally, cash flows of the company could vary significantly from one year to another; therefore payout ratio should be
calculated for several years. Only in that case we could determine company’s ability to pay dividends (Bragg, 2007, p. 71)

2. Earnings growth rate simply calculated as current EPS divided by last year EPS (\(EPS_t/EPS_{t-1}\)). However in my research I am going to test if earnings growth ratio raises when firm do not pay dividend in previous year or if earnings growth ratio declines if dividends were paid. Very often earnings growth rate used to estimate dividends growth rate. Analysts usually could use one of the following tools to predict dividends growth rate: (1) take historical dividends growth rate (2) accept earnings growth rate as approximation of dividend growth rate for future periods (Brigham, Ehrhardt, 2008, p. 349). I believe that dividend payouts have long run effect of earnings growth, thus I use 2-year subsequent earnings growth rate. Additionally if company reduced its loss from previous periods I consider it as growth. For example, if company had loss if 50,000.00 in year \(t\), and had loss of 5,000.00 in year \(t+1\), I consider it as growth rate of 90% growth.

Additionally, in order to define possible dependence of earnings and dividends I am going to divide sample into two groups: (1) firms with below than average payout ratio (2) firms with above than average payout ratio. As a result we could compare two groups and draw some conclusions on sample. These methods, I believe, would give clear picture of relationships.

4.3.2 Variables used in Hypothesis 2 testing

Hypothesis 2 argues that companies with low stock market liquidity pay more dividends in order to raise its liquidity ratios.

In this test I do exclude companies which do not pay dividends, as it could be the case that those companies have enough liquidity of their shares and there is no motivation for paying dividends. Thus here we need three types of measurement: (1) stock market liquidity ratio (2) dividend payout ratio (3) correlation ratio.

The following ratios will be used to measure liquidity:

Share turnover ratio allows predicting the volatility of the stock by comparing its average trading volume with the number of shares in free float. Turnover ratio indicates how many times one share passes from hand to hand in a month. For example, if the monthly trading volume of shares is 5 million SEK, and the shares outstanding 2 million shares, turnover ratio equals to 2.5 or 250% (Elder, 2002, p. 187). I calculate this ratio in order to define the probability of increasing/decreasing of the dividends if liquidity increases/decreases for one standard deviation.

Annual traded SEK amount of the shares is also important for investor as exponent for execution risk. Stocks with high value of trading activity involves less risk of not executing sale or buy order in time for a reasonable price, as well as less execution costs. These two factors sometimes could be key elements of investors’ decision making process.

Additionally, proportion of zero trading days gives clear picture of stock trading activity.
All of these ratios and measures would determine liquidity levels of stocks, so that I can make a decision and compare these results with dividend policies.

### 4.3.3 Variables used in Hypothesis 3 testing

*Hypothesis 3 argues that firms with relatively high leverage ratios pay dividend less frequent*

As I noted above I am going to use debt to equity ratio (D/E) to measure capital structure and dividend per share (DPS), earnings per share (EPS), dividends paid to net income (D/NI) ratios to measure dividend policy. As a result I should be able to find relationships if they exist.

In the form of “debt to equity” this ratio helps us to illustrate the influence of capital structure of the company on its dividend policy, however in order to quantify this effect more correctly some amendments should be done. In the denominator of the ratio, I believe, the total share capital should be adjusted and reduced to the proportion which was formed through the issuance of preferred shares. The reason is the specificity of preferred shares.

According to International Accounting Standards (2008:1126, IAS 32) preferred stocks represent equity or could be financial liability. Preferred shares differ from ordinary shares by offered rights to their owners. In practice reflection of the share capital in the balance sheet includes ordinary and as well as preferred shares.

Therefore financial professionals believe that this kind of stocks appear as a mixed or hybrid security with the form of ordinary share but with the content similar to the long-term debt obligation (Spiller & May, 1990, pp. 4-12). Some resemblance to the bonds is that the preferred stock will generate periodic dividend payments a high probability. In theory, corporate management can sometimes waive these fees, however in practice often prefers not to do so because of possible negative consequences. Therefore, I am going to use D/E ratio adjusted for preferred stocks.

Taking into account that D/E ratio adjusted for the effects of preferred shares, further I use the formula of net income minus dividends on preferred shares accrued for the reporting period to calculate D/NI ratio to illustrate the relationship of dividend policy with capital structure.

I use EPS ratio as a measure of income per share and in International Accounting Standards (2008:1126, IAS 33) it is calculated by dividing profit or loss attributable to ordinary equity holders of the parent entity (the numerator) by the weighted average number of ordinary shares outstanding (the denominator) during the period.

Finally I am going to find the probability of paying dividends by companies with different capital structures.
<table>
<thead>
<tr>
<th>Hypothesis 1</th>
<th>Dividend Payout Ratio, Earnings Growth Rate, Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis 2</td>
<td>Share Turnover Ratio, Trading Volume, Proportion of zero-trading days, Dividend Payout Ratio, Correlation</td>
</tr>
<tr>
<td>Hypothesis 3</td>
<td>Debt-to-Equity, Dividends per share, Earnings per share, Dividends paid to net income,</td>
</tr>
</tbody>
</table>

**FIGURE 6** | Summary of ratios used in research |
5. DATA ANALYSIS AND HYPOTHESES TESTING

The most important chapter of the thesis analyses three hypothesis stated in previous chapters. All three hypotheses testing divided into four parts: (1) formulation of the null hypothesis (2) test statistic selection (3) identifying significance level (4) alternative hypothesis testing

5.1 Hypothesis 1 testing

As I have mentioned before numbers of studies were done by researchers to find possible relationship between dividends and future earnings. Some of them argue that there should not be impact of dividends on future earnings; some say that earnings can be predicted by dividends. In my study I am going to test Nordic IT companies for this relationship.

In my sample I have collected data for 72 companies. However due to my intention to improve accuracy of my test, companies that did not pay dividends were removed from the sample. For example, in 2005 Digital Vision did not pay dividends, thus when considering results for 2005 I will not include this company in the sample. This was done because I am going to test the quality of relationship between two variables, i.e. if companies paying high dividends have higher earnings growth rate in the next 2 years or not, thus there is no reason for including non-dividend paying companies. Following figure illustrates number of companies examined in each year from 2002 to 2009 (Figure 7).

Next I have calculated Payout Ratio for each company as DPS/EPS results. After that I have calculated median of payout ratio for companies included in the sample and that
way divided them into two groups: (1) companies with high payout ratio (2) companies with low payout ratio. For example, in 2007 median payout ratio was 0.4918, and number of companies in each group was 20 (high payout) and 19 (low payout).

The next step was to calculate 2 years subsequent earnings growth rate for companies as I am going to test impact of dividend payments on future earnings growth. This ratio was calculated as percentage change of earnings for the year. For example, Comptel Oyj’s earnings were the following:

<table>
<thead>
<tr>
<th>Year</th>
<th>Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>-17,648.77</td>
</tr>
<tr>
<td>2003</td>
<td>36,494.08</td>
</tr>
<tr>
<td>2004</td>
<td>96,559.45</td>
</tr>
<tr>
<td>2005</td>
<td>67,566.67</td>
</tr>
<tr>
<td>2006</td>
<td>52,321.73</td>
</tr>
<tr>
<td>2007</td>
<td>102,354.31</td>
</tr>
<tr>
<td>2008</td>
<td>54,669.99</td>
</tr>
<tr>
<td>2009</td>
<td>-15,635.67</td>
</tr>
</tbody>
</table>

1 year change for 2003 calculated as:

$$\frac{36,494.08 - (-17,648.77)}{-17,648.77} = 3.07$$

or for 2006 as:

$$\frac{52,321.73 - 67,566.67}{67,566.67} = -0.23$$

Thus 1 year earnings change would be:

<table>
<thead>
<tr>
<th>Year</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>3.07</td>
</tr>
<tr>
<td>2003</td>
<td>2.65</td>
</tr>
<tr>
<td>2004</td>
<td>-0.30</td>
</tr>
<tr>
<td>2005</td>
<td>-0.23</td>
</tr>
<tr>
<td>2006</td>
<td>1.96</td>
</tr>
<tr>
<td>2007</td>
<td>-0.47</td>
</tr>
<tr>
<td>2008</td>
<td>-1.29</td>
</tr>
<tr>
<td>2009</td>
<td>N/A</td>
</tr>
</tbody>
</table>

To find average 2 years return I have just calculated arithmetic average of returns:

<table>
<thead>
<tr>
<th>Year</th>
<th>Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>2.86</td>
</tr>
<tr>
<td>2003</td>
<td>1.17</td>
</tr>
<tr>
<td>2004</td>
<td>-0.26</td>
</tr>
<tr>
<td>2005</td>
<td>0.87</td>
</tr>
<tr>
<td>2006</td>
<td>0.75</td>
</tr>
<tr>
<td>2007</td>
<td>-0.88</td>
</tr>
<tr>
<td>2008</td>
<td>N/A</td>
</tr>
<tr>
<td>2009</td>
<td>N/A</td>
</tr>
</tbody>
</table>

These results give understanding that in 2003 Comptel Oyj paid 1.25 SEK dividends and after that its earnings grew for about 1.17 points in average for 2004 and 2005.

It is worth to say that in the calculation of the returns I have cut 5% of extreme results, i.e. 2 companies with extremely high growth rate, and 2 companies with extremely negative earnings growth.

Having earnings growth rates, now we can compare the results for two groups and conclude if group 1’s earnings growth rate was higher than group 2’s.

### 5.1.1 Formulation of the null hypothesis

$H_0 = \text{Low dividend payout ratio results in higher growth rates of future earnings}$

$H_a = \text{High dividend payout ratio results in higher growth rates of future earnings}$
we can formulate null hypothesis in form of mean growth rates. If mean growth rate of earnings in companies with low payout ratios is higher than in companies with high payout ratio we can accept null hypothesis.

\[ H_0: \mu_{\text{group}2} > \mu_{\text{group}1} \]
\[ H_a: \mu_{\text{group}2} \leq \mu_{\text{group}1} \]

\( \mu \) - mean growth rate of earnings for the period

### 5.1.2 Definition of Test Statistic

As sample in some cases is less than 30 variables and we do not know standard deviation (because variables number in sample is different through the years) I am going to use t-statistics to accept or reject the null hypothesis.

According to DeFusco et al. (2007, p. 171), I am using the following Test Statistic:

\[
 t = \frac{\overline{d} - \mu_{d0}}{S_d}
\]

where

\[
 \overline{d} = \frac{1}{n} \sum_{i=1}^{n} d_i
\]

\[
 S_d^2 = \frac{\sum_{i=1}^{n} (d_i - \overline{d})^2}{n - 1}
\]

\[
 S_d = \frac{S_d}{\sqrt{n}}
\]

\( S_d \) = Sample standard deviation
\( n \) = number of pairs of observations
\( \mu_{d0} \) = hypotesized value for the population mean difference
\( \overline{d} \) = Sample mean difference
\( S_d \) = Standard error of the mean difference

In our case calculation would be as follows:

First we need to calculate average earnings growth for both of the groups:
<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average growth rate for Group 1 companies</td>
<td>1.58</td>
<td>2.16</td>
<td>1.04</td>
<td>1.14</td>
<td>1.13</td>
<td>0.46</td>
</tr>
<tr>
<td>Average growth rate for Group 2 companies</td>
<td>1.64</td>
<td>1.28</td>
<td>0.76</td>
<td>0.80</td>
<td>0.15</td>
<td>-0.23</td>
</tr>
<tr>
<td>Difference</td>
<td>-0.05</td>
<td>0.88</td>
<td>0.28</td>
<td>0.33</td>
<td>0.98</td>
<td>0.69</td>
</tr>
</tbody>
</table>

To find $d$ we calculate $\frac{-0.05 + 0.88 + 0.28 + 0.33 + 0.98 + 0.69}{6}$ and find 0.52

$$S_d^2 = \frac{((-0.05) - 0.52)^2 + \cdots + (0.69 - 0.52)^2}{5} = 0.1577, \ S_d = \sqrt{0.1577} = 0.3971$$

$$S_{\bar{d}} = \frac{S_d}{\sqrt{n}} = \frac{0.3971}{\sqrt{6}} = 0.1621$$

Average growth rate for all companies in the sample for 2002-2007 was 0.99 and average growth rate for Group 2 companies was 0.73,

$$t = \frac{\bar{d} - \mu_{d0}}{S_{\bar{d}}} = \frac{0.99 - 0.73}{0.1621} = 1.5983$$

5.1.3 Specifying the significance level

After calculation of $t$ statistic two actions are possible: (1) Accept null hypothesis or (2) reject the null hypothesis. From this point we should adjust the test for possible errors. As we know there are four possible outcomes for the null hypothesis testing (DeFusco et al., 2007, p. 46):

1. Do not reject true null hypothesis. Correct decision.
2. Reject true null hypothesis. Wrong decision. Type I error ($\alpha$)
4. Do not reject a false null hypothesis. Wrong decision. Type II error ($\beta$)

Significance level (SL) is a probability of making wrong decision. For example, if we choose SL of 0.05, there is 5% chance to accept wrong decision. If we use 0.10 SL we have some evidence that null hypothesis is false, if we use 0.05 we have strong evidence and for 0.01 we have very strong evidence for rejecting null hypothesis (DeFusco et al., pp. 46-47).

At significance level of 0.1 I can accept the null hypothesis when $t > 1.476$ or $t < -1.476$ with degrees of freedom of 5. Thus here I can make decision and reject null hypothesis as $t$-value in my test is 1.5983.

5.1.4 Alternative hypothesis

At this point it will be useful to check the alternative hypothesis in terms of graphs and correlation.
Firstly, let’s check average earnings growth rate for both groups (Figure 8).

As we can see companies with high payout ratio outperform companies with low payout ratio.

Additionally we can calculate correlation ratios for payout ratio and 2 year subsequent earnings growth rate:

| Correlation (payout ratio for 2002; growth rate for 2003-2004) | -0.335 |
| Correlation (payout ratio for 2003; growth rate for 2004-2005) | 0.316 |
| Correlation (payout ratio for 2004; growth rate for 2005-2006) | 0.210 |
| Correlation (payout ratio for 2005; growth rate for 2006-2007) | 0.592 |
| Correlation (payout ratio for 2006; growth rate for 2007-2008) | 0.391 |
| Correlation (payout ratio for 2007; growth rate for 2008-2009) | 0.234 |

Correlation is not very strong, however more important fact is that correlation is positive for the most of the time. That leads us to the assumption: payout ratio is positively correlated with the earnings growth rate.

Further discussion and analysis will be provided in the next chapter.

5.2 Hypothesis 2 testing

I am going to test if companies that have low liquidity levels expected to pay dividends with high probability comparing to high liquidity companies. For that reason I have divided sample into two groups: (1) 36 Companies with relatively high liquidity (2) 36 Companies with relatively low liquidity. I have used median of daily average trade volume to shares number as the criteria for groups forming, as well as ratios mentioned above in variables description part. For example, let’s suppose that Company X has 10 000 shares outstanding and average trade volume of 500 shares for 1 day. By dividing 500 to 10 000 we get portion of actively traded shares in 1 day, in our case it is 5%.
Additionally if company had large proportion of zero trade days it is considered as low liquid stock. I also used share turnover ratio. In Table 2, I have summarised selection results and figures for two groups.

In the calculation of liquidity levels I have got average values for 2002-2009 and based on these numbers determined if companies were liquid between 2002 and 2009.

<table>
<thead>
<tr>
<th>Number of Companies</th>
<th>Average daily trade volume to total number of shares, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP 1* (less liquid)</td>
<td>34</td>
</tr>
<tr>
<td>GROUP 2 ** (more liquid)</td>
<td>34</td>
</tr>
</tbody>
</table>

* Yleisvakion, information systems were not included due to 5% low extreme values cut
** Nokia Oyj and Ericsson were not included due to 5% high extreme values cut

| TABLE 2 | Groups formation based on liquidity levels |

5.2.1 Formulation of the null hypothesis.

I have formulated the null hypothesis in the following way:

\[ H_0 = \text{Companies that have highly liquid stock markets are more likely to pay dividends.} \]
\[ H_a = \text{Companies that have less liquid stock markets are more likely to pay dividends.} \]

or

\[ H_0: p_{\text{group2}} > p_{\text{group1}} \]
\[ H_a: p_{\text{group2}} \leq p_{\text{group1}}. \]

where \( p \) is the probability of paying dividends in formatted testing groups. I will reject the null hypothesis if the evidence indicates that the probability parameter for Group 2 is higher than for Group 1.

5.2.2 Definition of Test Statistic

\[
\text{Test Statistic} = \frac{\text{Sample statistic} - \text{Value of the population parameter under } H_0}{\text{Standard error of the sample statistic}}
\]

where

\[
\text{Standard error} = \frac{\sigma}{\sqrt{n}}
\]

\( \sigma = \) population standard deviation
\( n = \) number of observations
In this test according to the Central Limit Theorem (sample size > 30), I am going to use Z-test as there are 68 variables and variance is available for them. Additionally the values of probability of paying dividends are normally distributed with mean of 0.460 and standard deviation of 0.502.

As I have selected probability of dividend payments, the value of each variable is between 0 and 1. If company have payed dividends most of the years between 2002 and 2009 we consider the company as dividend payer, and vice versa. Thus, we have already specified companies by two criteria: (1) more liquid or less liquid (2) dividend payer or non dividend payer. Knowing this we can begin to compute test statistic.

\[
\text{Standard Error} = \frac{\text{population standard deviation}}{\sqrt{\text{number of variables}}} = \frac{0.502}{\sqrt{68}} = 0.0609
\]

\[
Z \text{ value} = \frac{\text{Total Dividend Payers} - \text{Dividend Payers of total Liquid Companies}}{\text{Standard Error}} = \frac{0.4558 - 0.2058}{0.0609} = 4.1051
\]

Total number of dividend payers is 45.58%, while only 20.58 % of more liquid companies payed dividends. We got pretty high Z value, next level is to choose significance level.

### 5.2.3 Specifying the significance level

I have chosen 0.01 significance level in order to have enough proof for hypothesis testing. As we know the rejection point for \(Z_{0.005} = 2.575\) and \(-Z_{0.005} = -2.575\). Thus we reject null hypothesis if \(Z > 2.575\) or \(Z < -2.575\).

In our case we have \(Z\) value = 4.1051, thus I can reject null hypothesis with 99% confidence. In order to show some additional evidence of hypothesis rejection I will continue with some math and graphical explanations.

### 5.2.4 Alternative hypothesis

Firstly, let’s have a look on the proportion of dividend payers and market liquidity levels between 2002 and 2009 and try to find out if there is any correlation (Figure 9).
As market activity began to recover dividend payers counted only 47%.

Additionally we are able to calculate correlation coefficient between Trade Volume and proportion of dividend payers was only 29% or 21 companies. However number of dividend payers. That is another evidence to reject the null hypothesis.

Let’s continue and see the proportion of dividend payers in each group.

As the results show, in 2002 when trade volume and market activity were on high levels proportion of dividend payers was only 29% or 21 companies. However with market liquidity and activity declining number of dividend paying companies rose up to 54% (2006, 2007). As market activity began to recover dividend payers counted only 47%.

Additionally we are able to calculate correlation coefficient between Trade Volume and Dividend payments.

\[ \text{Corr} (X_{\text{Trade Volume}}, Y_{\text{Dividend Payers}}) = \frac{E[(X - \mu_X)(Y - \mu_Y)]}{\sigma_X \sigma_Y} = -0.79 \]

Negative correlation close to -1 means that trade volume is negatively related to the number of dividend payers. That is another evidence to reject the null hypothesis.

Let’s continue and see the proportion of dividend payers in each group (Figure 10).
Now we clearly see that companies which have less liquid stock markets have higher probability of paying dividends. In Group 1, the probability of paying dividends is 82% while in Group 2 – only 21%.

Further discussion will be presented in the next chapter.

5.3 Hypothesis 3 testing

Hypothesis states that companies with low leverage ratios pay have more chances to pay dividends compared to companies with high proportion of debt in their capital structure. I am going to use group comparison method to test this hypothesis, and as in previous tests I will divide sample into two composites: (1) Companies that have total liabilities to shareholders’ equity ratio greater than 1 and (2) Companies with total liabilities to shareholders equity ratio less than 1. For example, let’s suppose that Company X has debt quall to 15 000 SEK and shareholders’ equity – 5 000 SEK. That gives us leverage ratio of 3, thus Company X goes in Group 1.

When dividing companies I have computed average ratio for 2002-2009, and made decision based on average figures. Table 3 summarizes selection process.

![Table 3]

5.3.1 Formulation of the null hypothesis

Null hypothesis has been formed as the following:

\[ H_0 = \text{Companies with high leverage ratios have more probability of paying dividends} \]

\[ H_a = \text{Companies with high leverage ratios have less probability of paying dividends} \]

or

\[ H_0: p_{\text{group1}} > p_{\text{group2}} \]

\[ H_a: p_{\text{group1}} \leq p_{\text{group2}} \]

where p is the probability of paying dividends. I will accept null hypothesis if the evidence indicates that the probability parameter for Group 1 is higher than for Group 2.
5.3.2 Definition of Test Statistic

As the sample size is more than 30 and standard deviation of the sample can be calculated I am going to use Z-test for this hypothesis. Mean probability of paying dividends in the sample is 0.5143 with standard deviation of 0.5034.

\[
\text{Standard error} = \frac{\sigma}{\sqrt{n}} = \frac{0.5034}{\sqrt{70}} = 0.0602
\]

\[
Z \text{ value} = \frac{\text{Mean probability in the sample} - \text{Mean Probability under } H_0}{\text{Standard Error}}
\]

\[
= \frac{0.5143 - 0.3571}{0.0602} = 2.6113
\]

5.3.3 Specifying the significance level

Under significance level of 0.01 I can reject the null hypothesis as Z value is larger than 2.575. Thus I can say with the high level of confidence that Companies with high level of leverage do not have more probability of paying dividends. In alternative hypothesis test I am going to use graphs and correlations to see if companies with low leverage multiplier pay dividends more frequently.

5.3.4 Alternative hypothesis

Correlation coefficient between leverage ratio and dividend payment probability is the following:

\[
\text{Corr} \left( X_{\text{leverage ratio}}; Y_p \right) = \frac{\text{E} \left[ (X - \mu_x)(Y - \mu_y) \right]}{\sigma_x \cdot \sigma_y} = -0.259
\]

Correlation coefficient close to -0.3 indicates that there is low negative correlation between leverage ratio and dividends, i.e. if leverage ratio is increasing probability of paying dividends will decrease.

Additionally I have constructed figure (9) that indicates average dividends paid by formulated groups. Results give evidence that average dividends paid by companies with low leverage ratio (less than 1) are as twice higher than dividends paid by high leveraged companies. Along with previous results figure 11 points that alternative hypothesis could be accepted.
To have more assurance in alternative hypothesis we can draw the graph that indicates the proportion of dividend payers in each group. Figure 12 do not adjust results on the amount of dividends as in previous test. However results show additional evidence for alternative hypothesis.

While only 36% of Group 1 companies pay dividends, 62% of Group 2 companies decided to compensate shareholders with dividends. This brings us to the fact that companies with low leverage multiplier pay more dividends.

Further discussion on possible explanations for this hypothesis will be presented in the next chapter.
6. RESULTS DISCUSSION AND CONCLUSION

“A conclusion is the place where you get tired of thinking.”
– Martin Henry Fischer

In this chapter results discussion, valuable findings and conclusion will be presented. Additionally topics for further research and contribution to new knowledge will be displayed and discussed.

6.1. Positive results

Dividend policy is closely linked to the current and future use of profits in a company. A key goal of such policy is to establish the optimal proportions between current profit and future growth of the company. From that point of view I have conducted tests on three factors influencing dividend policy and got the following results:

Hypothesis 1. I have evaluated the impact of dividends paid today to future earnings of the company. The results of this test, I think, are important for the investors because future earnings could be predicted in terms of dividend paid for current period. As a result of my study I have obtained the following data:

- Number of dividend paying companies and earnings growth rate rose in 2002-2009;
- Dividends are positively correlated to future earnings;
- Companies with high payout ratio outperformed companies with low payout ratio in 2002-2009 constantly;
- I was able to reject the null hypothesis with significance level of 0.1 and accept alternative one - high payout ratio is associated with higher future earnings growth.

Miller and Modigliani developed their model with some restrictions that are not appearing to be truth in real market. In my study, dividends have influence on future earnings of the company and this relationship is statistically very powerful.

Also I have found that historically low payout ratio is harbinger of low or even negative earnings growth rates. Managers and board of directors have private information and are aware of current and future financial situation in the company, thus when they pay high dividends there is a certainty in future earnings of the company. When managers are pessimistic about the future earnings growth they will pay less dividends in order to have funds for future difficulties.

Additionally when company pays high proportion of earnings as dividends, there are fewer funds available to finance new investment projects and cost of financing is higher, thus managers try to invest with more prudence and care. They invest only in projects with high profitability rates and deny uncertain ones. Alternatively, companies that do not pay or pay fewer dividends invest retained earnings in large amount of projects. This could lead to “empire building”, when company tries to increase its size and scope while ignoring needs of existing shareholders and resulting rise of agency problems.
I believe that dividend signalling theory is the most relevant to my study. I have found that dividends could signal potential investors about the future expectations of managers about the company.

All possible explanations of the positive relationship between dividends and future earnings mentioned above could be truth or not, this is only theory. However statistically explained strong relationship is not a theory, it is observed fact.

**Hypothesis 2.** I have examined if stock market liquidity has impact on probability of dividend payments or not and got results:

- Low stock market liquidity is strongly associated with probability of dividends;
- Stock market liquidity declined while number of dividend paying companies rose in 2002-2009;
- There is strong negative correlation between stock market liquidity and probability of dividend payments;
- The probability of paying dividends is 82% in companies with low stock liquidity while in companies with highly liquid stock market this number is only 21%.

In illiquid markets investors expect additional compensation for the transaction costs and risks, thus managers of such companies try to compensate the risk with dividends. Alternatively in high liquid stock markets managers will have less motivation for dividend paying.

There is strong interrelationship of dividend policy and companies stock market strategy. I believe that companies usually forced to pay dividends if the stock market liquidity is low as managers see stock liquidity and dividends as substitutes. Dividends could be seen as project financing costs, if liquidity is high issuing of new shares and obtaining new equity capital is relatively easy. On the other hand, if company’s stock market is illiquid there is no reason of issuing new shares, and debt used to finance new projects, thus cost of financing is higher. That is why managers try to increase liquidity levels and attract new investors by means of dividends.

**Hypothesis 3.** I hypothesised that capital structure of the company have influence on probability of dividend initiations. I have evaluated this relationship in two groups: (1) companies with liabilities higher then shareholders equity (2) companies with liabilities lower then shareholders equity. I have observed the following results:

- The null hypothesis was rejected; results indicate that firms with low leverage ratios tend to pay dividends more frequently;
- There is low negative correlation between leverage level and probability of paying dividends;
- Companies with low leverage level constantly paid more bigger amount of dividends comparing to companies with high leverage ratio in 2002-2009;
- While only 36% of companies with high leverage ratio paid dividends, 62% of low leverage ratio companies decided to compensate shareholders with cash dividends.
I think, as companies with high leverage ratio have high interest expense and there is low probability for such companies to pay dividends, it is more important to pay debt, interest then pay dividends. The main source of financing in such companies is debt, so shareholders interests do not have priority and dividends could be delayed.

I believe that based on findings mentioned above, effective investment policy could be created. For the investor who favours to invest in company with high earnings growth perspectives and receive high dividends in the future, results of the study could be interesting. According to the results of the research, for “dividend preferring” investor, funds should be invested in the company with constantly high payout ratio, low stock market liquidity and debt-to-equity ratio below 1. In that case the probability of meeting investment expectations would be much higher.

I conclude that dividend payouts and future earnings can be predicted based on stock market liquidity and capital structure.

6.2. Suggestions for further research

In the investment analysis framework it could be effective to create model based on factors that have positive or negative link to dividends. This model should give clear understanding of optimal dividend policy and future earnings growth in terms of dividends.

Furthermore qualitative study for dividend policy could be done by interviewing company managers. This would give understanding of decisions on dividend payments. In my study I have found the relationships of different factors, however the underlying reasons for paying or not paying dividends are not clear yet.

Additional methods of compensation for example stock repurchases or stock options should also be studied. Being the means of investor compensation along with dividends they could be substitutes to each other. In my study I only covered dividends, thus further research on dividends and stock repurchases or options interchangeability would be interesting.

6.3. Contribution to the science framework

Findings of my study contribute knowledge in the investment framework concerning evaluating company’s dividend policy and future earnings growth. There are a lot of models developed and based on dividend policy, thus my findings could contribute in the improving of those models.

In the study I also try to give my answer for theoretical disputes on dividends, earnings, capital structure and stock market liquidity. I support my point of view with qualitative study and tests, which is statistical information that could be used. Study also could be used as the beginning point for further researches.
7. REFERENCES

Books:


Crotty M. (1998). The foundations of social research: meaning and perspective in the research process. SAGE.


*Scientific articles:*


**Web pages:**


**Regulations:**

## 8. APPENDIX

Appendix 1. List of companies included in the study.

<table>
<thead>
<tr>
<th>№</th>
<th>Company Name</th>
<th>Participation status</th>
<th>Reason</th>
</tr>
</thead>
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<td>Acando B</td>
<td>In the sample</td>
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<td>2</td>
<td>Addnode B</td>
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<td>3</td>
<td>Affecto Oyj</td>
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| 50  | Nokia Oyj                | In the sample |
| 51  | Nolato                   | In the sample |
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| 54  | Nyherji                  | In the sample |
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| 56  | Orc Software             | In the sample |
| 57  | PartnerTech              | In the sample |
| 58  | Precise Biometrics       | In the sample |
| 59  | Prevas                   | In the sample |
| 60  | Pricer                   | In the sample |
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| 63  | *PSI Group*              | was not included | Listed on Aug 2008
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| 65  | ReadSoft                 | In the sample |
| 66  | RTX Telecom              | In the sample |
| 67  | Scanfil Oyj              | In the sample |
| 68  | Sensys Traffic           | In the sample |
| 69  | Sigma                    | In the sample |
| 70  | SimCorp                  | In the sample |
| 71  | Softronic                | In the sample |
| 72  | Soliteq Oyj              | In the sample |
| 73  | SSH Communications       | In the sample |
| 74  | Stonesoft Oyj            | In the sample |
| 75  | Tecnomen Lifetree Oyj    | In the sample |
| 76  | Tekla Oyj                | In the sample |
| 77  | Teleste Oyj              | In the sample |
| 78  | Thrane & Thrane          | In the sample |
| 79  | Tieto Oyj                | In the sample |
| 80  | Tilgin                   | was not included | Listed on Dec 2006
| 81  | Topsil Semiconductor Materials | In the sample |
| 82  | Trade Doubler            | was not included | Listed on Nov 2005
| 83  | Trifork                  | was not included | Listed on Dec 2007
| 84  | Vaisala Oyj              | In the sample |
| 85  | Westend ICT Oyj          | In the sample |
| 86  | Yleiselekoniikka         | In the sample |