



The correlation between dividend policy measures and share price volatility on OMX Helsinki

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<p>Abstract:</p> <p>Dividend policy refers to the decision whether a firm decides to distribute some of its earnings as dividends to shareholders or not. Two significant variables are related to it: dividend yield and payout ratio. The former indicates how much a firm pays out in dividends each year relative to its share price, whereas the latter refers to the percentage of earnings paid to shareholders in dividends. Dividend policy is seen as one indicator of share price volatility, which measures the dispersion of returns and price changes for a certain security.</p> <p>The purpose of this study is to analyze these two dividend -related variables together with share price volatility and examine if there is any correlation between them. If a correlation is found, what kind of a correlation is it? The study only examines Finnish public companies listed on OMX Helsinki. The approach used is quantitative because of the numerical material gathered. The needed variables are gathered from different sources, mainly from Kauppalehti's and Mornigstar's website, but also official financial statements of the firms are used to retrieve information. The Pearson Correlation Coefficient is used in SPSS to measure and determine the correlation of the three variables. The results of the research clearly show that there is a negative correlation between dividend policy measures (yield & ratio) and share price volatility among the examined companies. The correlation of -0,508 between share price volatility and dividend yield, as well as the correlation of -0,185 among share price volatility and dividend payout ratio tell us that as one variable increases, the other tends to decrease, and vice versa. In addition to the negative correlation found, the author also found a positive correlation of 0,232 within the relationship between dividend yield and dividend payout ratio. All in all, the study aims to give its reader a comprehensive view about the effects of dividend policy on share price volatility in the Finnish markets by examining the relationship between the three formerly mentioned variables.</p>	
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1. INTRODUCTION

As the law for limited liability companies in Finland says, the sole purpose is to generate profit to the companies' shareholders, unless stated otherwise (Osakeyhtiölaki, FINLEX 2016). This profit compensates for the risk that shareholders have taken when choosing to invest in a certain firm. Firms can then decide to distribute the profit and cash they have made as dividends to their shareholders (Brealey, Myers and Allen 2011). The decision to distribute said dividends depends solely on the firm and its board of directors. The decision of how much of the earnings to distribute is called dividend policy. If the firm in question is a publicly traded company, the dividend payout decision usually affects its share price on the stock exchange. These share price fluctuations are a sign of volatility. The relationship between dividend policy and share price volatility is of great importance to understand how different decisions affect the firm's share price.

As noted by Brealey, Myers and Allen (2011), the extent to which dividend policy affects the share price and volatility of a firm is debated among economists and researchers. This is often referred to as the payout controversy. Two different schools of thought exist. Others argue that dividend policy is relevant when further examining the firm's value, others argue the opposite: dividend policy is irrelevant in correlation to the firm's value. These theories are referred to as the relevancy or irrelevancy of dividend policy. Both theories are to be examined in detail further on in the paper.

Share price volatility can be seen as the degree of fluctuation in a certain company's share. It can also be explained as being the systemic risk -measure for investors who own shares (Hussainey, Mgbame and Chijoke-Mgbame 2011). High volatility is a sign of broad changes in the price, whereas low volatility indicates more subtle changes. Since volatility is also a measure of risk, it is only logical that as volatility increases, the share's risk also increases. Meaning that risky shares are usually ones that have very unpredictable price changes and the degree of variation in the price is substantial. Low volatility shares are more predictable in their price changes and the degree of variation in the price of the share is much smaller.

Two considerable and noteworthy variables are linked to dividends: payout ratio and yield. Payout ratio refers to the percentage of earnings that are distributed to shareholders in dividends. On the other hand, yield simply measures how much a certain company chooses to pay out in dividends every year in relation to its share price. (Gitman & Zutter 2012)

As mentioned earlier, the decision to pay or not to pay out dividends solely depends on the firm itself. The current atmosphere in Finland has been rather positive in regards to dividend payouts. As reported by Taloussanomat (2016), from all the companies listed on the Helsinki Stock Exchange, over half are increasing their dividend, in addition to numerous companies keeping their dividend unchanged. This tells us about the growing desire to pay out some of the company's earnings as dividends to its shareholders.

As a result, it is important for the decision-makers in the company to understand the magnitude of different dividend policies. Dividend policy has been the focus of many researchers already for decades. Lintner (1956) is considered as being the first to examine dividend policy and he laid out the groundwork for the discussion that has since continued. In his extensive research he found out that a majority of companies in the United States distributed a large part of their profit as dividends to their shareholders. Lintner also made the conclusion that many companies wished to keep their dividends at a consistent level throughout the years. More recent studies include the well-known study conducted by Baskin (1989), where he examined dividend policy and the volatility of common stock. Also the study of Fama & French (2000) is a major steppingstone related to the field of dividend policy. They examined the decrease in dividends and whether this has an effect on the characteristics of the firm in question.

Although there have been major studies conducted in the field, a study examining only the aforementioned three variables of companies listed on the Helsinki Stock Exchange has not been made yet. The characteristics, regarding dividend policy and share price volatility, of Finnish listed companies have not been examined thoroughly, which makes the study relevant to its reader. Also, as the table below shows, the overall trend in the number of Finnish household owners owning shares of listed companies has been growing despite the most recent slight decrease.

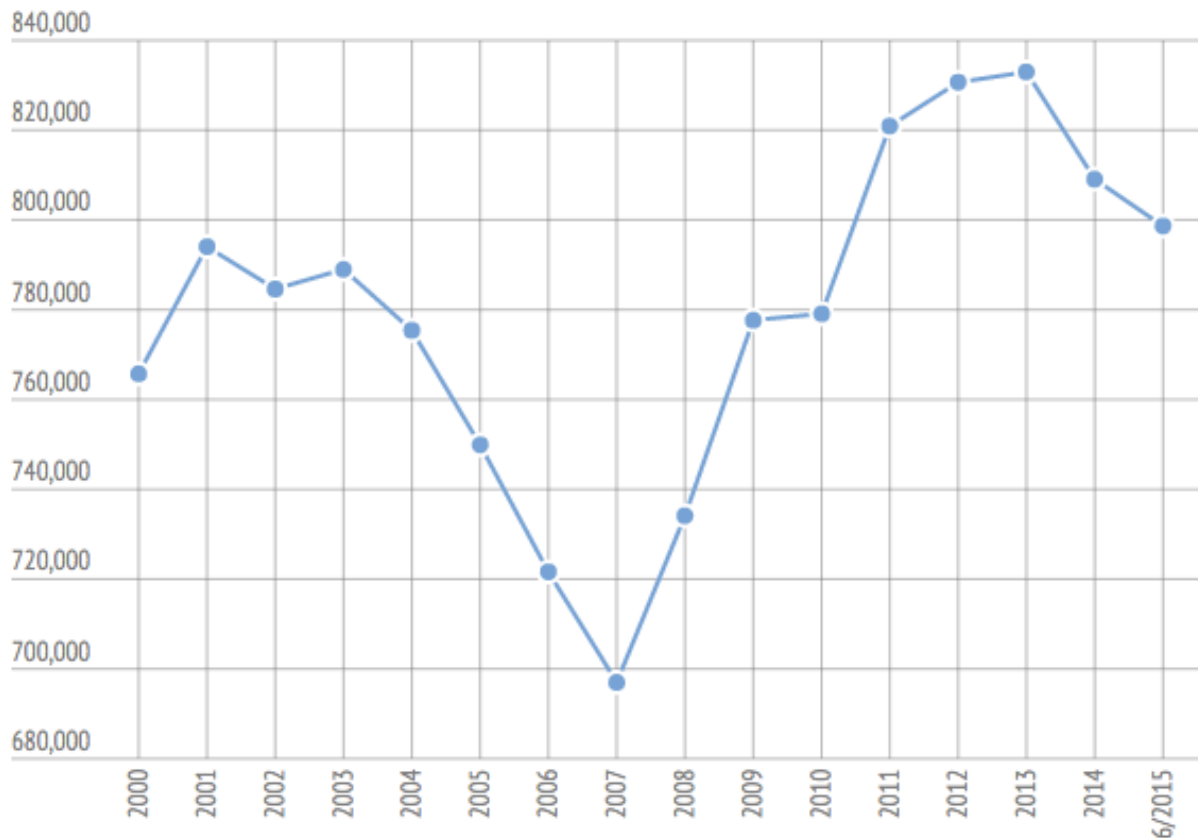


Figure 1 The number of Finnish household owners who own shares that are registered through Euroclear Finland's (previously Arvopaperikeskus) book-entry system. Pörssisäätiö 2015.

Although there is a slight downward trend during the past few years, the general picture is still rather positive. This exemplifies the relevance of the research also from a private person's point of view. As more and more private individuals are starting to invest in shares listed on the Stock Exchange, it becomes important to understand the implications of the different dividend policies the listed firms carry out.

1.1 Research aim, questions and significance

Dividend policy and share price volatility are both key components when evaluating different firms. Both the firm –and the investor are interested to know how dividend policy measures affect the firm's share price volatility. Thus, the aim of this research is to evaluate and investigate the correlation between dividend policy measures and share price volatility on the Helsinki Stock Exchange (NASDAQ OMX Helsinki). The main objective is to provide the reader with an extensive review on what kind of a relationship there is between the variables or if there is a relationship at all. In this

research, the main dividend policy measures: dividend payout ratio and dividend yield are used to calculate the relationship.

Therefore, **the main research question is:** *What is the correlation between dividend policy measures (ratio & yield) and share price volatility, in regards to publicly traded companies on the Helsinki Stock Exchange?*

The **secondary research questions are:** *What are the reasons behind the correlations? What are the most significant factors affecting a company's dividend policy?*

The significance of the research lies in the fact that it is extremely important for the decision-makers in a company to understand the effects that different dividend policies have on their share price, more precisely the volatility of the share price. Through understanding the effects, companies could possibly alter the fluctuations of their share price, at least to some extent. In a sense, they could also alter the stability of their share price by knowing how it is affected by the different dividend policy measures they execute over time. The research also provides private individuals and investors crucial information about how different shares perform and what different dividend policies actually mean. Private investors also acquire knowledge about the existing risk that the shares possess on the Helsinki Stock Exchange.

1.2 Limitations

The scope of this research is limited to the Helsinki Stock Exchange, so the firms that are investigated are all publicly traded companies from the previously mentioned Stock Exchange. All in all, the study includes 99 companies that have been listed during a period of five years, from 4.1.2010-30.12.2014. Although the number of companies examined is 99, the study includes 107 observations since eight companies have two share classes and both share classes are taken into account in the study.

In the beginning, the number of companies was higher and the aim was to include every company on the Stock Exchange, but due to the fact that not all were listed the

whole period, they had to be excluded from the research. Further limitations also came into place when the author noticed that it is not possible to calculate the dividend payout ratio for companies that have earnings per share of 0, since the payout ratio is calculated by dividing the yearly dividend per share by earnings per share, and division with 0 is not possible. This resulted in eliminating some companies from the list, in order for the research results not to be distorted. All in all, the results of the research only apply to the Helsinki Stock Exchange and generalizations should be avoided.

In regards to dividend policy measures, the two previously mentioned variables are used: dividend payout ratio and dividend yield. These two are then measured and examined in correlation to the share price volatility of the firm in question. It must be said that share price volatility can also be affected by other significant variables but the aim of this research is to only focus on dividend yield and payout ratio. So the results and conclusions made from this research are only applicable when discussing the previously mentioned variables in relation to the share price volatility of a firm.

1.3 Structure of the study

The structure of the research is divided into two main parts: the theoretical –and empirical part. In the theoretical part, the reader is introduced to dividend policy and the different theories related to it. The reader also gets insights on share price volatility and how firm risk is affected by the different dividend policies. An extensive overview to the taxation of dividends is also provided since it is a highly crucial aspect of dividend policy.

In the empirical part of the thesis, the author reviews and explains the results of the study, emphasizing the most important and relevant information obtained through the research. The discussion provides the reader with an in depth look on the reasons behind the correlations that have been calculated. Finally, the author concludes the paper with a conclusion and suggests future research possibilities regarding the topic in question.

2. METHODOLOGY

2.1 Material

The empirical material used in this research is gathered from a couple of different sources. The business-oriented newspaper Kauppalehti's website, as well as the investment research firm Morningstar's website were used to gather dividend related information. NASDAQ OMX Helsinki's website was used to retrieve information regarding the calculation of the share price volatility. Official financial statements of the selected firms were also used to retrieve information that could not be found on either of the websites. The author always made sure that variables were calculated and interpreted the same way regardless of which of these sources was used to retrieve the information. A detailed description of how the variables were calculated is situated below in the Data analysis and definitions –paragraph.

2.2 Approach and interpretation

The author used a quantitative research method in the empirical part of the thesis to conduct the research. The method used is appropriate when dealing with large sets of numbers and numerical information. Simply put, quantitative research is about the collection of numerical material and analyzing it and understanding the relationships behind the numbers (Bryman & Bell 2011). It gives absolute values as answers and leaves the interpreting to the researcher.

Statistical analysis is the area of mathematics used in the research. More precisely, Pearson Correlation, which is suitable for analyzing and evaluating the correlation of more than one variable at a time (Bryman & Bell 2011). The Pearson Correlation Coefficient (Pearson's r) is widely used in the area of statistical analysis. It represents the linear correlation that exists between the chosen variables (Bryman & Bell 2011). Pearson's r has three main features, as noted by Bryman & Bell (2011):

1. *Coefficient lies between 0 and 1*
2. *A coefficient close to 1 means a strong relationship, whereas a coefficient close to 0 means a weak relationship*
3. *The coefficient can be positive or negative, indicating the direction of the relationship*

SPSS Statistics is used for the statistical analysis.

The correlation coefficient, also known as Pearson's r , is used to interpret the data acquired. In addition to this, the Sig. (2-tailed) value will also be used as the basis of the analysis. Sig. (2-tailed) simply shows the level of statistical significance of the computed value of Pearson's r (Bryman & Bell 2011).

Regarding Pearson's r , a value of 0 simply means that there is no correlation between the variables analyzed. A positive correlation means that when one variable increases the other variable also increases, and vice versa. A negative correlation, on the other hand, means that when one variable increases the other decreases, and vice versa. The closer the number is to 1 or -1, the stronger the relationship, whether it is positive or negative. (Bryman & Bell 2011)

2.3 Data analysis and definitions

For some parts of the numerical material used in the research, the data (variables) already exists, but for the most part variables have to be calculated. The following is a detailed explanation of how the three variables used in the research are calculated.

$$1. \textit{Dividend Payout Ratio} = \frac{\textit{Annual Dividend per Share}}{\textit{Earnings per Share}}$$

Dividend Payout Ratio is one of the independent variables used in the research. It is calculated by dividing the annual dividend per share by earnings per share. Annual dividend per share is simply the amount the company distributes as dividends that year (per share). Earnings per share is the part of the firm's profit that is allocated to each share. The author calculated the payout ratios himself, using already existing information regarding annual dividends per share (Kauppalehti) and earnings per share (Morningstar).

$$2. \textit{Dividend Yield} = \frac{\textit{Annual Dividends per Share}}{\textit{Price per Share}}$$

Dividend Yield is also an independent variable in this research. It is calculated by dividing annual dividends per share by the price of a share. The dividend yield –

variable was retrieved from Kauppalehti's website, where they have a thorough list of dividend yields for all listed companies for years back. The price of a share in this case is the price at the ex-dividend date. Meaning, if you purchase a share on this date or after, you will not receive the next scheduled dividend payment (Brealey, Myers and Allen 2011).

$$3. \textit{Share Price Volatility} = \textit{Standard Deviation of Returns} \times \sqrt{252}$$

Share Price Volatility in this paper is the standard deviation of share returns. It is also the dependent variable of the research. The author calculated this variable for all companies examined in the thesis. Firstly, NASDAQ OMX Nordic's website was used to retrieve the required information in Excel -files about historical share prices for the time period in question (4.1.2010-30.12.2014) for all companies under investigation. Secondly, the daily returns were calculated by dividing the more recent day's closing price with the previous day. Thirdly, the standard deviation of these share returns for the whole period of five years was calculated, giving a certain percentage as a result. Since this is a question of historical volatility and the annualized standard deviation of returns needs to be calculated, the standard deviation of returns must be multiplied by an annualization factor (the square root of trading days in a year, which is approximately 252) to give us the share price volatility used in this research. (How to Calculate Volatility in Excel, Adam H. Grimes 2011)

The yearly numerical data gathered was then averaged for the examined period to make the Pearson Correlation possible to do.

The gathering of the numerical material required lots of manual work and always when working with large sets of numbers and variables that are to be analyzed and compared to one another manually, human error is always a concern. To minimize the possibility of errors, the author has checked the numbers and calculations multiple times. Since the material is open to everyone interested, the calculations can be subject to further scrutiny.

3. LITERATURE REVIEW AND THEORY

3.1 Dividend policy

Dividend policy is described as being a set of guidelines a firm uses to decide how much of its earnings to pay out as dividends to the various shareholders (Brealey, Myers and Allen 2011). When a company has a surplus at the end of an accounting cycle, it usually has two options, regarding profit management. The firm can either distribute some of its earnings as dividends, as mentioned earlier, or it can decide to re-invest the money back into the firm as retained earnings. The firm's board of directors makes this decision. The figure below demonstrates the comparison between two types of dividend policies.

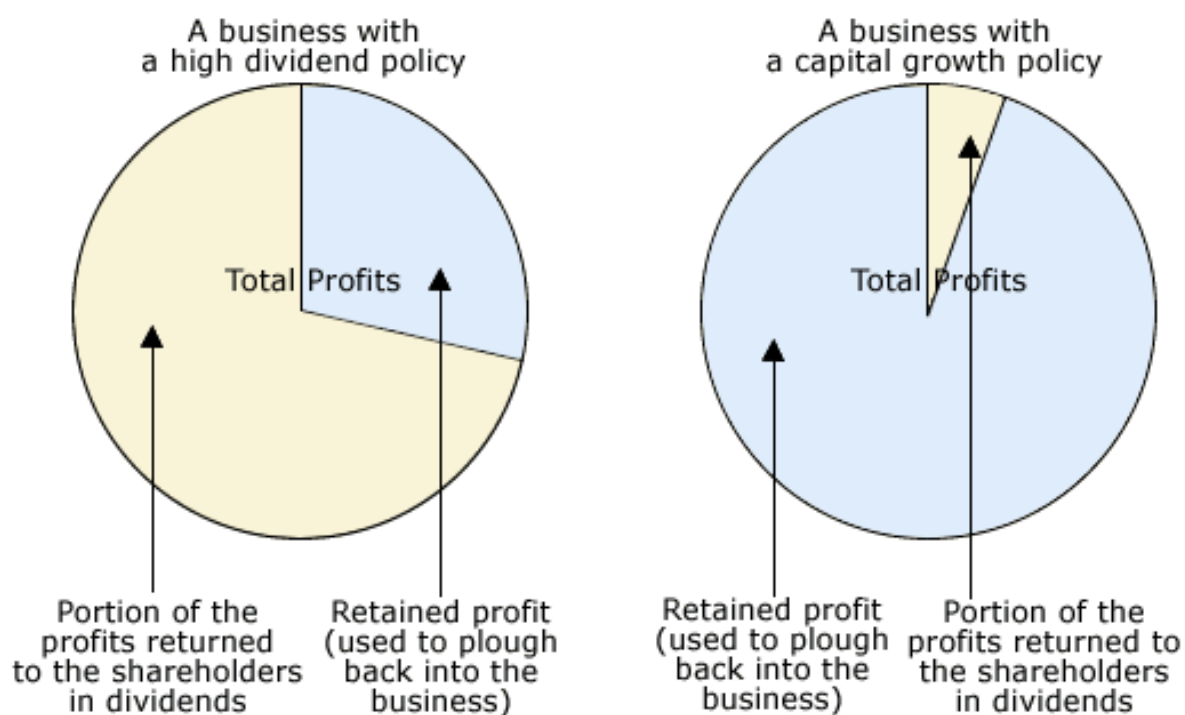


Figure 2 A company with a high dividend policy vs. a capital growth policy (Boundless: Relationship Between Dividend Payments and the Growth Rate, 2016)

Although dividends are the most essential and common way of returning profit and cash to the company's shareholders, some companies still choose not to pay dividends at all (Brealey, Myers and Allen 2011). Giant corporations, such as Google and Amazon are examples of firms that do not pay dividends (Morningstar; Google & Amazon 2016). The decision not to pay can be influenced by major economical downturns, for example. When the economy is not doing well, companies can also

be struggling and can find it very difficult to distribute anything to their shareholders if the net result is not sufficient enough. Although in Google and Amazon's case, the economy has nothing to do with the decision.

Henk von Eije and Bill Megginson did an extensive research about dividend payout decisions in the European Union from 1989-2005. The study included over 4100 publicly traded companies. As the figure below demonstrates, the number of dividend-paying companies has decreased constantly in the EU. In 1989 almost 90% of companies paid out a dividend. In 2005 this number has declined to just about 50%.

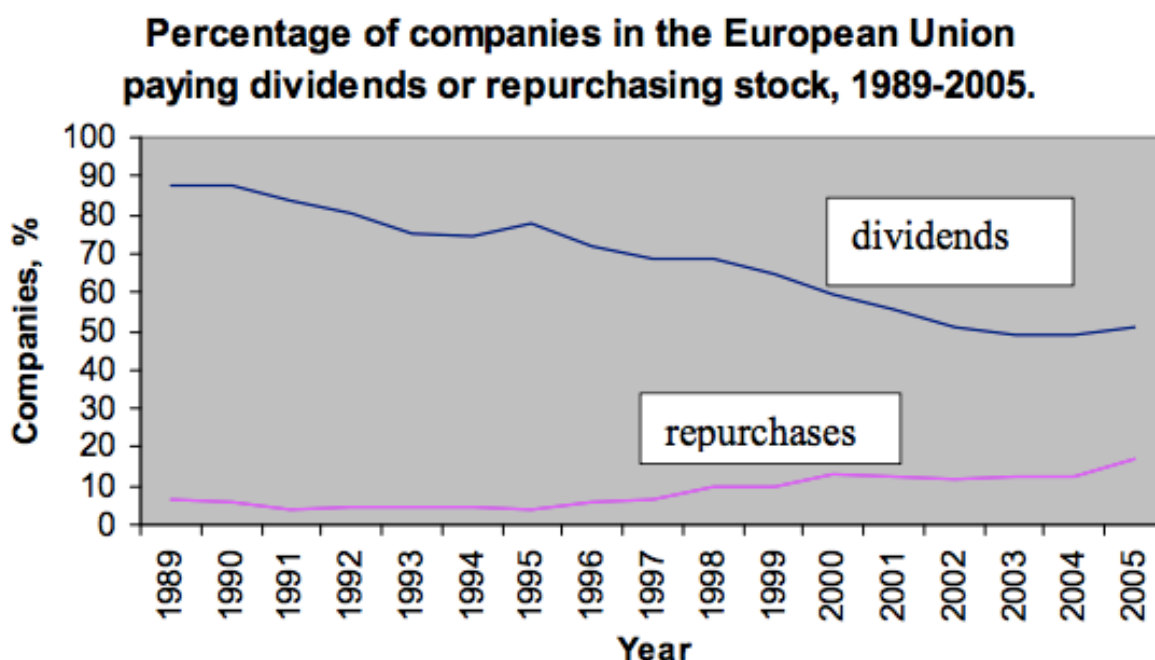


Figure 3 H. von Eije & W. Megginson, "Dividends and Share Repurchases in the European Union", *Journal of Financial Economics* 89, Issue 2, pages 347-374

As the figure illustrates, stock repurchases are also one way of paying out cash to the shareholders. It means buying back some of the outstanding shares from the market. Due to some restrictions that were in place in the European Union, stock repurchases have not been that common previously but are now seeing a steady and continuous increase. (Brealey, Myers & Allen 2011)

3.2 Factors affecting dividend policy

Legal restrictions can become an issue for companies trying to distribute dividends, if they have overdue liabilities, are bankrupt or unable to pay their creditors (Gitman & Zutter 2012). Usually in these cases, the distribution of dividends is prohibited. The laws are different from country to country of course, but generally this is the case in most places around the world. In Finland, distributing dividends is illegal if it is a known fact that the company is insolvent or the dividend payout decision will lead to insolvency (Osingot, Verohallinto 2013). In addition, dividend payout decisions made without the consent of the board of directors are also illegal. This former mainly applies to smaller companies, not publicly traded ones. The Finnish law on dividends also states that a company can distribute as dividends no more than what is left on the balance sheet of the fiscal year after deducting losses and other mandatory expenses (Osakeyhtiön verotus, Yrittäjät 2014). Despite this, companies can still distribute dividends as long as they have non-restricted equity capital on their balance sheet. The dividend distribution decision is thus not necessarily affected by the profit made during the previous, most recent fiscal year (Osakeyhtiön verotus, Yrittäjät 2014).

Contractual restrictions can also play a role and affect the dividend policy of a certain company. If a company has taken out a loan, the loan can have different restrictions and clauses prohibiting from paying out dividends before the company reaches a certain level of earnings. The dividend can also be limited to a specific amount or percentage of earnings. Contractual restrictions are applied and used for the protection of the creditor, to minimize the possibility of the company going insolvent and the creditor facing a loss. (Gitman & Zutter 2012)

Prospect of growth can be looked from a firm size –point of view. A large company that has steady growth and has been in the business for a long time probably has easier access to new capital than a small, rapidly growing one (Gitman & Zutter 2012). Smaller companies usually do not have adequate funds to finance their projects, resulting in heavy internal financing through retained earnings. This leads to smaller companies distributing only a small proportion of profits as dividends to shareholders. A more mature company can distribute a larger percentage of its

earnings as dividends due to the fact that it has accumulated cash into the company for a much longer time (Gitman & Zutter 2012).

A limited liability company's sole purpose is to generate profit to its shareholders, unless stated otherwise (Osakeyhtiölaki, FINLEX 2016). Since shareholders are owners of the company, their interest must be a top priority. Generally speaking, shareholders have two ways of increasing their wealth by investing in shares: receiving dividends, or hoping that the share price rises and then sell the shares at a profit. As stated by Gitman & Zutter (2012), it is not wise for companies to retain funds for investments yielding lower returns than could be obtained from some external investment with an equal risk. It might be the case that the owners have better opportunities outside, in which case the company should pay out a larger proportion of its earnings. A lower payout is only justified, if the company's investments are at least as good or better as equally risky outside investments (Gitman & Zutter 2012).

Owners usually want to maintain the power they have in a company. Paying out a large percentage of earnings as dividends raises the question of ownership dilution, since new capital has to be raised with common stock. The issuing of new shares might result in dilution of both company control and possible earnings for the already existing owners. Paying out a relatively low proportion of earnings can minimize this dilution. (Gitman & Zutter 2012)

Market considerations are also to be noted when discussing the factors affecting a firm's dividend policy and payout decision. Gitman & Zutter (2012) bring up a new idea called the catering theory, which states that investors' demands change over time. Also when it comes to dividends. According to this theory, dividend payments should be increased during periods in which investors find high-dividend shares particularly appealing. The theory also suggests that in a booming economy, investors are more appealed to shares that have potential for large capital gains, whereas during an economic downturn, investors settle for the security of dividends (Gitman & Zutter 2012). Simply put, when investors show strong interest towards dividends, companies are likely to increase their dividend payout to cater the needs of investors.

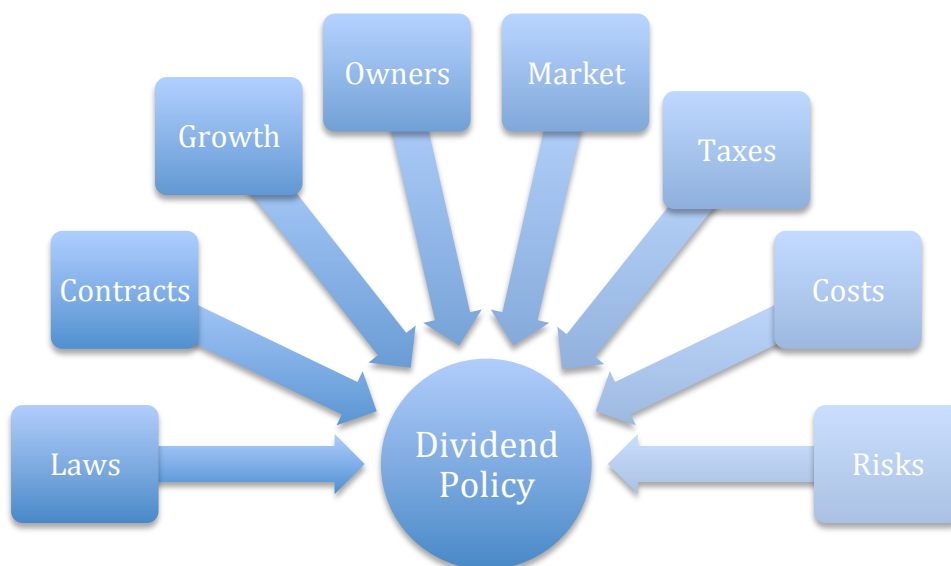


Table 1 Factors affecting dividend policy

Since dividend policy differs a lot from firm to firm, it is clear that there are many schools of thought when it comes to distributing dividends. Several significant factors affect the dividend policy of a company, such as taxes, costs, risks, shareholders, information, clienteles and shareholders' behavior (Barabas & Fazakas, 2010). The two different theories and schools of thought that are related to dividends being either relevant or irrelevant in relation to the market value of the company are: relevance of dividend policy and irrelevance of dividend policy (Gitman & Zutter, 2012).

3.3 Dividend relevance

The dividend relevance theory, developed by Gordon and Lintner concludes that there is a direct relationship between a company's dividend policy and its market value (Gitman & Zutter, 2012). A fundamental aspect of this theory is the bird-in-the-hand argument, which implies that investors prefer current dividends over future dividends or capital gains (Gitman & Zutter, 2012). Current dividends are thus seen less risky and they tend to have a positive impact on a firm's share price since when a firm distributes dividends, it is presumed to be in a good condition financially. On the other hand, no dividend distribution at all, or even reduced dividends lead to investor uncertainty, which lowers the share's value (Gitman & Zutter, 2012). The dividend relevance theory also consists of two important mathematical models: Walter's model and Gordon's model.

Walter's (1963) model is a representation of the relevancy of dividend policy and its significance on the value of the share and enterprise. The model has three main assumptions and principles. First of all, it assumes that retained earnings are the only possible source of financing investments in the company. Thus, no external financing is involved. Secondly, the cost of capital and the rate of return on investments are constant. The risks associated with the business remain the same, even if new investment decisions are made and executed. The third and final assumption is that the company's life is endless; it does not close down at any point in time. (Walter 1963)

The mathematical representation for the model goes as follows:

$$P = \frac{D + (r)((E - D)/k_e)}{k_e}$$

where,

P = Market price of the share

D = Dividend per share

r = Rate of return on the company's investment

k_e = Cost of equity

E = Earnings per share

The model also states that if dividends are paid to the different shareholders, they are always further reinvested to maximize profits. This is seen as the opportunity cost or cost of capital for the company. On the other hand, if the company chooses not to distribute their profits as dividends, they retain the earnings inside the company and can further invest them to other possible opportunities and different investments. (Walter 1963)

In the end, Walter's model follows the following set of guidelines:

If $r > k(e)$, the firm should have zero payout and make investments.

If $r < k(e)$, the firm should have 100% payouts and no investment of retained earnings.

If $r = k(e)$, the firm is indifferent between dividends and investments.

Although being easy to understand, the model has faced some criticism for its simplicity. Mainly the assumptions the model makes are seen as unrealistic and not corresponding to the real world and real markets. First of all, the model does not consider any external financing for companies. All financing is done through retained earnings. In the real world, new investments are rather difficult to make without external financing. Secondly, Walter's model assumes that r (rate of return) and k (cost of equity) are constant. Only on very rare occasions these two variables are constant, since the risks associated with investing change the more you invest. (Theories of Dividend: Walter's model 2015)

Another model in favor of the dividend relevance theory is Gordon's (1963) model, developed by economist Myron J. Gordon. Just as Walter's model, Gordon's model also supports and believes in regular dividends having an effect on the share price of a certain company.

Gordon's (1963) model follows two additional assumptions in addition to the assumptions already presented about Walter's model. Firstly, the product of the retention ratio b and the rate of return r gives us the growth rate of the firm. Secondly, not only is the cost of capital $k(e)$ constant, it is also greater than the growth rate.

Gordon (1963) characterizes investors as risk avoiders who believe that dividend income is a rather definite and reliable source of return for an investment. Therefore, future capital gains are not seen compelling, and are to be avoided because of the risks they include. Investors also discount future capital gains at a much higher rate than the company's earnings, which results in a higher evaluation of the share. As the retention rate increases, investors require a higher discounting rate as well.

The mathematical representation for the model goes as follows:

$$P = \frac{E(1 - b)}{k_e - br}$$

where,

P = Market price of the share

E = Earnings per share

b = Retention rate ($1 - \text{payout ratio}$)

r = Rate of return on the company's investments

k_e = Cost of equity

br = Growth rate of the firm

Ultimately, Gordon's (1963) model results to an explanation of the relationship between the payout ratio, rate of return, cost of capital and the market price of the share.

3.4 Dividend irrelevance

One of the dividend irrelevance theories (capital structure irrelevance principle), developed by Miller and Modigliani (1961), concludes that a firm's value is determined by the earning power and risk of its investments and the decision to distribute earnings as dividends or retain them inside the business does not affect the value of the firm (Gitman & Zutter, 2012). The theory also states that investors do not have any preference between current dividends and possible capital gains. Since the theory explains dividend policy as an irrelevant factor of the market value of the company, shareholders are unconcerned between the two types of dividends. Investors simply aim for high returns either in the form of dividends or in the form of retained earnings by the company.

According to Miller & Modigliani (1961), the existing division of retained earnings between new investment and dividends does not affect the value of the firm. It is the investment pattern and earnings of the company, which have an effect on the share price and thus the value of the company. The theory is based on the following seven principles:

1. Investors' rational behavior and the existence of perfect capital markets.
2. Free information available for investors.
3. Transaction costs and time lag do not exist.
4. Securities are divisible.
5. No taxes.
6. Perfectly efficient capital markets.

- Investment decisions are taken strictly and profits are therefore known with certainty.

The theory has been criticized for assuming a “perfect market” –situation, in which there are no taxes and no market imperfections (Gitman & Zutter, 2012). This, of course, is far from the real markets of today. All in all, Miller and Modigliani’s theory’s main idea is that there is no “optimal” policy, when it comes to distributing dividends in a certain firm.

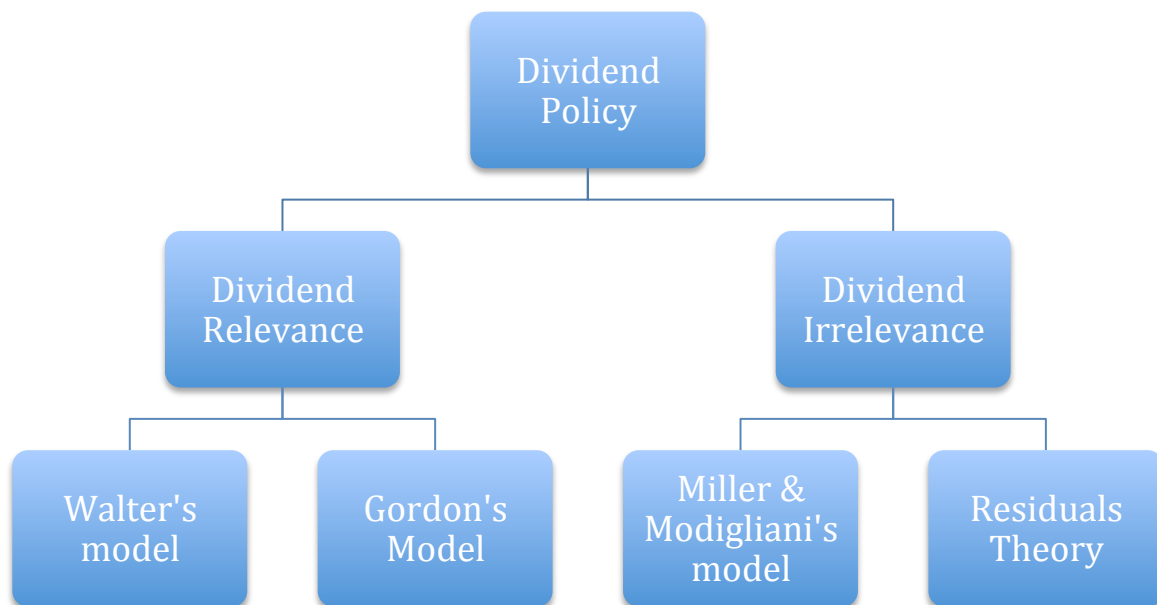


Table 2 Main Dividend Policy Theories

The residuals theory of dividends can also be viewed as corresponding with the dividend irrelevance theory. As Gitman & Zutter (2012) state, the theory suggests that dividends paid by a company should only be viewed as residuals, the amount that is left after all adequate investment possibilities have been examined and decisions made. The theory states that external financing to re-invest is either not available or it is too expensive to invest in possible profitable opportunities. If and when proper investment alternatives arise, the company will invest their retained earnings and substantially reduce their dividends, or even give no dividends at all (Gitman & Zutter 2012). Simply put, dividends are not the major concern depicted by the theory. The company must only make a decision on how much profits are to be retained, since the rest can be distributed as dividends. As the name of the theory

says, dividends are simply residuals from the profit after investments have been made.

As Gitman & Zutter (2012) explain, the residual decision is a three-step process:

1. Determine the optimal level of required capital expenditures.
2. Evaluating the amount of equity financing needed for the investment.
3. Cost of retained earnings < Cost of new common stock, retained profits are used to finance investments. A surplus after financing results to the distribution of the residual as dividends.

In conclusion, the residuals theory of dividends does not put emphasis on the dividend distribution decision itself, but instead on the decision about the optimal amount to retain in the business.

3.5 Share price volatility

The third variable of the research is share price volatility. It reflects the degree of variation of a share over a certain period of time. It is measured by calculating the standard deviation of yearly returns over a certain period of time. Therefore, volatility simply shows the range between share increases and decreases. Share prices fluctuating rapidly in a short period of time leads to a high volatility. On the other hand, share prices that fluctuate slowly over a long period of time are a sign of low volatility, as the tables below demonstrate. (The Economic Times)



Figure 4 Sampo A Share Price Volatility 4.1.2010-31.12.2014 (NASDAQ OMX Nordic)

The above figure is a rather clear example of low volatility. The changes in the share's price are not drastic over a period of time. Instead, the price growth is steady

and controlled. Comparing the former figure to the one below, a clear difference can be seen immediately. The following figure exemplifies somewhat high volatility. One instantly notices that price changes are much more significant, even though the time period is exactly the same as in the first figure.



Figure 5 Outotec Share Price Volatility 4.1.2010-31.12.2014 (NASDAQ OMX Nordic)

Share price volatility is an important instrument and variable because of its effect on the markets. Since volatility measures the risk a certain security contains, investors can draw far-reaching conclusions based on the volatility alone. One could argue that the lower the volatility of a certain security is, the better. Since low volatility also means less risk. And investors are always searching for the highest possible returns with the least risk. (The Economic Times)

Since volatility is an important aspect to understand, it is good to go over the main reasons investors even care about the degree of variation in a certain security. First of all, it is evident that the narrower the swings in a security's price are, the easier it is not to worry. This psychological aspect is of huge importance not only for professional investors, but for normal people making investment decisions too. Secondly, if the investor is seeking for a certain amount of cash flows from selling a security at a certain date in the future, higher volatility will mean that there is a greater chance of a shortfall. Price volatility also presents the investor possibilities and opportunities to buy securities cheaply and then sell them when they are overpriced, resulting in a profit at the end of the day. All of the explained aspects are reasons why share price volatility is of great importance in the financial world where securities trading takes place.

Share price volatility has a few different measures: historical volatility, implied volatility, the volatility index and intraday volatility (Understanding the Four Measures of Volatility, 2007). For simplicity, only the first two main measures are explained in

detail in this review. Historical volatility is the most common concept when measuring the volatility of different shares, since it is rather straightforward in its calculation method and no future uncertainty is involved. As Scott Rothbort (Understanding the Four Measures of Volatility, 2007) states, historical volatility simply illustrates the daily changes in share prices over a certain period of time. It represents the standard deviation of the change in a certain share's price comparable to its historic price over a period of time. The figure below exemplifies KONE's historical volatility.

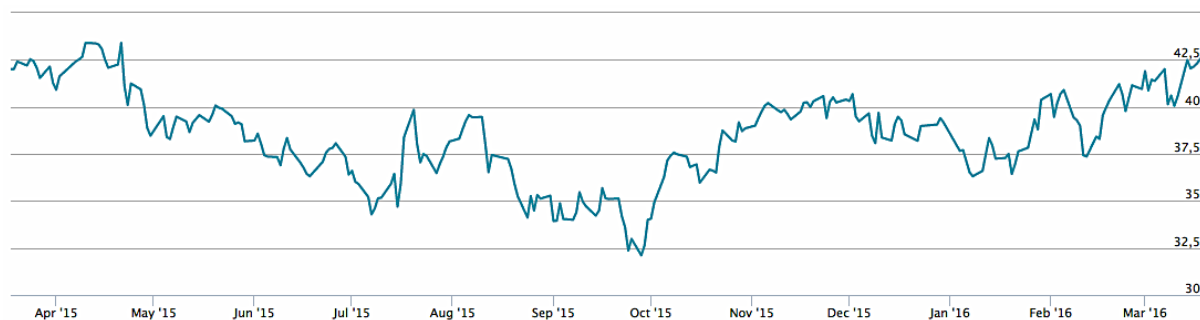


Figure 6 KONE Oyj's Historical Volatility from 18.3.2015-18.3.2016 (NASDAQ OMX Nordic)

Implied volatility is the opposite of historical volatility and represents the estimated volatility of a certain security's price (Lee 2002). It is expressed as a certain percentage of the share price, which indicates a one standard deviation shift during the course of one year (The Options Playbook, 2016). Basic statistics tell us that a share price should end up somewhere within one standard deviation of the original price approximately 68% of the time during the next year. The percentage is 95% for two standard deviations and 99% if it is within three standard deviations. Implied volatility is used especially in option pricing, the most well known being the Black-Scholes (1973) model, which estimates the price of European-style options. For the sake of keeping it simple, there is no need to go over this rather complicating mathematical model.

Implied volatility tends to increase when market conditions are downbeat, since investors start to believe that the security's price will decline over time. The opposite happens when market conditions are upbeat. In an upbeat market, investors believe that the price of a certain security will increase over time, thus decreasing volatility. All of the previously explained results from the fact that downbeat market conditions are seen as much more risky than upbeat market conditions. In conclusion, implied

volatility gives a way of measuring and estimating future fluctuations for a certain security based on some predictive factors. (Implied Volatility)

The figure below demonstrates the idea of implied volatility. The curve exemplifies the normal distribution of a share's price. Implied volatility tells us there is a 68% chance that a share currently priced at 50\$ with an implied volatility of 20%, will cost something between 40\$ and 60\$ one year later. Additionally, the probability of the share price being lower than 40\$ or higher than 60\$ is 16% for each scenario. Then again, implied volatility is just a theory and it makes assumptions, so nothing can be told with absolute certainty. (The Options Playbook, 2016)

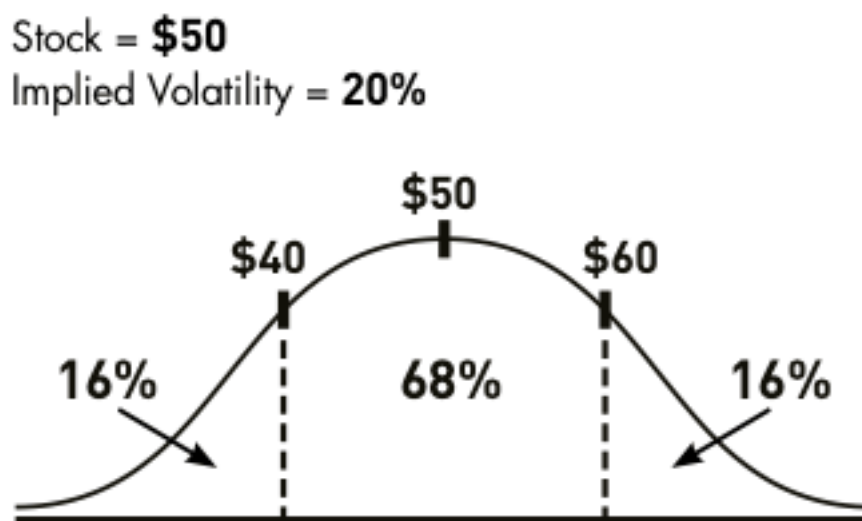


Figure 7 Example of Implied Volatility (The Options Playbook 2016)

The problem of implied volatility as a measurement is clear. Since it is merely an estimate of future security prices, it is all about probability. It must be said that it is more of an estimate than an indication of future prices. Although investors use implied volatility when making investment decisions, there is no guarantee that the prices will go towards the desired and previously predicted direction. This brings us to another aspect that raises questions, the direction of the price change. For example, high volatility means that there is a large price swing. But the price of that security can swing either very high or very low, or even both. On the other hand, low volatility means that the price of the security most certainly will not make broad, unpredictable shifts. (Implied Volatility)

3.6 Dividend policy and firm risk

The relationship between dividend policy and firm risk is also of great importance. To some extent, volatility expresses the risk level of a certain company. As stated by von Eije, Goyal & Muckley (2013) in their study on how dividend policies influence firm risks, dividend avoidance tends to increase idiosyncratic risk more than paying out dividends reduces this risk. The duration of the policy and the payout amount seem to even further emphasize the existing asymmetry. On the other hand, the same study demonstrates how the impact and decision of either paying out dividends or avoiding them does not have a significant effect on the systematic market risk.

For companies and their management, assessing risk is an important factor when making financial decisions. Von Eije, Goyal & Muckley (2013) point out that it has become increasingly important for the management of a company to be aware of how the different implemented dividend policies affect the total risk level of the company. Dividend policies are seen as either value enhancing or reducing, making it crucial for the decision makers to understand the implications of their actions.

Different dividend payout policies, comprising of channels of payout, payout duration and payout amount, have a distinct effect on the risk (volatility) of the firm (von Eije, Goyal & Muckley, 2013). Von Eije, Goyal & Muckley (2013) discuss a firm's financial life cycle and explain how it evolves throughout the years. As the development from a momentary income firm to rather permanent income firm progresses, the company tends to initiate payout using share repurchases or share repurchases and dividends. As the company continues on maturing, it may decide on paying dividends exclusively. According to von Eije, Goyal & Muckley (2013), the above mentioned will likely result in a larger perceived reduction of risk by the market, when the management decides to pay out dividends in cash instead of share repurchases or a combination of both payout types. Lintner (1956) has also pointed out in his own research how management considers earnings stability as a significant determinant of dividend policy.

The gradual increase in dividends, by dividend paying companies, in the direction of the desired payout of net earnings is based on the view that dividend reductions

could be avoided in the future (von Eije, Goyal & Muckley, 2013). This clearly means that the dividend policies companies put into place are somewhat influenced by the risk perceptions of the management.

3.7 Dividend policy & Taxation

Dividends are taxed very differently around the world. How a country chooses to tax dividends is another significant aspect to mention, since companies are constantly contemplating the decision on whether to distribute profits as dividends or retain them inside the company for future investments. It makes perfect sense that a country with a favorable dividend taxation system would also see higher dividend payout distributions than a country with a less favorable system.

Like in many other countries, in Finland, dividends are subject to double taxation. A company's profits are first subject to corporate tax (20% at the moment), and after that if the company chooses to distribute some of the remaining profit as dividends to its shareholders, the shareholders' received dividends are subject to capital gains tax (~30%, depending on how much investment income is received). It has to be mentioned that different mitigations are in place to lower the tax burden for private individuals. (Niskakangas, 2014)

Double taxation is recognized as a problem around the world. It is one of the most discussed matters relating to corporate and individual taxation policies. Some countries, like Sweden for instance, follow the so-called classical taxation system of dividends, where companies are taxed according to the current tax rate, and in addition, dividends are subject to a tax of roughly around 30% when an individual receives them (Niskakangas, 2014). However, most countries have a system in place where a company's distributed profits (dividends) are not to be taxed fully twice. As Niskakangas (2014) explains, the aspects of double taxation are removed by taxing dividends more lightly.

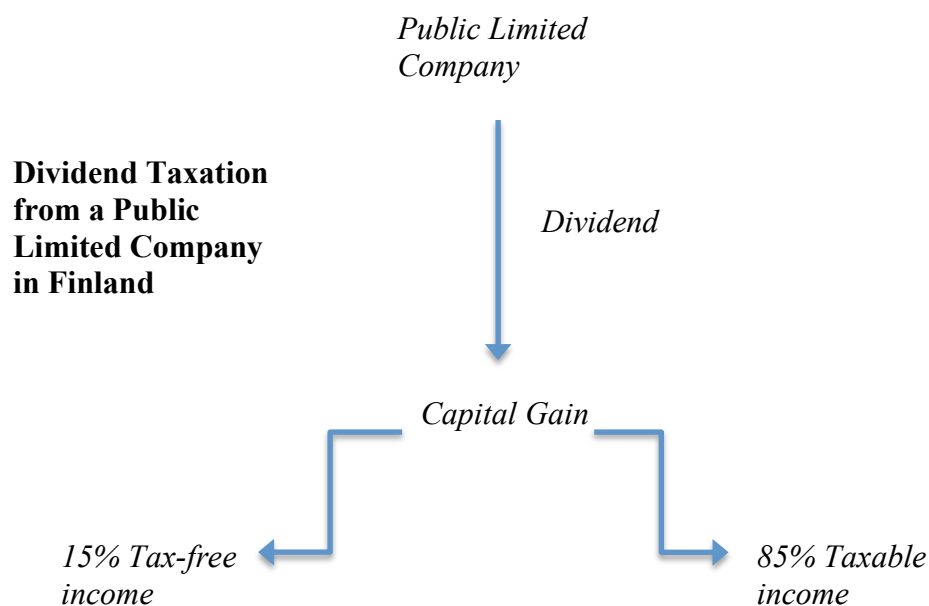
Since the research is based on Finnish public companies traded on the Helsinki Stock Exchange, it is good to go over Finnish taxation policies relating to dividends received from a public company. The receiver here is a private individual. Dividends received from a public company are always considered as capital gains (investment

income) (Niskakangas, 2014). For an individual, 85% of the dividends received are considered taxable income and the remaining 15% is tax-free (Niskakangas, 2014). The table below illustrates the extent of taxation more thoroughly.

Company's Gross Profit	100
Corporate Tax	20
Company's Net Profit	80
Distributed Dividends	80
Taxable Part of Dividends (85%)	68
Tax 30%	20,4
Tax In Total:	
Corporate Tax	20
Shareholder's Tax	20,4
Total	40,4 (%)

Figure 8 Example calculation on the effects of tax on dividends (Niskakangas 2014, 55)

As illustrated in the table above, an individual can expect that the dividend income received from a public company is subject to a tax-rate of roughly around 40,4%. The graph below demonstrates the taxation of dividends in Finland for a private individual receiving dividend income from a public limited company.



The influence of taxation on dividend policy has been studied a lot. The general assumption and hypothesis is that the harsher the tax burden is in a specific country, the lower the dividends paid out are. On the other hand, when the tax burden is significantly less, dividend payouts tend to increase (Alzahrani & Lasfer, 2008). Why is it important and worthwhile to know the implications that taxation has on dividend policy?

First of all, for investors and other individuals who are at the receiving end of the chain when it comes to dividends, it is important to understand what kind of an influence policy changes and tax reforms have on dividend payout decisions (Alzahrani & Lasfer, 2008). In this case, tax reforms are usually changes that are made to existing policy by the government of a certain country. As mentioned earlier, the two different systems of dividend taxation in place: classical and imputation, have been the focus of many studies. The classical system treats corporate income and personal income as two completely different and independent aspects, whereas the imputation system has more integration between the taxation of corporate income and personal income (Alzahrani & Lasfer, 2008). The implications of these two different taxation systems are valuable to know when operating in the financial markets and the effects they have on dividend policy is something every investor needs to know.

The effects of tax reforms on dividends have also been studied. A major study by Kari, Karikallio & Pirttilä (2009) from the Labour Institute of Economic Research shows what the implications of these reforms were. The taxation reform in question here is the corporate income tax reform of 2005 in Finland, which also had significant implications on the taxation of dividends. The 2005 tax reform led to increased taxation of dividends for individual and private investors, especially if the company in question was a domestic public company listed on the Helsinki Stock Exchange (Kari, Karikallio & Pirttilä, 2009). In contrast, the dividend taxation of institutional investors and foreign owners did not change. Since dividend taxation has been reformed since 2005, there is no point in going over the reform of 2005 in detail. It is only noteworthy to know that the reform was a significant change to the policies that were in place before 2005. At the end of the day, the effects of the reform were seen as increases in dividend taxation for some, and more emphasis was put on different determinants, such as ownership structure (Kari, Karikallio & Pirttilä, 2009). All in all,

the study provided clear evidence for the fact that dividends declined in companies that encountered an increase in dividend taxation.

The study of Kari, Karikallio & Pirttilä (2009) also manages to clearly show the implications of planned reforms set to be put in place at a certain time in the near future. Implications are seen as the behavior that companies adopt before the reform is put in place. The reform was common knowledge for about a few years before it was actually put in place, resulting in a large and somewhat anticipated increase in dividends paid out by different companies. This is a clear sign of how significant the reform was and how companies dealt with the reform.

In the case of an anticipated tax reform, companies always strive to act in a way that is most efficient for them. If the future reform is seen as more severe than the current system in place, efforts are made to make sure that the benefits of the current system are used to their full extent to maximize efficiency, when it comes to tax planning. For example, if there is an anticipated tax increase in dividends on the horizon, companies want to make full use of the current lower tax rates and increase their distribution of dividends, whereas after the reform dividend distribution is reduced because of the higher tax rates. (Kari, Karikallio & Pirttilä, 2009)

According to Kari, Karikallio & Pirttilä (2009), these behavioral changes are only visible in the short-run, since studies show that in the long-run dividends return to their equilibrium level.

3.8 Dividends and share prices

One of the most crucial points, when examining dividend policy and its effects on share prices, is to understand how exactly are share prices affected by different dividend policies. As Kinkki (2001) states, the effects have been widely studied all over the world, giving examples of well known studies such as ones made by Black-Scholes (1974) and Barclay (1987). Previous research has shown a statistically significant relationship between share returns and dividend yields, but researchers find it hard to explain this phenomenon (Kinkki 2001). This leads us to the so-called clientele problem, which is a question of whether or not companies with higher

dividend yields also have higher share prices. The same goes both ways; do companies having lower dividend yields actually have lower share prices also?

As Kinkki (2001) states, Miller & Modigliani (1961) were the first to address the clientele problem. They discussed that investors were the ones who chose the companies whose payout ratio was the most desirable. Each new payout ratio attracts a certain type of investor, a clientele. Companies do not really care what the clientele is; it simply does not matter to them. Since, if a company were to change its dividend policy thus affecting the payout ratio, this would only result in the change of the clientele. Hereby, this would have no effect on the share price and value of the company in question. According to Kinkki (2001), the clientele dilemma studies that have been made assume that different classes of investors might prefer different levels of dividends as well. The main reason for this is taxation, since investors have varied levels of taxation. Kinkki (2001) states that a hypothesis has been made, and according to that hypothesis, companies paying low dividends usually attract investors with a high tax rate, whereas companies paying higher dividends attract investors with a lower tax rate.

The dividend announcement effect has also been studied extensively. Kinkki (2001) proposes that dividends indicate information about earnings in the future and changes in dividends give information about a company's future cash flows to investors. As Miller & Modigliani (1961) presented, a reduction in dividends tends to be an indication of poor earnings prospects in the future.

As Kinkki (2001) states, numerous studies have been made examining the effect and reaction that dividend announcements have on share prices. Kinkki (2001) mentions Paul Taylor's study from 1979, where it was found that when companies announce earnings and dividends at the same time, an effect on share price is noticed. If dividends decreased, the average share price fell by nearly 4%. On the other hand, an increase in dividends resulted approximately in a 1% increase in share price. Both of the previously mentioned results were also statistically significant. Although, the results only applied to US companies, not worldwide.

The impact of public information on share prices is also something to be discussed. By public information is meant all information that the company can and wants to

reveal to the investors. As the figure below shows, earlier prices have the weakest effect on share prices, whereas earnings have a very strong effect. Changes in dividends also have a relatively strong effect, according to the table below. All of this tells us that companies and especially the decision-makers in those companies should definitely be aware of these factors and understand the effects they might have on share price volatility.

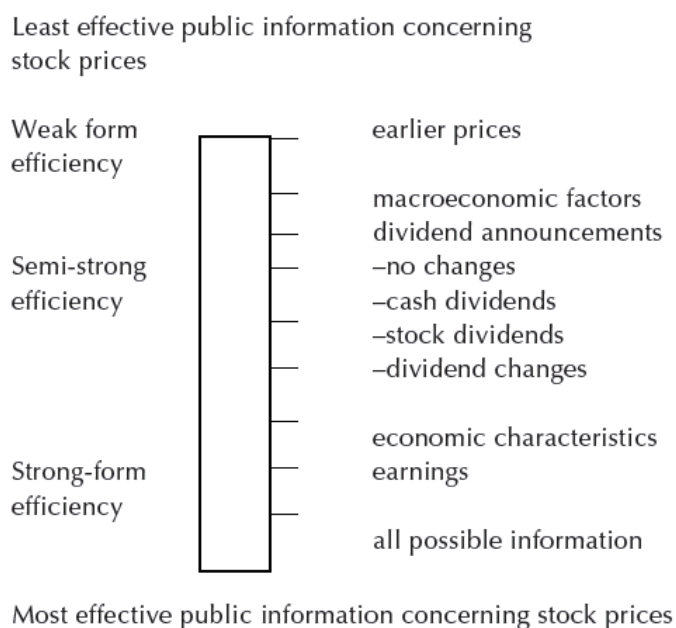


Figure 9 Impact of public information on share prices. (Kinkki 2001)

All in all, the theory behind the research is based on a couple of significant aspects, mainly dividend payout policy (ratio and yield) and share price volatility. Both are important issues from the investor and company's point of view and it is worthwhile to understand the implications of them in a broader sense. Taxation also has a significant influence on a company's dividend policy, without forgetting the different tax reforms that happen in a society from time to time. It is vital to know the implications of these reforms in order to use the current tools, regarding dividend payouts, most effectively. There are different schools of thought, especially when you discuss dividend policy measures. Because of this, there is no way of saying what is the absolute truth in regards to dividend policy, for example. Nevertheless, preferred and proven ideas and theories can be recommended and distinguished from the vast amount of material related to the field.

4. EMPIRICAL PART

The empirical section of the thesis focuses on the actual research results and the interpretation of them. In this part the author examines the sample of the 107 observations (99 companies) that were analyzed in the research and explains the most important things brought up by the study. Tables are used as a tool to simplify and demonstrate what the author finds relevant and interesting. All empirical material gathered is available at the end of the thesis as appendices, if the reader wants to search for something specific not mentioned in the body of the text.

4.1 Companies examined

Company	Sector	Company	Sector
Afarak Group	Materials	Fiskars Oyj Abp	Consumer Goods
Affecto Oyj	Technology	Fortum Oyj	Utilities
Ahlstrom Oyj	Materials	Glaston Oyj Abp	Industrials
Aktia Bank A	Financials	HKScan Oyj A	Consumer Goods
Aktia Bank R	Financials	Honkarakenne B	Consumer Goods
Alma Media Oyj	Consumer Services	Huhtamäki Oyj	Industrials
Amer Sports Oyj	Consumer Goods	Ilkka-Yhtymä 2	Consumer Services
Apetit	Consumer Goods	Innofactor Plc	Technology
Aspo Oyj	Industrials	Investors House	Financials
Aspocomp Group Oyj	Industrials	Ixonos Oyj	Technology
Atria Oyj A	Consumer Goods	Kemira Oyj	Materials
Basware Oyj	Technology	Keskisuomalainen A	Consumer Services
Biohit Oyj B	Health Care	Kesko Oyj A	Consumer Services
Biotie Therapies Oyj	Health Care	Kesko Oyj B	Consumer Services
Bittium Oyj	Technology	Kesla A	Industrials
CapMan Oyj B	Financials	KONE Oyj	Industrials
Cargotec Oyj	Industrials	Konecranes Oyj	Industrials
Citycon Oyj	Financials	Lassila & Tikanoja	Industrials
Componenta Oyj	Industrials	Lemminkäinen Oyj	Industrials
Comptel Oyj	Technology	Marimekko Oyj	Consumer Goods
Cramo Oyj	Industrials	Martela A	Consumer Goods
Digia Oyj	Technology	Metso Oyj	Industrials
Elecster Oyj A	Industrials	Metsä Board A	Materials
Elisa Oyj	Telecom	Metsä Board B	Materials
eQ Oyj	Financials	Neo Industrial	Industrials
Etteplan Oyj	Industrials	Neste Corporation	Oil & Gas
Exel Composites Oyj	Industrials	Nokia Oyj	Technology
F-Secure Oyj	Technology	Nokian Renkaat Oyj	Consumer Goods
Finnair Oyj	Consumer Services	Nordea Bank AB FDR	Financials

Table 3 Companies examined in the research (1)

Company	Sector	Company	Sector
Norvestia Oyj	Financials	Stockmann Oyj Abp A	Consumer Services
Nurminen Logistics Oyj	Industrials	Stockmann Oyj Abp B	Consumer Services
Okmetic Oyj	Technology	Stora Enso A	Materials
Olvi Oyj A	Consumer Goods	Stora Enso R	Materials
Oriola-KD A	Health Care	Suominen	Consumer Goods
Oriola-KD B	Health Care	Takoma Oyj	Industrials
Orion A	Health Care	Talvivaaran Kaivososakeyhtiö	Materials
Orion B	Health Care	Technopolis Oyj	Financials
Outokumpu Oyj	Materials	Tecnotree Oyj	Technology
Panostaja Oyj	Financials	Teleste Oyj	Technology
PKC Group Oyj	Industrials	TeliaSonera	Telecom
Pohjois-Karjalan Kirjapaino	Consumer Services	Tieto Oyj	Technology
Ponsse 1	Industrials	Tulikivi Oyj A	Industrials
QPR Software Oyj	Technology	UPM-Kymmene Oyj	Materials
Raisio Oyj Vaihto-osake	Consumer Goods	Uponor Oyj	Industrials
Ramirent Oyj	Industrials	Vaisala Oyj A	Industrials
Rapala VMC	Consumer Goods	Valoe	Industrials
Raute Oyj A	Industrials	Viking Line Abp	Consumer Services
Revenio Group Oyj	Health Care	Wulff-Yhtiöt Oyj	Industrials
Saga Furs C	Consumer Goods	Wärtsilä Oyj Abp	Industrials
Sampo A	Financials	YIT Oyj	Industrials
Sanoma Oyj	Consumer Services	Yleiselektronikka E	Industrials
Solteq Oyj	Technology	Ålandsbanken Abp A	Financials
Sponda Oyj	Financials	Ålandsbanken Abp B	Financials
SRV Yhtiöt Oyj	Industrials		

Table 4 Companies examined in the research (2)

The tables above include every company that was investigated in this research. The bold ones are companies that have two share classes. As mentioned earlier, both share classes are taken into consideration. All in all, there are 99 different companies, amounting to a total of 107 observations since companies with two share classes have both classes included. The range of companies includes every sector on the Helsinki Stock Exchange.

5. RESEARCH RESULTS

The results of the research are presented here. Firstly, the author presents a general overview of the sample, and after that, more specific results are presented regarding the actual research and its objectives.

5.1 General overview of the sample

Although the empirical material does not include every single company listed on the Helsinki Stock Exchange, the gathered sample of 99 different companies and 107 observations in total tells a lot about the whole stock exchange as a whole. As a reminder, all data presented here is based on the time period mentioned in the beginning of the thesis (4.1.2010-30.12.2014). As also previously mentioned, the average of those five years is used for each company's variables.

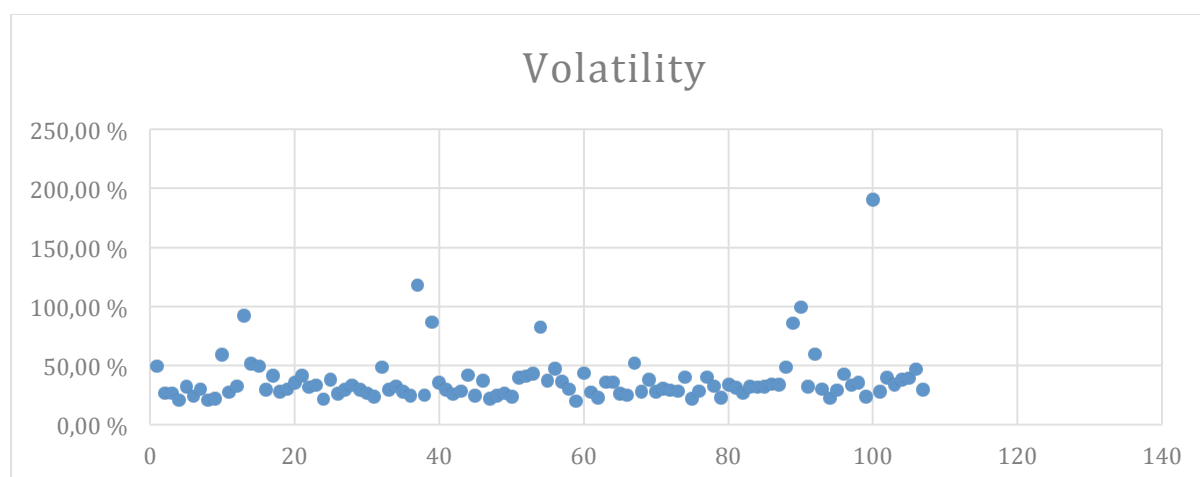


Table 5 The volatility spread of the investigated companies

As table 5 above illustrates, the majority of the volatility figures of the companies examined in the research tend to be around 20% to 50%. 11 companies out of 99 have a volatility of over 50%. Table 6 below presents the five highest and five lowest volatilities to give an idea of what kind of numbers are considered high and low.

5 lowest volatilities	
Company	Volatility
Norvestia Oyj	19,65 %
Apetit	20,77 %
Aktia Bank A	21,09 %
Elisa Oyj	21,45 %
Rapala VMC	21,86 %

5 highest volatilities	
Company	Volatility
Valoe	190,66 %
Innofactor Plc	117,86 %
Talvivaaran Kaivososakeyhtiö	99,58 %
Biohit Oyj B	92,47 %
Ixonos Oyj	86,92 %

Table 6 The five lowest and highest volatilities of the examined companies

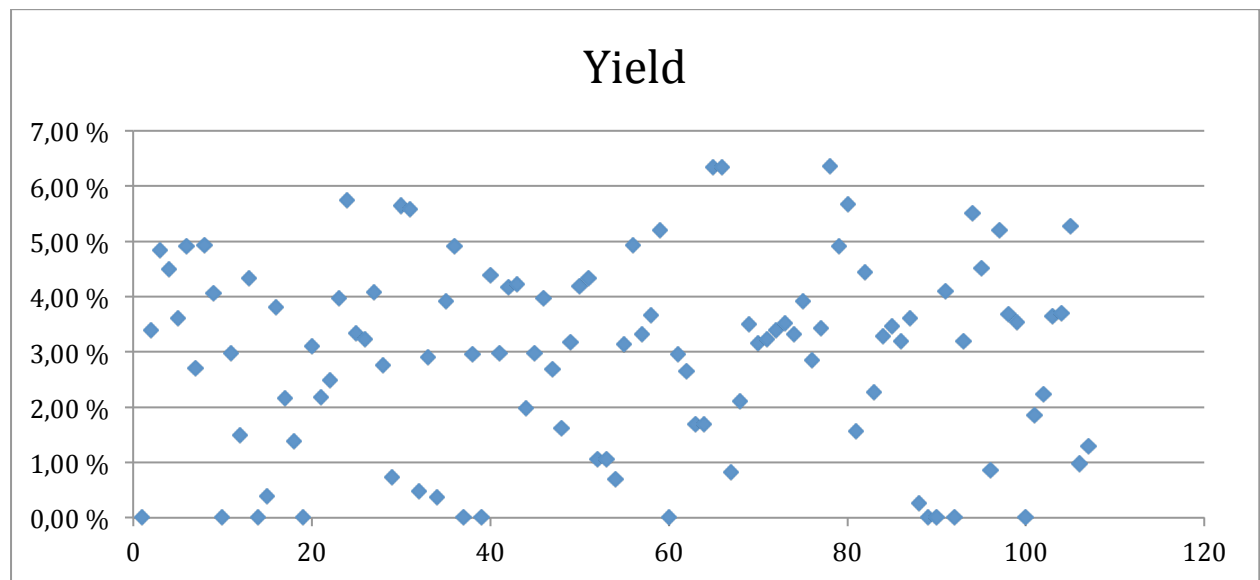


Table 7 The Dividend Yield spread of examined companies

As table 7 above demonstrates, the dividend yields of the examined companies are rather spread out. Some having a high dividend yield of over 5%, whereas some have a more moderate dividend yield between 2% and 4%.

5 lowest dividend yields	
Company	Yield
Suominen	0,26 %
Honkarakenne B	0,38 %
Bittium Oyj	0,40 %
Glaston Oyj Abp	0,48 %
Neo Industrial	0,70 %

5 highest dividend yields	
Company	Yield
Saga Furs C	6,35 %
Orion A and B	6,34 %
Elisa Oyj	5,74 %
Sanoma Oyj	5,68 %
Fiskars Oyj Abp	5,65 %

Table 8 The five lowest and highest dividend yields of the examined companies

In table 8 above, the five lowest dividend yields do not include companies with a dividend yield of 0%. There are 11 companies in total that had a dividend yield of

zero throughout the period of five years (4.1.2010-30.12.2014). A comprehensive list of all examined companies can be found in the appendix.

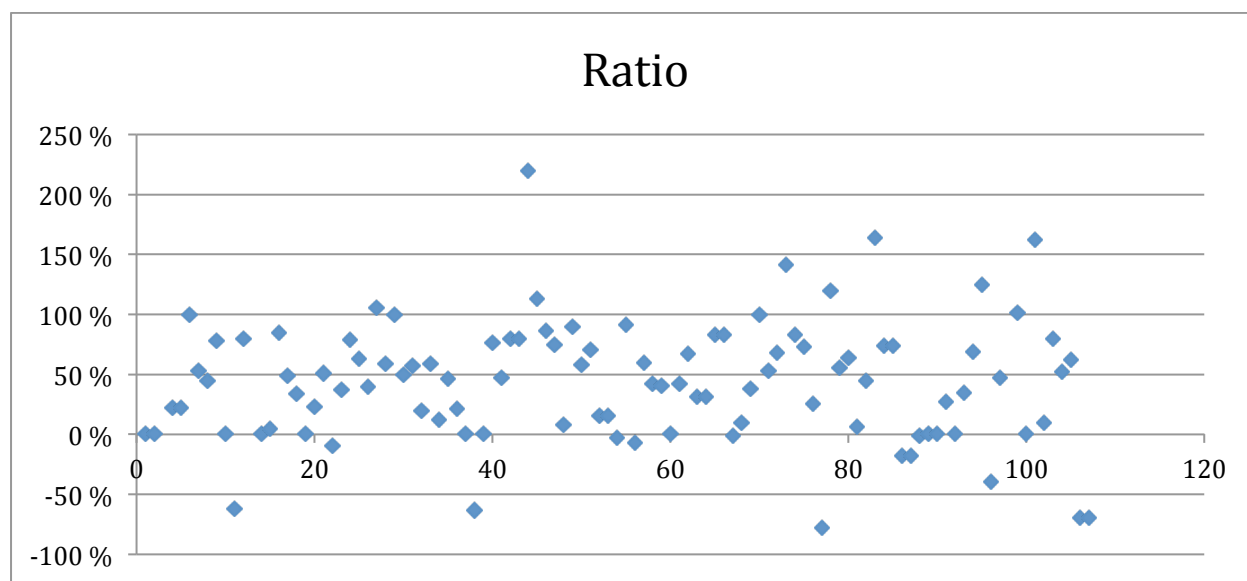


Table 9 The Dividend Payout Ratio spread of examined companies (extreme values excluded)

Table 9 exemplifies the spread of dividend payout ratio for examined companies. Three extreme values were excluded in order to make the spread more reader-friendly (1353%, -218% and 447%). All values are available in the appendix at the end of the paper. As we can see, the majority of companies are situated somewhere between 0% and 100%. With some companies having a larger ratio than 100% or a lower ratio than 0%. A higher than 100% payout ratio means that the company's dividend payments amount to more than their net income. Whereas a negative payout ratio simply means that the company is paying out dividends even though they made a loss since negative earnings result to a negative ratio.

5 lowest dividend payout ratios	
Company	Ratio
Biohit Oyj B	-218,07 %
Revenio Group Oyj	-78,03 %
Ålandsbanken Abp A and B	-68,58 %
Investors House	-62,59 %
Atria Oyj A	-62,10 %

5 highest dividend payout ratios	
Company	Ratio
Ahlstrom Oyj	1352,70 %
Uponor Oyj	446,83 %
Kesla A	219,69 %
SRV Yhtiöt Oyj	164,35 %
Viking Line Abp	161,54 %

Table 10 The five lowest and highest dividend payout ratios of the examined companies

The five lowest and highest dividend payout ratios are listed above in table 10. Since the investigated time period is only five years, the numbers might look rather

dramatic. It is due to the fact that if a company had extremely large dividend payouts one year but nearly nothing the next years, the average can show a number, which is a bit distorted. But it still shows how the situation was during that period of time. On the other hand, negative dividend payout ratios usually stem from the fact that the company has made a loss and despite that, they still decide to pay out dividends from the cash they possess.

All in all, the examined 99 companies amounting to 107 observations resulted in the following table for each of the three variables for the time period of 4.1.2010-30.12.2014.

<i>Variable</i>	<i>Observations</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>
<i>Volatility</i>	107	37,75 %	19,65 %	190,66 %
<i>Yield</i>	107	2,95 %	0	6,35 %
<i>Ratio</i>	107	57 %	-218,07 %	1352,70 %

Table 11 Summary of the sample

5.2 Correlations

Now that a general overview of the empirical data has been presented, it is easier to comprehend the data regarding correlations, which is the main issue of the thesis. So, how does dividend policy correlate with share price volatility on the Helsinki Stock Exchange? The correlation matrix below illustrates the correlations between the three variables.

Correlations

		VOL	YIE	RAT
VOL	Pearson Correlation	1	-,508 ^{**}	-,185
	Sig. (2-tailed)		,000	,056
	N	107	107	107
YIE	Pearson Correlation	-,508 ^{**}	1	,232 [*]
	Sig. (2-tailed)	,000		,016
	N	107	107	107
RAT	Pearson Correlation	-,185	,232 [*]	1
	Sig. (2-tailed)	,056	,016	
	N	107	107	107

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 12 The Correlation Matrix

The matrix includes three important components; Pearson Correlation (Pearson's r), Sig. (2-tailed) and N. As mentioned in the methodology –section of the thesis, Pearson's r represents the linear correlation that exists between the chosen variables (Bryman & Bell 2011). On the other hand, Sig. (2-tailed) shows the level of statistical significance in Pearson's r . N is simply the number of observations. As we can see, share price volatility has a negative correlation with both dividend yield – and payout ratio.

Pearson's r is -0,508 for the relationship between share price volatility and dividend yield, while the Sig. (2-tailed) value is 0,000. The negative correlation means that as dividend yield increases, share price volatility decreases, and vice versa. Also, the closer the figure is to 1, or -1 in this case, the stronger the correlation. The Sig. value of 0,000 tells us that there is a statistically significant correlation between the variables, since the value is less than 0,05 (Bryman & Bell 2011).

On the other hand, Pearson's r is -0,185 for the relationship between share price volatility and dividend payout ratio. In this case the Sig. value is 0,056. Again, the apparent negative correlation means that as dividend payout ratio increases, share price volatility decreases, and vice versa. Regarding this relationship, the Sig. value of 0,056 says that although being close, there is no statistically significant correlation

between the variables since the Sig. value is greater than 0,05 (Bryman & Bell 2011).

The final relationship in the correlation matrix is that of dividend yield and dividend payout ratio. In this case, Pearson's r is 0,232 while the Sig. value is 0,016. Contrary to the previous relationships, this relationship is a positive one. Meaning that as one variable increases, the other increases as well. The same applies for decreases in the variables. Since the Sig. value is lower than 0,05, the correlation is regarded as statistically significant.

5.3 Coefficient of Determination

In addition to the previous correlations and to get even more in depth results, the coefficient of determination R^2 can be analyzed. The following table illustrates the coefficient of determination between share price volatility and dividend yield.

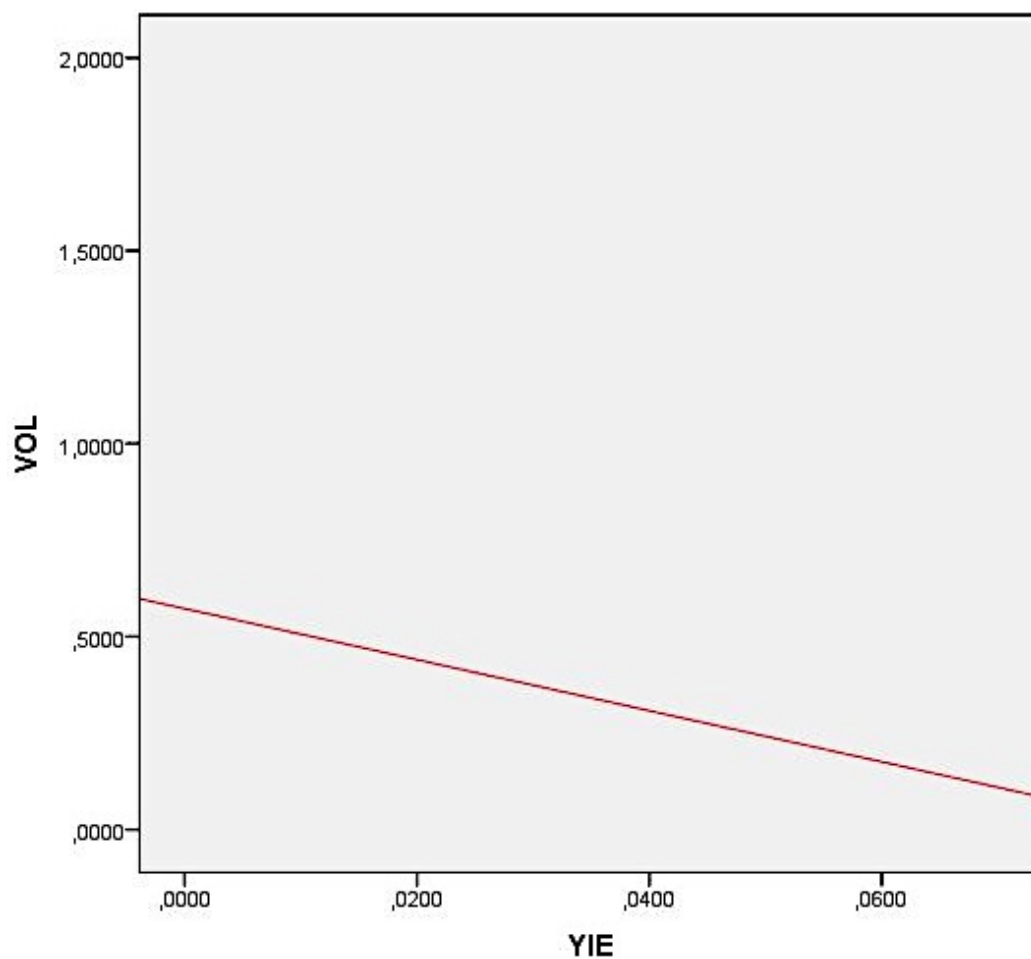


Table 13 Coefficient of determination R^2 Linear=0,258 (Share price volatility – Dividend yield)

R^2 is used as a tool to examine how differences in one variable could be explained by differences in another variable. It is simply the square of the correlation coefficient, hence the name R squared. It tries to evaluate how many of your data points fall among the line formed by your regression (correlation). The higher the R^2 value, the higher the number of points the line passes through, meaning that the line represents the data points well. A value of 1 would mean the data points are fully represented by the line. On the other hand, the lower the R^2 value, the lower the number of points the line passes through, meaning that the line is not a good representation of the data points. The coefficient of determination is especially useful in predicting future events and how they will fall inside the expected outcomes. (Coefficient of Determination)

As we can see from table 13 above, the R^2 Linear value is 0,258 between share price volatility and dividend yield. Meaning that around 26% of the time, the data points will fall within the linear line. Since this is a relatively low value, predicting future data points' placement is rather difficult and uncertain.

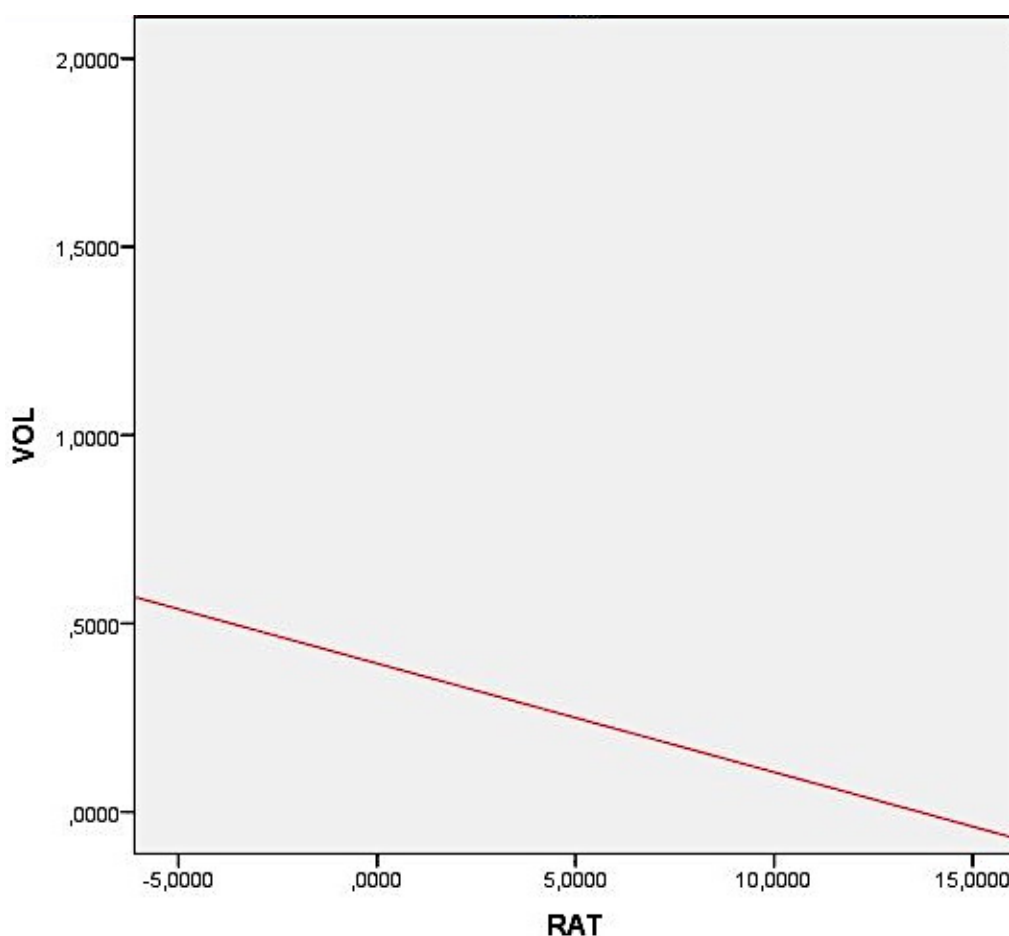


Table 14 Coefficient of determination R^2 Linear=0,034 (Share price volatility – Dividend payout ratio)

The coefficient of determination is 0,034 between share price volatility and dividend payout ratio, as we see from table 14. This amounts only to a 3,4% chance that future data points would fall within the formed line. In this case the line is not a good fit for the data points that exist.

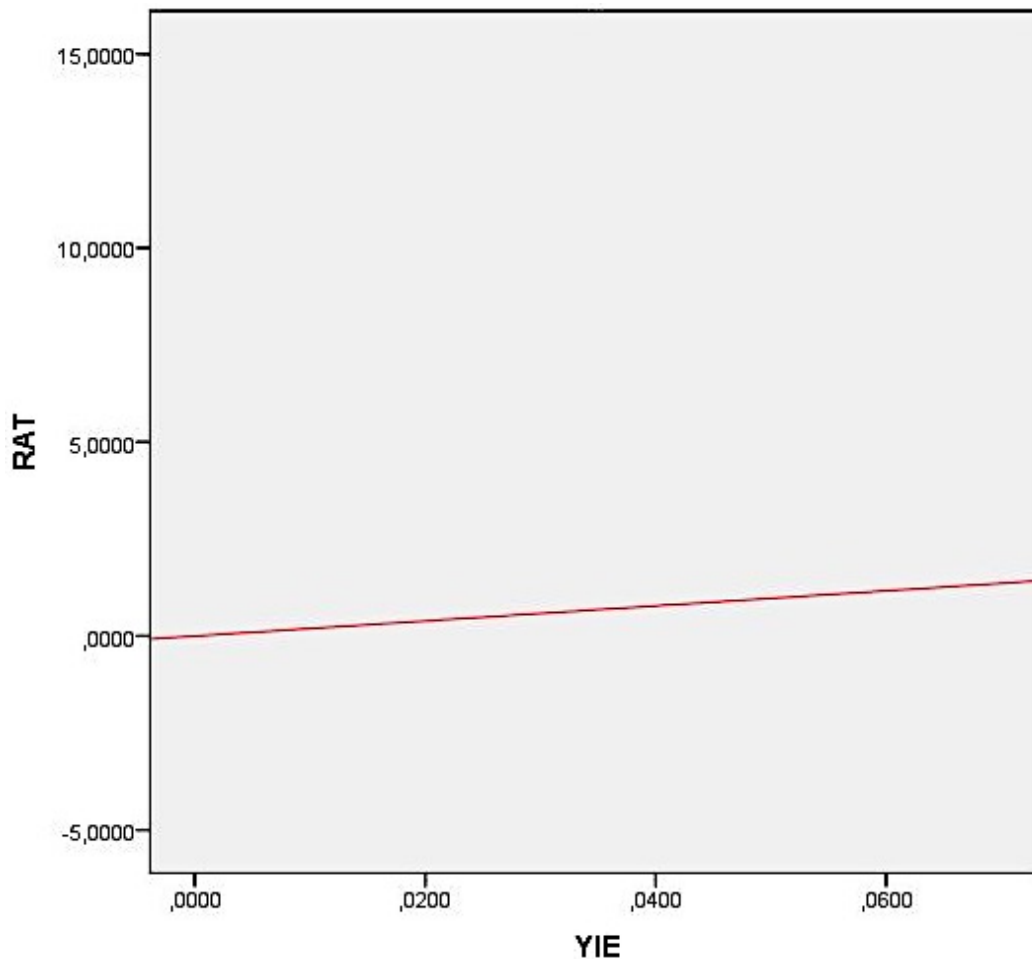


Table 15 Coefficient of determination R^2 Linear=0,054 (Dividend payout ratio – Dividend yield)

The final relationship between dividend payout ratio and dividend yield gives out an R^2 value of 0,054. In this case, the line fits the data points around 5,4% of the time, which is also a low percentage. As with the previous relationship, the linear line formed is neither a good fit for the values collected, nor possible future values.

Based on these figures and lines, the prediction of future data points' placements is relatively difficult for all correlations. The correlation between share price volatility and dividend yield is the most promising and certain in predicting future events, in comparison with the other two.

6. DISCUSSION AND FINDINGS

The results of the research clearly show that there is a negative correlation between dividend policy measures (yield & ratio) and share price volatility among the examined companies on the Helsinki Stock Exchange. The correlation of -0,508 between share price volatility and dividend yield, as well as the correlation of -0,185 among share price volatility and dividend payout ratio tell us that as one variable increases, the other tends to decrease, and vice versa. This result is also in line with previous research done in the field. For example, Song (2012) examined the issue regarding the Canadian stock market and came to the same conclusion.

In addition to the negative correlation found, the author also found a positive correlation of 0,232 within the relationship between dividend yield and dividend payout ratio. As one variable increases, the other increases as well, and vice versa.

6.1 Reasons behind the correlations

The reasons behind these correlations are manifold. For example, what does the negative correlation actually tell us besides the fact that as dividend yield and payout ratio increase, share price volatility tends to decrease, and vice versa. As a company distributes a higher proportion of their earnings as dividends to their shareholders, the decision to do so sends out a positive signal telling market participants that the company is doing well financially. This immediately reflects to the share price by making it more stable, thus less risky. In addition to this, a company with a high dividend yield certainly does not seem undesirable for investors. Hence, the possible rise and increased stability in the share price.

On the other hand, as dividend yield and payout ratio decrease, the share price volatility tends to increase. Increases in share price volatility are never a good sign, since volatility is a sign of risk and a risky share is something investors try to stay away from. Surely, there are also other factors affecting the volatility of a share's price. But for the sake of the discussion, the focus is only put on the two aforementioned variables. As Kinkki (2001) suggested, changes in dividends have a relatively strong effect on the share price. First of all, decreasing your company's dividends signals that everything is probably not going as planned and expected

financial results were not achieved. This reflects on the share price, presumably making it decrease in value. The magnitude of the price changes is something that should be examined and kept in control, if possible. Large swings are always a sign of high volatility and risk. Companies should always aim to maintain a steady dividend growth pattern, or at least keep the dividend unchanged. By doing this, companies gain trust from investors and the company also appears much more desirable in the eyes of the investors.

6.2 Significance for companies

For companies and their decision-makers, the results of the research show that they should be aware of the implications of different dividend policies. Since dividend policy measures are negatively correlated with share price volatility, increased dividends, regarding both yield and payout ratio, could lead to a more stable and less volatile share. A less volatile share also means less risk. Of course, there is no such thing as a risk-free share on the Stock Exchange, but still, minimizing risk to the absolute minimum is always preferable. On the other hand, reducing and cutting back dividends might result in higher volatility in the share's price, which is an insinuation of the apparent risk perceived. At the end of the day, it is a question of altering and finding the balance between the appropriate dividend policy and share price volatility.

6.3 Significance for private investors

What about private individuals and investors; what do they gain from the results of this research? First of all, private investors gain knowledge and insight about the risk within the shares examined. This risk is analyzed through the fluctuations in the shares' price (=volatility). The lower the volatility of the share price, the more riskless the share tends to be. To take an example from the empirical material gathered, one could say that the telecommunications company Elisa has a rather low share price volatility of 21,45% for the examined time period 4.1.2010-30.12.2014, whereas the mining company Talvivaara has a high volatility of nearly 100%. This is a perfect example of how well the volatility figure actually corresponds to the real world; Elisa is perceived as having a much less risky share than Talvivaara. As a matter of fact, Talvivaara's stock trading has been discontinued for the foreseeable future because

of extremely difficult times they have faced. In addition to gaining knowledge about the risks, private investors also acquire information about how different dividend policies affect the company and its value. The dividend policy theories mentioned in the literature review also relate to this.

6.4 Helsinki Stock Exchange

Through examining 99 publicly listed companies on the Helsinki Stock Exchange, the author, as well as the reader of this thesis, get an understanding of what the companies are like. With an average share price volatility of 37,75% among the 99 companies (107 observations), the Helsinki Stock Exchange can be viewed as a relatively low risk exchange. Despite this, the risk is still there. Several companies had a volatility of over 100%, which is a significant implication of risk and implies that share price fluctuations were drastic over the examined 5-year time period. Although there were several companies with large volatility figures, there were also companies with low figures as well. Large companies like Fiskars, Kone and Sampo all had volatility figures of under 30%. Meaning that they are perceived as being less risky.

The dividend yield mean of 2,95% is also somewhat moderate, but still competitive. It shows that investing in the Helsinki Stock Exchange would have most probably resulted in positive earnings through dividends. This is why investors are always interested in earning more and growing their assets through dividends. As an example, Saga Furs with a mean dividend yield of 6,35% and Orion with 6,34% were the highest dividend yielding companies during the 5-year period. A yield over 6% can be considered a very high one.

The average dividend payout ratio of the 99 examined companies was 57%, which is rather high. It means that nearly 60% of earnings were paid to shareholders as dividends. Admittedly, this is a positive thing for shareholders since they are at the receiving end. Looking from the company's perspective, it tells that they are optimistic about the future and already have enough cash reserves to cover investments in the near future. But then again, around 40% of earnings are still left inside the company as retained earnings for future growth.

The dividend payout ratios were significantly spread out among the investigated companies. This tells about the differences in dividend policies the companies have.

Some prefer a higher payout ratio, whereas some prefer a lower one. In this case, extremely high payout ratios of over 100% were observed among several companies. A payout ratio of over 100% imparts that the company has distributed dividends more than their earnings were. This basically means that the company has taken money out of its own cash reserve to distribute said dividends. Usually this is not considered to be wise. On the other hand, it can be seen as a generous gesture to distribute excessive cash reserves for the shareholders as dividends. The dividends shareholders receive might be then invested back into the company.

6.5 Factors affecting share price volatility

In this research, only dividend yield and payout ratio were investigated in correlation with share price volatility. It is evident that other factors influence the volatility of a certain share listed on the stock exchange. External factors, such as the overall economic situation in the country and globally, governmental decisions and different news presented in the media can also have a significant effect on how volatile the share price is. Also factors mentioned in the literature review part, such as laws, taxes and risks also play an important role.

Internal factors, two of which were examined in this research, still have the most significant effects on the volatility. Companies make decisions from the inside and always according to what they see is best, keeping the shareholders' interests as a top priority. Certainly, companies also examine what is happening in the outside world and apply their own policies accordingly. The key is to find a balance between the appropriate dividend policy and share price volatility, which keeps both decision-makers –and shareholders of the company satisfied.

7. CONCLUSION

Limited liability companies exist to make profit to their shareholders. Since the profit distributed to shareholders is often in the form of a dividend, it is essential for everyone involved in the process to understand the meaning and consequences of different dividend policies. As do many aspects of business, dividend policy is also something that differs from company to company. There is no absolutely right or wrong way of handling the issue. Ideas and theories that have been proven to function in the real world and have a positive effect on the business should always be preferred, of course.

The majority of private investors probably only care about the total dividend distributed per share. That is understandable, since the actual dividend is something rather concrete in the form of money being transferred from the company to the shareholder. In addition to the actual amount of the dividend, it would be beneficiary for people to understand what is behind the payout decision. What are the underlying reasons the company is even distributing dividends? How will dividend distributions affect the company? Answers to these kinds of questions are interesting to find out. People are usually completely unaware of the processes and decisions that are being made inside the company, regarding dividends for example. In addition, private investors should also get a more comprehensive idea of the important factors to keep in mind while making investment decisions. The research done in this thesis helps acquire more knowledge about aforementioned issues.

This thesis has shed some light into understanding the correlations that exist between dividend policy measures and share price volatility. The information acquired through this research is highly valuable for every individual interested in knowing more about the topic. The fact that dividend policy measures and share price volatility are evidently in a negative correlation with one another helps people understand the significance of different dividend policies and their implications.

The responsibility of applying the research results that have been made all over the world to an actual business decision-making process, concerning dividend payouts for example, is left for the executives who are in charge. Knowing that by altering your company's dividend policy you can affect the volatility of the share price is a

major tool to use in the corporate world. The less risky a share is, the better it is for every participant in the financial markets.

To further research this topic and to get a more general and universal understanding of the issue, an analysis consisting several countries and their stock exchanges could be carried out to properly comprehend the possible differences there are between countries and their stock exchanges. Another viable idea for a continuation for this study would be to compare the different sectors within one stock exchange to see if there are noticeable differences between industries. There are also other factors that affect share price volatility. For instance, growth rate and company size usually have an effect on volatility. In addition to these, there are multiple aspects that can be analyzed and see if they have an effect on the share price fluctuations of a certain company.

All things considered, it is interesting and definitely worthwhile to see how the issue of dividend policy and share price volatility will be investigated in the future. Question remains whether companies and their decision-makers actually adopt and utilize the information provided by all related studies.

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9. APPENDICES

Appendix 1: Volatility, dividend yield and dividend payout ratio averages for all examined companies for the 5-year time period 4.1.2010-30.12.2014

Company	Volatility	Yield	Ratio	Sector
Afarak Group	49,58 %	0,00 %	0 %	Materials
Affecto Oyj	26,99 %	3,40 %	1 %	Technology
Ahlstrom Oyj	26,91 %	4,84 %	1353 %	Materials
Aktia Bank A	21,09 %	4,50 %	22 %	Financials
Aktia Bank R	32,27 %	3,62 %	22 %	Financials
Alma Media Oyj	24,04 %	4,90 %	100 %	Consumer Services
Amer Sports Oyj	29,92 %	2,70 %	53 %	Consumer Goods
Apetit	20,77 %	4,94 %	45 %	Consumer Goods
Aspo Oyj	22,01 %	4,06 %	78 %	Industrials
Aspocomp Group Oyj	59,33 %	0,00 %	0 %	Industrials
Atria Oyj A	27,52 %	2,98 %	-62 %	Consumer Goods
Basware Oyj	32,60 %	1,50 %	80 %	Technology
Biohit Oyj B	92,47 %	4,34 %	-218 %	Health Care
Biotie Therapies Oyj	51,84 %	0,00 %	0 %	Health Care
Bittium Oyj	49,55 %	0,40 %	5 %	Technology
CapMan Oyj B	29,77 %	3,80 %	85 %	Financials
Cargotec Oyj	41,56 %	2,16 %	49 %	Industrials
Citycon Oyj	27,79 %	1,38 %	34 %	Financials
Componenta Oyj	30,06 %	0,00 %	0 %	Industrials
Comptel Oyj	35,52 %	3,11 %	23 %	Technology
Cramo Oyj	41,59 %	2,18 %	51 %	Industrials
Digia Oyj	31,65 %	2,50 %	-10 %	Technology
Elecster Oyj A	33,21 %	3,98 %	37 %	Industrials
Elisa Oyj	21,45 %	5,74 %	79 %	Telecom
eQ Oyj	37,94 %	3,34 %	63 %	Financials
Etteplan Oyj	26,25 %	3,24 %	40 %	Industrials
Exel Composites Oyj	29,36 %	4,08 %	106 %	Industrials
F-Secure Oyj	33,10 %	2,76 %	59 %	Technology
Finnair Oyj	29,66 %	0,74 %	100 %	Consumer Services
Fiskars Oyj Abp	26,93 %	5,65 %	50 %	Consumer Goods
Fortum Oyj	23,45 %	5,58 %	57 %	Utilities
Glaston Oyj Abp	48,27 %	0,48 %	20 %	Industrials
HKScan Oyj A	29,68 %	2,90 %	59 %	Consumer Goods
Honkarakenne B	32,88 %	0,38 %	12 %	Consumer Goods
Huhtamäki Oyj	28,07 %	3,92 %	46 %	Industrials
Ilkka-Yhtymä 2	24,85 %	4,92 %	21 %	Consumer Services
Innofactor Plc	117,86 %	0,00 %	0 %	Technology

Investors House	25,13 %	2,96 %	-63 %	Financials
Ixonos Oyj	86,92 %	0,00 %	0 %	Technology
Kemira Oyj	35,63 %	4,40 %	76 %	Materials
Keskisuomalainen A	29,76 %	2,98 %	47 %	Consumer Services
Kesko Oyj A	25,76 %	4,16 %	80 %	Consumer Services
Kesko Oyj B	28,20 %	4,22 %	80 %	Consumer Services
Kesla A	41,93 %	1,98 %	220 %	Industrials
KONE Oyj	24,59 %	2,98 %	113 %	Industrials
Konecranes Oyj	36,96 %	3,98 %	86 %	Industrials
Lassila & Tikanoja	22,14 %	2,68 %	75 %	Industrials
Lemminkäinen Oyj	24,72 %	1,62 %	8 %	Industrials
Marimekko Oyj	27,05 %	3,18 %	90 %	Consumer Goods
Martela A	23,54 %	4,20 %	58 %	Consumer Goods
Metso Oyj	39,83 %	4,32 %	70 %	Industrials
Metsä Board A	40,97 %	1,06 %	15 %	Materials
Metsä Board B	42,81 %	1,06 %	15 %	Materials
Neo Industrial	82,68 %	0,70 %	-3 %	Industrials
Neste Corporation	37,12 %	3,14 %	91 %	Oil & Gas
Nokia Oyj	47,13 %	4,94 %	-7 %	Technology
Nokian Renkaat Oyj	36,40 %	3,32 %	60 %	Consumer Goods
Nordea Bank AB FDR	30,21 %	3,66 %	42 %	Financials
Norvestia Oyj	19,65 %	5,20 %	41 %	Financials
Nurminen Logistics Oyj	43,60 %	0,00 %	0 %	Industrials
Okmetic Oyj	27,56 %	2,96 %	42 %	Technology
Olvi Oyj A	23,06 %	2,66 %	67 %	Consumer Goods
Oriola-KD A	36,27 %	1,68 %	31 %	Health Care
Oriola-KD B	35,90 %	1,70 %	31 %	Health Care
Orion A	26,04 %	6,34 %	83 %	Health Care
Orion B	25,16 %	6,34 %	83 %	Health Care
Outokumpu Oyj	52,26 %	0,82 %	-1 %	Materials
Panostaja Oyj	27,87 %	2,10 %	10 %	Financials
PKC Group Oyj	38,26 %	3,50 %	38 %	Industrials
Pohjois-Karjalan Kirjapaino	27,85 %	3,16 %	100 %	Consumer Services
Ponsse 1	30,61 %	3,22 %	53 %	Industrials
QPR Software Oyj	28,79 %	3,40 %	68 %	Technology
Raisio Oyj Vaihto-osake	28,45 %	3,52 %	141 %	Consumer Goods
Ramirent Oyj	40,16 %	3,32 %	83 %	Industrials
Rapala VMC	21,86 %	3,92 %	73 %	Consumer Goods
Raute Oyj A	28,44 %	2,84 %	26 %	Industrials
Revenio Group Oyj	40,07 %	3,42 %	-78 %	Health Care
Saga Furs C	32,50 %	6,35 %	120 %	Consumer Goods
Sampo A	22,80 %	4,92 %	55 %	Financials
Sanoma Oyj	33,77 %	5,68 %	64 %	Consumer Services

Solteq Oyj	30,94 %	1,56 %	6 %	Technology
Sponda Oyj	26,81 %	4,44 %	45 %	Financials
SRV Yhtiöt Oyj	32,45 %	2,26 %	164 %	Industrials
Stockmann Oyj Abp A	31,72 %	3,28 %	74 %	Consumer Services
Stockmann Oyj Abp B	32,20 %	3,46 %	74 %	Consumer Services
Stora Enso A	34,51 %	3,20 %	-18 %	Materials
Stora Enso R	33,84 %	3,62 %	-18 %	Materials
Suominen	48,53 %	0,26 %	-1 %	Consumer Goods
Takoma Oyj	85,95 %	0,00 %	0 %	Industrials
Talvivaaran Kaivososakeyhtiö	99,58 %	0,00 %	0 %	Materials
Technopolis Oyj	32,05 %	4,10 %	27 %	Financials
Tecnotree Oyj	60,07 %	0,00 %	0 %	Technology
Teleste Oyj	29,96 %	3,20 %	35 %	Technology
TeliaSonera	22,56 %	5,52 %	69 %	Telecom
Tieto Oyj	29,19 %	4,52 %	125 %	Technology
Tulikivi Oyj A	42,46 %	0,86 %	-39 %	Industrials
UPM-Kymmene Oyj	33,43 %	5,20 %	47 %	Materials
Uponor Oyj	35,73 %	3,68 %	447 %	Industrials
Vaisala Oyj A	23,66 %	3,54 %	101 %	Industrials
Valoe	190,66 %	0,00 %	0 %	Industrials
Viking Line Abp	28,02 %	1,86 %	162 %	Consumer Services
Wulff-Yhtiöt Oyj	39,80 %	2,24 %	10 %	Industrials
Wärtsilä Oyj Abp	33,64 %	3,64 %	80 %	Industrials
YIT Oyj	38,12 %	3,70 %	52 %	Industrials
Yleiselektronikka E	39,16 %	5,28 %	62 %	Industrials
Ålandsbanken Abp A	47,04 %	0,98 %	-69 %	Financials
Ålandsbanken Abp B	29,27 %	1,30 %	-69 %	Financials
AVERAGE	37,75 %	2,95 %	57 %	