UNIVERSITY OF VAASA
FACULTY OF BUSINESS STUDIES
DEPARMENT OF ACCOUNTING AND FINANCE

Joonas Helander

IMPACT OF 2004 TAX CHANGE ON VALUTATION OF DIVIDENDS

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UNIVERSITY OF VAASA
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Author: Joonas Helander
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Name of the Supervisor: Professor Timo Rothovius
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ABSTRACT

Taxation of dividends changed during 2005. This creates pressure for the markets to change the valuation of the dividends, which can be witnessed by observing the ex-dividend day ratios. Ex-ratios give information concerning the affect on the markets. Historically the dividend policies have required high commitment and thus there are only small changes in the actual payments.

Study of the change in the market valuation was done through usage of two different types of ex-day ratios. These ratios were calculated for the whole sample and for three different types of dividend payment amounts labelled as low, medium and high. Years from 2001 to 2007 were included in the data, in certain situations the year 2005 was dropped, because of its nature of being a transition period.

It was clear from this study that there is statistically significant affect on ex-dividend day ratios. When looking at the different dividend payment groups the results are puzzling, since the research hypothesis failed. High dividend paying group was not affected according to the tax hypothesis instead it went to the opposite direction. Strongest tax affect was found in the low and medium dividend paying groups.

KEYWORDS: ex-day, dividends, dividend policy, payout policy, taxation

1. INTRODUCTION

Tax changes create unique opportunities to test theories in practise, which require certain empirical settings. The tax change of 2004 in Finland was begun by a ruling of European Court of Justice. The Court ruled in favour of Manninen (case C-319/02). The actual case was released in September 2004. The old Finnish tax system was deemed incompatible with one of the principles of EU, however the Finnish government had already decided to move away from the old imputation credit system. From the beginning of year 2005 the new system was in place. As these changes are uncommon it is very interesting seeing what kind of affect these changes will have on corporate payout policies.

Change in the taxation might effect dividend payments, which are big part of firms payout policy. The payout policy, also consist of investment and repurchase decisions. Two different types of payments that the company can make to its owners, therefore are through repurchase and dividends agreements. Dividends seem to have lost part of their attraction in the resent years and the repurchases have begun to be more common (Allen et al. 2002, Fama & French 2001). The attractiveness of the repurchases is partially tax-driver, given the tax benefits associated with this payment relative to dividends. The purpose of this study is narrowed down to concentrate only on the dividends, because the taxes affect both, and repurchases are seen as other way of distributing profits.

First research done with the payout policy was made by John Lintner (1956). He studied the dividend decisions and dividend policies of different companies. And drew conclusions about the decisions of the managers concerning these polices. His research was remade in the 21st century by Brav, Graham, Harvey and Michaely (2005), which also studied repurchases that were not typical during 1956 when Lintner conducted his study. Shortly after Miller and Modigliani (1961) created a theory about dividend payment irrelevance, which has caused dispute ever since. The theory however created strong background, which has influenced and created new questions to be answered. Through these new questions it has created even more studies in the field of payout research.

Elton and Gruber (1970) were the first to examine effect of the taxation through using ex-dividend method. They also created a new kind of method to test the

clientele hypotheses, which had been created by Modigliani and Miller (1961). There has been lot of critique concerning their first study (Allen et al. 2002, Breadly & Myers 2000). The classical study was revisited by Elton, Gruber and Blake (2005). This time they study close-end funds, which have dividends that are taxable and non-taxable depending on the fund. The basic test that Elton and Gruber (1970) created has evolved a lot and has been used as a basis for studies around the world in Australia, Japan, Hong Kong, United Kingdoms, Canada, Finland, Germany and many other nations.

1.1. Definitions

Ex-dividend day.

During this day the stock goes ex-dividend. The dividend has been paid before this date and purchasing the stock after this day means that the owner will not receive the dividend. The dividend payment is not fully linked to the change of ownership, since in most cases the actual records used to pay the dividends are taken from 3 days before the actual payment. Therefore those owners, which want to receive the dividends have to be owners of the stock before this time period.

Cum-dividend day.

This indicates the date during, which the dividend has not been paid. And purchasing the stock during this day will grant the owner the right to the dividend payment.

Ex-dividend day ratio.

Describes the ratio calculated using different types of equations to give an indication of how the market has valued the dividend payment. The simplest version is calculated by extracting the ex-dividend day prices from the cum-dividend day price divided by cum-dividend price.

1.2. Description of the study

This study is constructed as follows; Chapter 2 the problem is stated and the methodology used in this study is described. The following Chapter 3 represents the different types of literatures, which give description of the different types of studies that have been conducted in the field. The overall picture of the payout theory is explained and several different studies around the world are represented to give better view on how the research has been done in the past. Chapter 4 show the Finnish dividend tax system and the historical developments. Description of the data is shown in Chapter 5 with tables of the data. Chapter 6 includes the empirical study and results on the different equations used. The last Chapter 7 concludes the research and gives recommendations for future researchers.

2. PROBLEM STATEMENT AND METHODOLOGY

Several different methods can be used to study specified affects on the markets. Affect of the taxation has been studied by using different types of abnormal returns, which have been found around the ex-dividend days (see Lasfer 1995; Blouing, Smith & Shackleford 2004). Ex-dividend day ratios have been used through several different formulas (see Elton & Gruber 1970; Poterba & Summers 1984; Sorjonen 2000; Bell & Jenkinson 2002; Allen & Michaely 2002). This chapter will explain the methods used in the study. The research problem is explained in the 2.2 chapter, and also the hypothesis is represented in the chapter 2.3.

2.1. Motivation

Changes in the taxation are not common and therefore such incidents are an ample opportunity to test, if the theories of tax effect can be confirmed in Finland. The Finnish markets have been found to differ from those of United States (Hietala 1990). Finland has followed the European trend, the imputation systems are being dissolved in many European countries, and this gives an opportunity to test out tax theory on the Finnish markets.

There are several reasons why this topic has been chosen. First, the tax reform issue has been dealt a lot in the Finnish media and is therefore very actual topic. Second, it is really interesting to see if companies actually change their dividend policy because of the reform, also investors reaction to the changes in dividends and how those are valued. During the old system there were restricted and unrestricted stocks, which Hietala (1990) found to differ; the valuation of restricted dividends was low compared to the unrestricted (also see Hietala & Keloharju 1995, Liljeblom, Löflund & Hedvall 2001).

The system was changed and there were no restrictions left, however the old imputation system was still used, which gave private individual investors royal dividend bonuses compared to other investors. Now that this system has been removed it is very interesting to see how the market reacts to such change. This

system, also might lead the domestic investors to invest more of their money in foreign companies. Research has shown that dividends have a lot of information content, increasing the dividend signals good news about future cash flow while dividend cuts sends signal of bad news (Lintner 1956, Brav et al. 2005). Managers are more interested in the change of the dividend, not its actual amount, and are very cautious in altering the dividend especially in reducing it. Because of the manager's unwillingness to increase dividends, it will be interesting to see the results, since the Finnish tax change starts with a transition period. During this time the dividend taxation is lower than after the whole change.

2.2. Research problem

Tax change took place in 2004, but the taxes changed for dividends paid during 2005 dividends are always paid in the following year. Dividends that are paid during 2005 are therefore the payout from the profit gathered during 2004. Purpose behind this study is to find out, if the tax change had an affect on investors' valuation of dividends, and can notable difference be witnessed depending on the amount of dividends. Before the change the domestic investors were better off than some other investors. However the change did not include all of the investors. Taxation of most of the investors was left untouched. The research follows closely the path of Bell and Jenkinson (2002), since they studied a country with similar change. Also, Sorjonen (2000) study is followed closed, since this study was conducted in Finland. It was performed long ago it will guide to how such studies should be done in the Finnish markets. There were some differences between the changes which Bell and Jenkinsons studied, since in their case the clientele, which were affected were the pension funds, and in the Finnish case the affected clients are the individual investors. The pension funds had received bonuses from the dividend payments, because of the system. After the change they were left gains similar to those of other investors. This has been similar in the Finnish markets, since the individuals were better of with the imputation tax system and now are more equally treated with the other investors.

2.3. Hypotheses

This study examines the affect of the dividend tax change that took place in 2004. For this research the ex-dividend day price changes were chosen as the method of testing the effect. This has also been called "bang for the buck" and DOR (drop off ratio) in the previous research (see Bernheim and Wantz 1995; Bell & Jenkinson 2002). The idea is to test whether the markets value the dividends differently depending on the taxation of dividends. In the research done by Bell et al. (2002) the imputation tax touched the biggest group of investors. In the Finnish situation the tax changed for the individual investors, who have accounted for around 20 percent of the total investors in stocks, in the most recent year 2006 this has fallen down to 18.7 percent (Pörssisäätiö 2005, Pörssisäätiö 2006).

The hypothesis is:

Hypothesis1: Private investors have heavily invested in stocks with high dividend payments, therefore the ex-dividend day ratios of these stocks will be affected after the tax change.

It has shown that the major part of private investors are highly educated individuals in Finland (Böckerman 2004). These individuals are well acquainted with the terms and have good knowledge of the markets; therefore they will mostly want to hold dividend paying companies, because of the preferential treatment of dividends prior to the tax change. After the tax change these private investors will also start buying other types of stocks in larger quantities. Investors will change their portfolios to include more of the low and medium dividend paying stocks, since the dividends payments are now taxed at higher rates oppose to capital gains, which were left untouched by the tax change. Dividends of high dividend paying stocks will be valued lower thereby affecting the ex-dividend ratios of these stocks. The ratios will fall, due to the change in the ownership.

2.4. Methodology

Theory has clearly shown that taxation affects the valuation of dividend payments; however there has been strong arguing about the validity of this research (Allen et al. 2002). There have been several studies that have represented similar results, which have supported the tax affect found from the ex-dividend day studies (see Lamdin & Hiemstra 1993; Lasfer 1995; Sorjonen 2000; Bell et al. 2002).

This study uses OLS regression analysis. First the study was performed on the equation (10), which represents the classical study bone by Elton and Gruber. Equations used to study the ex-dividend day effect are the (22) and (24) for the Bell and Jenkinson (2002) and (21) for the Sorjonen (2000). Equation (22) was use for the market adjustment. Two different studies were conducted. First the equations were used to compare differences between two different sets of years. Base cases were the years between 2001 and 2004 before the tax change, which were compared with 2005 to 2007 and 2006 to 2007. The year 2005 was dropped out in the second group of years, since during this year the tax change was favourable still to the individual owners, however the taxes were higher than before 2005. Companies were also separated into three different categories depending on the amount of dividends that they have paid during the study (Elton & Gruber 1970; Kalay 1982; Lasfer 1995, Niemi 2004). After this the ex-dividend day ratios were calculated for different payout groups.

3. LITERATURE REVIEW

During the last 52 years there has been growing interest towards the payout policies that firms maintain. This research began when Lintner did his study (1956). It has developed more specifically into study of the different types of payouts, and theories around them. This study is focused on the dividends, and therefore the different dividend theories will be explained in the following chapters. The studies of dividends have been different depending on country, since the tax changes have not been the same, however the methods used have been similar. There was a study conducted with a country which had no taxation. These country specific studies were reviewed more closely.

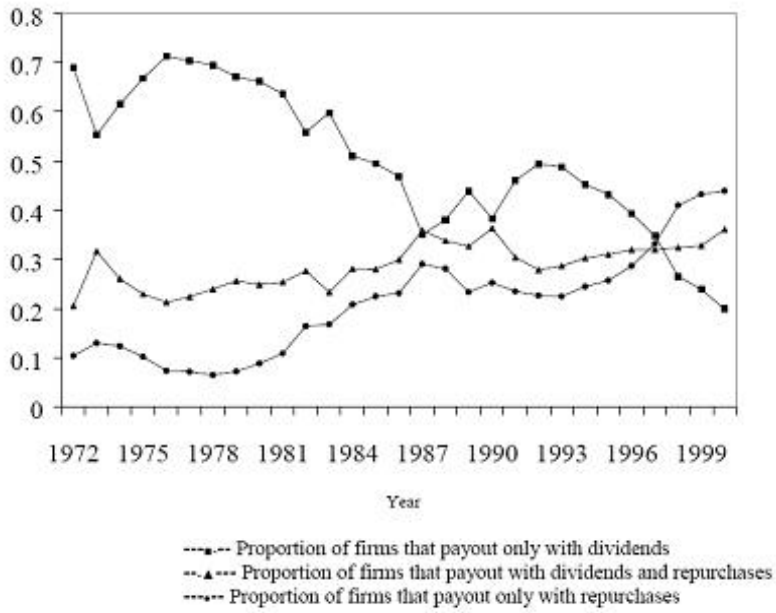
3.1. Dividend Policy

One of the most important decisions of the company takes place when they decide upon the amount of money they should redistribute back to the shareholder. Also, which form of payment will be utilized to distribute these funds and what amount of the income should be distributed. And since these decisions have found to be dynamic Allen et al. (2002) label them as the *payout policy*. The word policy is taken since it implies some consistency over time, which seems to be one of the biggest influences in the dividend payments, since firms clearly do not want to lower the payments.

Before Miller et al. (1961) research, most economists believed that the more dividends a firm paid the more valuable it would be. This view was based on an extension of the discounted dividend approach used in company valuation. In this model the following formula was used to get the V_0, which is the value of the firm during date 0, and the first dividends are paid one period from now at date 1. Given by the following formula (see Breadly & Myers 2000; Allen et al. 2002; Corrado & Bradford 2002):

(1) $$V_0 = \sum_{t=1}^{\infty} \frac{D_t}{(1+r_t)^t}$$

Graph 1 Proportion of firms with different payouts Allen et al. (2002)



Allen et al. (2002: 4) describe six empirical observations, which are most important when discussing about payout policy. The first is that large corporation typically pay out significant percentage of their income to the shareholder, either through dividends or repurchases. Secondly, historical data has shown that the dividends have been the dominating form of payout; in Graph 1 of proportion of firms with different payouts. Allen et al. (2002)] In the mid-1980s the repurchase started to make their way through and have become the most important way of payout. As can be seen clearly from the graph, dividends have been in decline and repurchases have taken over; even most of the firms that initiate payout do so rather by repurchases than dividends. Thirdly, as show by Fama et al. (2001) and Allen et al. (2005) the amount of dividends-paying firms has declined in recent years. Fourth, individuals in high tax brackets receive large amounts of cash dividends and pay high taxes on the dividends they have received. Fifth, corporation smooth dividend payments, i.e. they react slowly to changes in the income. This was already found in the Lintner's (1956) paper. Sixth, the reaction in the markets is positive to increase in the either dividends or repurchases and vice versa when they announce decreases.

There are several theories, which try to demonstrate why the firms choose to payout dividends instead of repurchases. Since 1980 the repurchases have been more favoured than dividends, this has been show in several studies Fama & French (2001), Allen et al. (2002), and Brav et al. (2005). These theories try to ex-

plain why the dividends are still paid even though the dividends and repurchases seem to be viewed both as a good way of payout. The theories include clientele effect, signaling and agency theory. Also, there is a classical theory of why firms should not pay dividends, represented by Miller et al. (1961).

The first theory in the field of payout policy was created by John Lintner (1956). He studied a diverse group of 28 companies. The companies were selected in a broadly defined "industrial" area. The selection was reasoned through the diversity of dividend policies that the industry had and also through their greater knowledge of dividend policies, since they had a long history of paying dividends. The sample that Lintner selected was not selected for statistical importance, but rather to see how they differed between others in order to see wide array of dividend policies. He did not only study when the firms made changes in the dividend polices, but also tried to identify occasions when the changes in the dividend policy were contemplated.

The results showed that firms are more concentrated on the change in existing rate of dividend payments, rather than the amount of increase in the dividend payments. Also, current earnings were viewed as the most dominant part of dividend policy. Firms showed reluctance to cut dividends, and also managers tried to avoid this through slowly adjusting the dividends if they had a bad year. This way they could still keep the change in the dividend payments even if the next year would not be as good as the last. This is also called dividend smoothing. The managers also indicated that their belief was that unless they had compelling reasons, they were required to payout major part of the increases in earnings to the stockholders in the form of dividends. The managers thought that market favoured companies with stable dividend policy with a premium. Major part of the companies seemed to have a target payout ratio, which was show to have a median of 50 %. These companies would slowly adjust their increased earnings to reach this target payout ratio. Lintner also found out that the management set dividend policy first, and other policies were adjusted according to the dividend policy. This meant that the firms that had many investment opportunities, which they viewed favourably they would research these opportunities, and if they met the targets the firm would get outside funds. (Lintner 1956: 98 – 105.)

The field work of Lintner (1956: 107–108) lead him to suggest that following model captured most important elements of firms' dividend policies. For firm i,

(2) $$D^*_{it} = r_i P_{it},$$

r_i =target payout ratio
P_{it} =current year's profit after taxes

(3) $$\Delta D_{it} = a_i + c_i (D^*_{it} - D_{i(t-1)}) + u_{it},$$

ΔD_{it} = change in dividend payments
D^*_{it} =desired dividend payment during period t
D_{it} =actual dividend payment during period t
a_i =a constant relating to dividend growth
c_i =partial adjustment factor
u_{it} =error term

This model (3) was able to explain 85% of the changes in dividends with in the group of twenty-eight companies, which Lintner (1956) used.

Brav et al. (2005) re-examined the Lintner study. The research is done through interviewing financial executives and conducting in-depth interviews. Main issues that Brav et al. (2005: 484) address are roles of taxes, agency considerations and signaling in the decision to pay. Also, they look at why firms prefer repurchases over dividends, reasons behind the fact that when new firms initiate payment they seem to prefer repurchases, and look into firms that still pay substantial dividends. One of the major goals was to find out how the academic research and real-world payout policies met and differed.

Brav et al. (2005) found that the dividend conservatism discovered by Lintner (1956) earlier still affected decision making. The management acted conservatively because of the market's reactions to dividend increases and decreases. This might be one of the major reasons why firms still do pay dividends, since as Fama et al. (2001) and Allen et al. (2002) have shown the repurchases have taken roughly 50 % of the payouts that firms execute. This has been confirmed by Brav et al. (2005: 520) *"We also find that many of those firms that pay dividends wish they did not, saying that if they could start all over again, they would not pay as*

much in dividends as they currently do." This inflexibility created by the market has also strong affects to non-payers, since if they choose to start dividend payments they also have to act accordingly.

Taxes have low importance to most of the firms; however there is a margin of firms that the taxation does matter. There are some firms that actually initiate dividend program as their first payout policy (Chetty and Saez 2004, Brav et al. 2005). In early 2004 there were about six percent of nonpayer's, which had initiated dividend payments, since the 2003 dividend tax change. Minority of the executives in the survey stated that reduced dividend taxation would change dividend payments, however two thirds stated that it would probably have no effect or that it would not effect at all. Major finding about the taxes was that they do matter, but are considered second-order manner. Most of the executives said that the taxes are not the dominant factor in choosing different payout policy, this conclusion was drawn from the research done concerning the timing and form of payment. (Brav et al. 2005: 485 – 486.)

Brav et al. (2005: 485) found that firms were most likely to use repurchases in a case when there are low amount of good investments opportunities, demands made by institutions, plenty of cash on the balance sheet, they see that stocks are undervalued by the market, and when they wanted to offset option dilution. A major reason why firms prefer repurchases over dividends was the flexibility (Brav et al. 2005: 520). When they pay in the form of repurchases they can change this level much more flexibly than dividends. Also, executives believe that the dividends and repurchase are viewed similarly by most institutional investors.

There was strong belief that dividend and repurchase decisions did convey information to investors. This information did not however appear to be related to signaling in the academic sense. The managers strongly opposed the view that they paid dividends as a costly way to signal their firms true worth or trying to differentiate them from competitors. There was no evidence that the managers consciously made dividend decisions in the form of the signaling theories. (Brav et al. 2005: 485)

Repurchase policy was found to be better explained by Miller et al. (1961), since the managers focused first on operational and investment decisions and only

secondarily on the repurchases. Dividend policy on the other hand was viewed opposite. Dividends would not be changed, rather outside funds would be raised for investments. In the conclusion Brav et al. (2005) stated rules of the payout policy *"expect a severe penalty for cutting dividends; do not deviate far from competitors; maintain a good credit rating; have a broad and diverse investor base; maintain flexibility"* they also mentioned that managers should not do anything that reduces EPS. (Brav et al. 2005: 520 – 523)

3.2. Dividend Irrelevance

Miller and Modigliani (1961) (here after MM) created a model of perfect and complete capital markets, which they used to test how the dividend policy affected share value. Their model included certain rules. These rules were: there are no taxes, information asymmetric, no transaction costs, complete markets, and rational behaviour. Since there are no taxes, the firms could pay out dividends or repurchase shares, which would be both viewed similarly. It would be optimal to do either one, since if there were taxes the firms should choose the one with lower taxation. Information asymmetric meant that all participants would have same information about the firm including all inside and outsiders. Of course this is never the case in reality, since as insider for example, managers usually will have better information about the company than outsiders. This leads us to the possibility that managers increase dividend payments in order to change market price of the shares. Transaction cost influence firms in many perspectives. The firms can raise new equity, and shareholder can buy and sell shares. Both of these are major part of the model used by MM and since transaction costs normally have a huge effect on the decisions these are ruled out. One of the most important rule is that markets are complete. There could be possibility for firms to increase their value through paying more dividends, if certain investors viewed it favourably. In the complete markets there are no differences between different levels of dividend payment that firms can choose. With rational behaviour MM meant that the investors would always prefer more wealth to less and would not care about the form of increase in their wealth, which could be either cash payments or increased value of shares. Under the rules that MM created firms would maximise their value by choosing optimal investments. The net payout does not have importance, since firms can adjust the dividend level and thereby offset the change in their outstanding shares.

This is also similar to investors, since they can produce any level dividend payments through appropriate purchase and sale of shares. Therefore, the investors will not pay premium based on firm's dividend policy.

Now supposing that there are markets which are perfect and complete capital markets, also there are no taxes. The firm value at date t is V_t, which describes present value of payouts that include dividends and repurchases. Let us first look at the case with two periods, t and t + 1. During the date t, firm has the earnings of previous period E_t on hand. Firm must make a decision about the level of investments, dividends and also the amount of shares to be issued, or repurchased. The level of earnings is $E_{t+1}(I_t, \theta_{t+1})$ during time t + 1, which depends on level of investments I_t and random variable θ_{t+1}. Assuming that complete markets $p_t(\theta_{t+1})$ time t price of consumption in state θ_{t+1}.

(4) $$V_t = D_t - \Delta S_t + \int p_t(\theta_{t+1}) E_{t+1}(I_t, \theta_{t+1}) d\theta_{t+1}$$

V_t = present value of payouts
I_t = earnings (earned previously) on hand
D_t = the level of investment
ΔS_t = the level of dividends

Sources and uses of fund identity inform us that in the current period t:

(5) $$E_t + \Delta S_t = I_t + D_t$$

Using the equation (5) for current payouts, then

(5) $$V_t = E_t - I_t + \int p_t(\theta_{t+1}) E_{t+1}(I_t, \theta_{t+1}) d\theta_{t+1}$$

Extending the analysis into more than two periods, then

(6) $$V_t = E_t - I_t + V_{t+1}$$

(8) $$V_t = E_{t+1}(I_t, \theta_{t+1}) - I_{t+1} + V_{t+2}$$

From the equation (8) it follows that only thing that matters in the sequence of investments I_t, I_{t+1}, … are the only things, which matter when determining the firm value. Therefore, the only thing which matters in maximising the firm value is choosing the correct investment policy (Miller et al. 1961). (Allen et al. 2002: 12 – 15).

The view that Millet et al. (1961) created has been contradicted by DeAngelo and DeAngelo (2006) claiming that the dividend policy does matter. First of all they claim that the assumption made by MM force the first to 100% payout of free cash flow, which restricts the different optimal payout policies, which firms can choose upon. Retention was not allowed in the original world of MM; however it is important that firms can choose between the levels of payout. This assumption also eliminated the consideration of different value-relevant payout and retention decisions. After relaxing these rules there are now also payout policy decisions, which affect the firm value through the present value of free cash flows. The payout policy itself matters, since it partly determines partly the firm value at the stock market. The managers of the firm can choose suboptimal payout policies, when the retention is allowed, therefore DeAngelo et al. (2006) state that the payout policy does matter. This is true, because it will establish relevance, if there is even one suboptimal policy.

During a firm early years good investment opportunities are usually plenty, therefore these companies are in need of equity, which they can raise through share issue, also they do not pay dividends. However in the later years the firms have less good investment opportunities, and therefore tend to pay dividends and repurchase stock in order to minimize the waste of free cash flow. This trade-off theory is based on the idea that free cash flow to shareholders is the motivation behind optimal payout policy. This demonstrates the fact that payout policy does matter, however firms tend to choose different payout policies depending on the amount of good investment opportunities that are represented to them, however some firms also choose to use dividends with the use of getting funds through issuing new shares. (DeAngelo et al. 2006: 313 – 314

3.3. Different theories of dividend payments

There have been several different types of theories trying to answer the so called "dividend puzzle" label given by Black (1976). The theories, which are now discussed, are focused on the payment of dividends. Some of these theories, such as the clientele effect have been under severe criticisms since the foundation of this theory. There has been evidence found on either side, some which have shown that it has functioned (see Elton et al. 1970; Kalay 1982) and others showing that there have been something else going on (see Miller & Scholes 1982; Bali & Hite 1998).

Theories that are represented also include agency theory and signaling theory. Signaling theory has received lot of attention and has been under research quite similar to the clientele theory, since the 70s. Agency theory has received attention, since the 80s, and it began in the paper done by Easterbrook (1984). Also, some *other explanations* are discussed in the last chapter 3.3.4. These explanations do not have strong empirical back up, but they have been found during other studies (see Shefrin & Statman 1984; Long 1978; Allen et al. 2002).

3.3.1. Clientele effect

The clientele effect is based on the idea of differences in taxation. Since taxes differ between investors groups, these groups will purchase different types of dividend paying stocks. The clientele theory was first created by MM during their research (also see Kalay 1982; Booth 1984; Scholz 1992; Allen et al. 2002; Perez-Gonzalez 2003). High-income individual will create a group which prefers stocks that pay low dividends, since they are taxed more heavily on dividends than others, which is combined usually with the notion that capital gains are cheaper for this group. Second group could be created by individuals with low-income who usually have lower taxation of dividends, since they receive so little of them and therefore do not prefer capital gains. Usually this group is found to have such small investments that it does not seem to care at all about capital gains or dividends, which they receive in very small quantities anyways. Third group usually mentioned are the institutional investor, who do not have to pay taxes at all, and will therefore also like the high payment of dividends.

Sometimes institutions are mentioned to want to hold the medium yield stock, and corporation wanting to hold the high yield stock, since due to tax reasons they should prefer dividend income in the United States (Fama et al. 2001, Allen et al. 2002:24). This clientele model was called the "*static clientele model*" by Allen et al. (2002: 21).

Allen et al. (2002) mention that there is a certain case where all investors are taxed similarly and dividends are taxed more heavily than capital gains. In this situation the firms with high yield would certainly be valued lower than firms that have low yield. The capital gains should also be preferred over dividends, since the tax payer can choose the optimal time, when they prefer to pay the actual taxes, in the case of dividends they have to pay them at the time of dividend payment. There has been a clear demonstration by Constantinides (1984) that investors will pay for the option to delay capital gains realization and he labelled it as "tax timing option".

The static clientele effect has been researched mostly by using ex-dividend day behaviour (see Elton et al. 1970, Kalay 1982, Booth 1984, Perez-Gonzalez 2003). This type of research has been criticized however, because other authors (see Miller & Scholes 1978, Miller & Scholes 1982) have showed that there are several other factors that may have influenced this type of research. Bali et al. (1998: 128-131) researched the discreteness of trading prices and found that the tick size of stocks affected the drop in the values of ex-dividend day. They showed that the actual drop in ex-dividend day always dropped to the nearest tick size, which was closest to the price minus dividend value difference. The tick size has less importance when looking at the stock that pays high dividends, since the difference between the tick size effect and the actual effect is lower, and vice versa for low yield stocks. However the usual size of the dividends is small and therefore tick size effect plays a major role in the ex-dividend day prices. They conclude that this effect cannot fully explain the price differences, and therefore does not rule out the existence of clientele effect. The ex-day prices do have too much noise according to Bali et al. (1998: 156) to work as estimators of clientele effect. Similarly Miller et al. (1982: 1138 – 1141) exclaim that noise created by short-term trading could have totally obscured the data, so that the tax-clientele effect would not be seen. They also argue that transaction costs are one of the reasons why the ex-dividend prices do not fully

fall by the amount of dividend. Short-term trading can be one of the causes why the ex-dividend day results could be flawed.

Scholz (1992: 261 – 265) created a new way of testing the clientele effect, since the ex-dividend day research has been under so much criticism. He used proxy for the risk preference of the investors. The research was done using data of individual portfolios from the 1983 Survey of Consumer Finances. The research did show clear indications that the investors formed certain preferential dividend clienteles. He stated that this result may be one of the reasons why managers are so reluctance in changing their dividend policies. Perez-Gonzalez (2003) used exogenous variation from personal income tax rates and was able show that there was certain clientele effect. The effect was only noticed in cases were the large shareholders were affected by the tax changes. He did similar study by using ex-dividend prices and found similar results. In cases where companies were heavily owned large amount of individual shareholders the clientele effect was confirmed. This seems to clearly show that the clientele effect does not influence all companies in the market, only those that are mostly owned by similar investors, which are similarly affected by the tax changes. Booth (1984) found no evidence of clientele effect in Canada. He did however find evidence of difference between foreign and domestic investors, because the listed and interlisted stocks acted different.

Allen, Bernando & Welch (2000) make an assumption that institutions are more likely to invest in firms that pay dividends, and argue that clientele effect is the foundation of the presence of dividends, since the institutions are more informed about the companies through monitoring or that they are better than most in detecting firm quality. These are reasons why the firms paying more dividends attract more institutional ownership and perform better. Also, the institutions are far better managers than dispersed group of individual investors, and through management of the firm can influence the value of the firm. The managers will not reduce dividend payments, since they do not want to anger institutional shareholder. This could also be one of the reasons why others are willing to pay shares of these firms, which could strike a flaw in the clientele effect, since if the clienteles would prefer stocks that only perform well instead of firms that pay certain amounts of dividends.

"Starting with the premise that the stockholder wishes to maximize his after-tax wealth we can derive an expression between the ex-dividend behavior of common stock prices and the marginal tax rates of marginal stockholders (Elton et al. 1970: 69)." Now consider a shareholder who wishes to avoid the dividend, would receive the price for the stock (P_B) less the tax on capital gains for owning the stock (t_c (P_B - P_C)). Next we have a shareholder who wishes to capture the dividend, which means that he would receive the dividend (D) and would have to pay his tax rate on ordinary income ($1 - t_d$) plus the after tax income from the sale of the share (P_A - t_C(P_A - P_C)). Now both of these shareholders would have to receive equal amount of wealth in either case. Now also, making the assumptions that investors are risk neutral and there are transaction costs. It can be show that:

(9) $$P_B - t_c(P_B - P_0) = P_A - t_c(P_A - P_0) + D(1 - t_d)$$

P_B	= stock price cum-dividend (the last day the stock is traded with the dividend)
P_A	= expected stock price on the ex-dividend day (the first day stock is traded without the dividend)
P_0	= stock price at initial purchase
D	= dividend amount
t_c	= personal tax rate on capital gains
t_d	= personal tax rate on dividends

The equations left-hand side can be rearranged to show what happens, if seller just wanted to capture the dividend. In order to do so they would have to sell the stock cum-dividend and have bought it for P_0. The other side show what would happen, if the seller would try to avoid dividends due to tax reasons. They would have to sell the stock before dividend payment and buy it back right after dividends are paid. The classic Elton and Gruber equation:

(10) $$\frac{P_B - P_A}{D} = \frac{1 - t_d}{1 - t_g}$$

P_B =stock price cum-dividend (the last day the stock is traded with the dividend)

P_A =expected stock price on the ex-dividend day (the first day stock is traded without the dividend)

t_g = personal tax rate on capital gains

t_d = personal tax rate on dividends

In the research the P_A is replaced by the actual ex-dividend day stock price. (Elton et al. 1970: 69).

3.3.2. Signaling

Main concept behind signaling is that the outsiders and insiders can have different information about the company. This is called asymmetric information. This could lead into a situation were the insiders could try to use signaling, if the situation was such that the company was undervalued by the markets. In such a case the company would increase dividend payment in order to convey this message to the outsiders, which is called signaling. Raising the dividends would give new information to the markets about the firm's future prospects. The theory also works the other way around, firms that are not doing so well in the markets can be forced to cut dividends, which would give a signal that the firm is overvalued. This theory has tried to explain why firms pay such large amount of dividends each year. Argument as to why firms would choose to pay these dividends and stand out to be stronger performs than other is stated in quite many papers (see Allen et al. 2002; Bernheim & Wantz 1995; Bernheim 1991; Ambarish, Kose and Williams 1987; Miller & Rock 1985; Bhattacharya 1985). The firms are categorised as high-quality and low-quality firms. The ones that are high-quality can devote themselves to the higher payment of dividends than the firms that are categorised as being low-quality ones. The idea is that high-quality firms commit themselves to such high payment of dividends that the low-quality firms cannot duplicate it. However the low-quality firms might be tempted to try to imitate the high-quality firms in hopes of being valued higher by the markets, but this would be a short lived moment since they would not be able to keep up the higher payments for long.

The first theories were created in the late 1970s and early 1980s. Some of the best know are Bhattacharya (1979), Miller et al. (1985), and Ambarish et al.

(1987). The first theories set out to confirm the signaling theory. The first ones created did not take taxes into consideration, however in the Ambarish et al. (1987) paper these were taken into account. Neither of these papers however touched the essence of the problem that Black (1976) stated as the "*Dividend puzzle*", why do firms pay so much dividends when there are other methods that can be used, which are a less costly way of dealing wealth to the shareholders, or, in this case, signaling.

The first best and well known model was created by Bhattacharya (1979), who used a two-period model. The managers were assumed to maximise the share value of the firm, also the managers were the only ones to know about future incomes that would be determined by the investment decision, which they made. One major component of the model was the thought, that if X describes the income and D the amount of dividends the firm has committed to did not meet, meaning that D would be greater than X at some point, the firm would have to incur the cost of selling some real assets, or postpone investments. The paper did not mention the fact, which has been mentioned in many other papers (see Modigliani et al. 1961; Allen et al. 2002; Bernheim et al. 1995) that the firm could take new debt to finance the dividends. The model was such that at time zero managers invested into a certain project, and made a decision about signaling that the project was good, if they thought so, by committing to a large dividend at time 1. At time 1, the firm would receive income from the investment and pay the dividends that it had committed to. At time 2, the firm would be sold to a new group of investors who would receive the second part of the income generated by the investment made at time 0. The share price that the first shareholders would receive from selling at time 2 would depend on the new shareholders beliefs about the profitability of the investment that was made at time 0. The major step forward with this model was that the model would work even if the dividends were taxed. However, the model failed to explain why the firms would use dividends to signal about their future. The model had similar feature to many other signaling models, since it treated share repurchases and dividends as perfect substitutes for one another.

Other best known models included in the field of signaling are Miller et al. (1985) and Ambarish et al. (1987). These were created because of the dissatisfaction to the first models. Miller et al. (1985) created a model which was quite similar to the one created by Bhattacharya, however they assumed that some of

the shareholder would want to sell their share of the firm at the time 1, which would affect the decision making of the managers concerning investment and payout decisions. They also mention that a good firm would have to pay such amount of dividends that it would be sufficiently high in order to be unattractive for bad firms to reduce their investment in order to achieve the same level. They also propose in the paper that the signaling would not be needed, if the inside information would be eliminated by disclosure laws and restriction to insider trading. The model however failed to explain the fact that if dividends were taxed and repurchase were not, why firms would pay dividends (Allen et al. 2002: 55).

The difference between these two models are the dissipative costs, in the Bhattacharya (1979) model the dissipative cost was the transaction cost of having to find outside funds in order to pay dividends. In the model done by Miller et al. (1985) the dissipative cost were those which distorted the firm's investment decisions. Both of these models claimed that repurchases and dividends are perfect substitutes.

Ambarish et al. (1987) model was different to the two already mentioned, since in this model the dividends and repurchases are not treated as substitutes. Similarly to Miller et al. (1985) the model started through the assumption that shareholder have liquidity needs, which they will satisfy through selling some of their shares. They mention that the dilution that the stockholders suffer through the issuing of new shares or through selling their own stocks, which leads the managers to increase the value of the firm, so that the dilution effect is less for the original shareholder. The most important innovation in this study was that the dividends are used as a signaling device, because of the taxes that shareholder have to incur when they receive dividends. The bad companies will have to be willing to bear the cost of the taxes when using dividends, which will make them even more undesirable than mere repurchase.

The main strength of these signaling models is that they are able to explain the positive market reaction to dividend increases and to announcement of share repurchases. Idea behind this is that the dividend payments inform market about the firm's future prospects. These models are still criticised by Allen et al. (2002: 54) since they fail to explain why firms smooth dividends. There is also no explanation about why the management would care so much about the next

period stock price. This is also linked to their other criticism about the management's willingness to waste money on signaling about their true value through dividends, especially when the true value will be revealed to all in the next period. The final question that they pose is that why would firms use repurchases or dividends to signal.

One of the most interesting signaling modelling that takes into consideration different tax regimes is the paper done by Bernheim et al. (1995). Even before this paper Bernheim (1991), studied the taxation of dividend alone. The most interesting finding in the paper was that neither dividend tax rate nor repurchase tax rate have an effect on net distribution nor to government revenue. Also, the paper is worthwhile noticing, since it talks about an optimal tax rate, which could be achieved by the firms through the usage of repurchases, new equity issues, and dividends appropriately. The optimal tax rate would allow the firms to signal at minimum tax cost. Bernheim et al. (1995) empirically test the signaling through the usage of "bang-for-the-buck", which is quite similar to the one used to test the dividend tax changes. The "bang-for-the-buck" describes the relationship between the paid dividend and share price change; therefore it describes how well the market values the dividend payment. Their findings indicate that the bang-for-the-buck increases with dividend tax rate, and they go on saying that this finding is favourable to the signaling hypothesis. They also note similarly to Allen et al. (2002: 51 – 57) that most of the models done in the past are not dynamic, however they go on to argue that even though their model is not dynamic they should capture the actual change. Allen and Michaely (2002) thought that this was the major short coming of all of the research done in this field.

There is also another explanation to why firms use dividends as a means of signaling, they might be conveying information about changes in risks. This has been reasoned through the fundamental about news concerning firms, since they must either concern the cash flows or the discount rates. Therefore the signal might have been misinterpreted and the firms signaling about the future cash flows, while the real explanation could have been that they are signaling about decline in systematic risk instead. (Allen et al.: 2002; Grullon, Michaely & Swaminathan: 2002)

Maturity hypothesis has also been developed. Basic idea behind this hypothesis is the fact that after firms becomes more mature, their investment opportunities tend to decline, and therefore they are more willing to increase their cash payout. These firms also should have declining profitability and risk. This model is however explains that this maturity would start slowly and therefore the increased dividend payments might be one of the signs of this process. The model also explain why young firms prefer not to pay dividends, since these firms have large amount of positive NPV project available, and they make large economic profits, and most importantly have low amount of free cash flow compared to the more mature firms with less investment opportunities. (Grullon, et al. 2002: 388, 421 – 422.)

The signaling theories can be seen in two different ways: in the first one the dividends are used to signal future cash flows such as in Bhattacharya (1979), in the second one they provide information about earnings, which has been demonstrated in the model by Miller & Rock (1985). The second alternative can be understood, so that even if the dividends do convey information, it would not necessarily mean that dividends would be used to signal. Also, it is clear from the research that the lowering dividends carried more information content than increasing dividends. There was also clearly a post-dividend announcement drift, which informs that if the firms use dividends as a signaling device the market does not get the signal. This creates a problem to the signaling hypothesis, since why would firms use dividends to signal. If it is only a costly way of doing so and the market does not receive their message. Even more disturbingly Benartzi, Michaely and Thales (1997) found a clear pattern of earnings increase two years after a dividend cut. Continuing this line of findings Grullon et al. (2002) confirmed these findings, and went on to show that the level of firms' profitability tended to decrease in the year following the announcement of dividend increase. (Allen et al. 2002: 65 – 70)

3.3.3. Agency

One of the first papers to research this issue was in the paper done by Easterbrook (1984: 652 – 655). He sough an explanation for dividend payments from the agency theory. Although he went on saying that even though he based his theory on dividends, that it could as well be done with repurchases. Easter-

brook gave two different explanations for the agency theory. First, explanation was that the agency cost is the cost of monitoring the managers. Shareholders would be better of if there was certain person monitoring the managers on their behalf. Second, explanation of the agency cost raises from the risk aversion of the managers. The managers do not act in the best interest of the shareholders, if they are risk averse, since the shareholders would want them to prefer risk. This rises from the fact that the managers have personal wealth tied up in their firms and therefore might tend to be risk averse since they are acting in their own interest. Both of these problems could be less serious, if the firm had to be constantly in the market for new capital. The capital markets create a monitoring, and also incentives for the managers to cut agency costs. When issuing new shares the firms will have to be reviewed by different intermediaries, also they will be under the scrutiny of new shareholders, which are seen as better than old ones at decreasing agency costs. Similar effects are also seen when a firm acquires more debt finance. The dividends are seen as a way to compel the firms to enter the capital markets more often, also it is noted that even thought firms would not have to enter capital markets they will at least increase the debt-equity ratio, and therefore the shareholders are not giving too much wealth away to the bondholders.

Treatment of minority shareholders has also been seen to lead to agency costs, which has also been called the legal protection of shareholders. Explanation of this is based on the fact that there might be certain owners that control major portion of the firm, who might be employees of the firm and therefore be less willing to use dividends as payout. These big shareholders therefore might be using their control over the firm in pursuit of their own benefits. This theory has lead to two alternative models called the outcome of legal protection of shareholders and substitute of legal protection of shareholders. In the first theory the minority shareholders use legal protection to assure that the firms have to pay dividends, and thereby prevent the insiders from using too much of the companies earnings only to benefit themselves. Under the second model, the corporation are following similar payout as in the first one in order to establish good reputation. This reputation is needed so that the company may raise external funds on better terms. This requires that the company follows these dividend payments, meaning that it will not lower the payments in the future. Findings of the study suggested that the poorly protected shareholders seem to accept whatever dividends the firms pay, which they assumed to be part of the

agency cost of poor legal protection. On the other hand in countries which had better protection of minority shareholders the dividend payments were higher, also it was noted that fast growing firms had lower dividend payments compared those with slow growth. This was consistent with the idea that the owners with better legal protection are willing to wait for their dividends, when companies have plenty of good investment opportunities. Countries that had better legal protection were found to be common-law countries, and vice versa in the civil-law countries. In countries with better legal protection the shareholders force the firms to pay dividends. Quality of legal protection for shareholders is important factor that has an affection firms' payout policy, since those countries, which had better legal protection had companies that had higher payouts than in countries with less legal protection for shareholders. (La Porta, Lopez-de-Silanes, Shleifer, Vishny 2000: 2 – 5, 27)

A Finnish study done by Maury and Pajuste (2002: 16 – 18, 33 – 37) proposed that the agency problems might not be with the corporate managers and shareholders, instead they suggested that it might be between the controlling shareholders and minority shareholders. They found a negative relationship between concentration of control and dividend-to-earning ratio. Not only did the largest shareholder's voting power, but the combined group of largest and second largest shareholder's tended to collude to create private benefits. This might also be true since these firms indicated to have low payout levels. Dividends payments were found to be less when CEO was among the three largest shareholders. There was no evidence that the separating the ownership and control would explain the difference between the amounts of dividend payments. This was explained by trade-off between the tax advantages of dividends and private benefits, which the private shareholders had to face, because of Finnish imputation tax system, which was altered in 2004.

3.3.4. Other explanations

One motive for firms to pay dividends has been based on the effect of transaction costs. This motive has been argued to arise from the shareholders need for steady flow of income from their capital investments. And since transaction costs affect the selling and buying of stocks from the markets, these have been theories that the dividends payments could be the cheapest way for the share-

holders to full fill their needs. These costs have fallen after the switch to negotiated commissions in may 1975. Even though the costs have fallen demand for dividends has not been altered. The argument has been mostly linked to small investors, which hold low amount of shares, but their role in the market place has been declining. (Allen et al. 2002: 84)

There was also a suggestion that the investor behaviour could explain the need for dividends. This behaviour was such that the capital investment made could be under a rule of do not use these funds, however the dividends were viewed as something that could be spent. Because of this inhibition the shareholders would not sell stocks to receive similar amount of money that the dividend payments would make. This meant that the dividends and capital would not be perfect substitutes. Dividend taxation does not matter since the shareholders are willing to pay the high taxes because of the self-control reasons. This theory can explain why individual investors act certain way, however it does not explain why firms pay so much dividends. (Shefrin & Statman 1984: 256 – 257)

Case of the Citizens Utilities (CU) Company gives as a peculiar view of how the market treats different types of dividend payments. CU is a unique case, since during the 1955 until 1975 the company had two different types of common stocks, which were only different through dividend payments. First ones the series A stocks paid stock dividends, while the series B stocks paid cash dividends. Price ratio of A and B stocks should have been 1.1, since the stock dividends averaged at 10% higher than the cash dividends, however this ratio was found to be consistently below 1.1 during the study period. Markets seem to favour cash dividends that were offered by the series B, even though most of the investors would have paid less taxes, if they had owned the series A. (Long 1978: 235 – 243, 262 – 263)

3.4. Different studies of taxation and ex-dividend day ratios

One of the best known studies in the field of dividend taxation and clientele effect is Elton et al. (1970). Their paper started the study on how the taxation of dividends effected the valuation of dividends. They stated that since dividends are taxed, there should be a way of deriving the marginal stockholder's tax bracket through them. This would provide important information concerning

the dividend policy, if the tax bracket could be known. The main idea behind their theory was that in a rational market the prices would reflect the marginal stockholders brackets, because the value of a dividend versus capital gains would show in the prices of shares. This requires however that the capital gains and dividends are taxed differently, which is usually the case. Therefore, in markets where there are different tax rates on capital gains and dividends, these different types of tax rates will affect the shareholders decisions.

Table 1. Tax reform act of 1986

	-1985	1986	1988
Top capital tax rate	46,00 %	34,00 %	34,00 %
Dividend exclusion of intercorporate	85,00 %	80,00 %	70,00 %
Top marginal tax rate	50,00 %	20,00 %	20,00 %
Tax rate change	6,90 %	6,80 %	10,20 %
Actual change in taxation		**-1,45 %**	**50,00 %**

Many researchers have used the formulas created by Elton et al. (1970), since they have been the basis of the ex-day studies that have been conducted (see Booth & Johnston 1984; Hietala 1990; Lamdin & Hiemstra 1993; Liljeblom et al. 2001). Some have also used other methods, which have usually had different ratios that were used in regression analysis (see Bolster & Janjigian 1991; Blouing et al. 2004; Varo 2006) Next different researches will be discussed. These were done in six different countries, which included United States, Canada, Germany, Hong Kong, United Kingdom's, Taiwan, and Finland. Most of these have studied the effects of tax change.

3.3.1. United States

The tax reform act of 1986 lowered the top capital tax rate from 46 per cent to 34 for corporations. There was also a reduction in the of intercorporate dividend exclusion from 85 percent before 1987 to 80 after 1986 and even more after 1988 when 70 percent exclusion took place. In addition, personal income tax rates were lowered substantially. There was a 60 percent exclusion on long term capital gains, which was eliminated in the tax reform act. Short-term capital gains and dividends were unaffected; also, institutional taxation of capital gains and dividends was left untouched. These figures lead us to actual change from 6.9 percent (0.46 * 0.15) to 6.8 percent (0.34 * 0.20) to 10.2% (0.34 * 0.30), which

clearly shows that the taxation of dividends tightened after 1988. (Lamdin & Hiemstra 1993: 779)

In their research, Bolster et al. (1991) examined the influence of the tax reform act of 1986 on shareholder wealth and dividend policy. For the latter research problem they used a sample of firms from the period 1984 through 1989. The researchers examined aggregate dividend payments and overall payout ratios, which were defined as Total Dividends/Total After Tax Earnings for each of the years. The payments were on a steady rise throughout the whole observation period. This meant that the dividend policy of firms was not directly, if at all in close connection with the tax reform act of 1986. A mean aggregate payout ratio for the entire sample of firms for each year was derived by dividing the mean annual dividend payment by the mean annual after-tax earnings. There was no clear trend observed from one year to the next and the ratios were almost identical pre- and post-reform. In conclusion there was no evidence that dividend policy had been altered because of tax reform.

Table 2. Growth Tax Relief Reconciliation Act of 2003

	-2002	2003	2009
Personal tax rate on dividends	38,10 %	15,00 %	38,10 %
Taxation of persons with AMT	28,00 %	15,00 %	28,00 %

The Jobs and Growth Tax Relief Reconciliation Act of 2003 reduced the personal tax rate on dividends to 15 percent (38.1 percent). This tax relief is temporary it expires in 2009. The tax relief has no effect to persons who, have relatively high levels of income (between $100,000-500,000), and therefore follow the alternative minimum tax (AMT). Due to AMT they pay 28 percent tax on dividends. Due to this low tax of 28 percent, compared to the 38 percent, the persons having AMT receive only 13 percent instead of 23 percent drop in their dividend taxation. Blouin et al. (2004) assume that change in dividend taxation due to its temporary nature will dramatically raise the dividends. This assumption is based on the fact that it will end in 2009 and during this short period investors can extract dividends from corporations at a low tax cost. (Blouin et al. 2004.)

Chetty et al. (2004) have found out that certain firms paying regular and special dividends rose after enactment of the tax relief. This information was also confirmed by Blouin et al. (2004). The firms that increased their dividend payments

were owned heavily by managers and other key insiders. The mere large number of individual investors did not lead to alter dividend policy. The figures might be faulty, because the economy also grew during the period, which could have influenced the dividend payments. (Blouin et al. 2004.)

3.3.2. Canada

Canadian tax changes took place between the years 1970 and 1980. There were four distinct periods, which each had own taxation. These periods can be divided as follows: 1970 - 1971, 1972 - 1976, 1977, and 1978 - 1980. Actual tax changes that were made were only two, but the second tax reform had a interim year during 1977. During the first period tax credit was a 20 percent of dividend income. After the 1972 tax reform dividends tax credit was left untouched, but one third of dividend income was liable to taxation. During 1978 a minor revision was made, 50 percent of the dividend income became taxable and the tax credit was increased to 25 percent. During 1977 there was a interim year and only the tax credit was lowered from 20 percent to 18.75 percent. Capital gains taxation was introduced in Canada during 1972 after that all short and long term capital gain became taxable with 50 percent of the individuals ordinary tax rate. These changes are shown in the Table 3. Major part of companies and institutions have no taxation of dividends. There are also two savings plans made for individuals, which make low amount of investments tax free. These two plans are made for retirement plans and for individuals who do not own a house but want to save for one. It was noted that these two plans have raised the amount of individual stock owners. (Booth et al. 1984: 457.)

Table 3. Canadian tax changes

	1970 - 1972	1972 - 1976	1977
Tax credit of dividends	20,00 %	20,00 %	18.75%
Taxable % of dividends	0,00 %	33.33 %	33.33%
Capital gains tax	0,00 %	50% of individuals ordinary tax rate	

Capital taxation of marginal stockowner is low, which is demonstrated by the study of the ex-day drop ratios. The drop off ratios did not confirm the existence of tax clienteles. There was a doubt that the effect might be hidden, because of the short-term trading that was taking place by wealthy and sophisticated investors. Canadian stocks can be divided into two distinct groups based

on where they are traded, since there are stocks that are only traded domestically and those that are traded in Canada and the United states. There was clear difference between these two stocks, and this was thought to be caused by the foreign trading taking place on the other market. (Booth et al. 1984: 475 – 476)

3.3.3. Hong Kong

There have been strong doubts about the results of the ex-day studies. One of these has been cast by the study done by Frank and Jagannathan (1998: 161–162,185–186). They examined the Hong Kong stock markets, which were peculiar, since there are no taxes for neither capital nor dividend income. These do however have something that hinders the markets, since there was strong amount of regulations and restrictions, which make short-term trading very hard, especially with the high transaction costs. The study clearly showed that the tax hypothesis does not work in these markets, since the ex-day ratios are below one. The actual ex-day ratios were close to 0.8, which is clearly below the number given by tax hypotheses. Other micro structure effect caused by tick size was ruled out by Frank et al. (1998) through several different tests. These left little doubt that the tick size affect might be sole cause for ex-dividend day ratios.

3.3.4. Australia

Brown and Clarke (1993) studied the effects of different tax changes in the Australian markets. Changes took place during the time between 1984 and 1988. First, there was an introduction of capital gains tax, which took place on 1985, after the 19 of September that same year all old and new assets were affected by the change. Second, reform took place shortly after during 1987, when dividend imputation system was introduced. Third, the superannuation funds that received dividends from Australian public companies became entitled to rebate. This change was made to facilitate the introduction of income tax on superannuation funds.

Table 4. Australian tax changes (Brown & Clarke 1993: 1 – 5)

	Tax Changes
1985	Introduction of capital gains tax
1987	Introduction of dividend imputations
1988	Superannuity fund

Research was done by using the drop-off ratios of different time periods. Results amazed Brown and Clarke (1993: 36 – 35), since on other hand it seemed that there was tax affect, while at the same time it seemed that there was none. After the introduction of the capital gains tax the markets reacted opposite to the tax hypothesis, and during introduction of imputation system the market reacted according to the tax hypothesis. One of the reasoning behind this was that the Australians did not fully access the value of the tax credit during the first years. It seems that it took time for the investors to actually gain full benefit from it, since during 1990 they only received 80 percent. The evidence did suggest that there is clientele effect across dividend yields. There was weak evidence of short-term trading during 1989, which was believed to be caused by fixed brokers' commissions before 1984.

3.3.5. Taiwan

Repurchases became legal in Taiwan during 2000. Capital gains tax in Taiwan is zero. Due to this capital gains tax the highly taxed individuals tend to hold firms, which pay low or zero dividends and trade out of firms that increase dividends payments. Opposite is true for individual and institutions with low taxes. Lee, Liu, Roll and Subrahmanyam (2005) found out that firms with high concentration of highly taxed shareholders were more likely to start repurchase programs. Also vast number of firms that had been paying dividends ceased paying them entirely, and started repurchase programs. (Lee et al. 2005.)

3.3.6. United Kingdoms

First tax change took place during 1988. Change in the law eliminated income taxes, which were above 40 percent, and taxation of capital gains for private individual's with highest level of income tax rate. This was equivalent to the

1986 Tax Reform Act of the United States. Lasfer (1995) hypothesized that this would lead to a decline in the ex-day tax premium after the tax change, and there would be negative affect on tax credit received from the cash dividends. He found no indications of short-term trading during the study period between the years 1985 and 1994. This might be explained by the high amount of transaction costs compared to the tax credits included with dividends. Biggest affect was noted on the highest dividend yield companies, and no change in the lowest dividend yield companies. The ex-day share prices of lowest dividend yield companies were reduced by the full amount of dividend in both periods.

Second tax change took place during July 1997. The actual change eliminated the tax credit for institutions. Under the old system institutions received total of 125 percent value of the dividend, since they could get a refund from the tax credit, which the corporation had to pay for the dividends. Under the new system dividends declined to 100 percent, which means that institutions will receive 20 percent less dividends compared to the old system.

Table 5. United Kingdom's tax change of 1997(Bell et al. 2002: 1322 − 1330)

	Before 1997 tax change	After April 1999
Pension funds	*1,25*	*1*
Higher rate individuals	0,75	0,75
Basic and lower-rate individuals	1	1
Corporations	1	1
Charities	1,25	1,21

The hypothesis by Bell et al. (2002) was that the institutions were the marginal investors. Because they were tax-exempt investors, the change would alter their preference from dividend income to capital gains. After the tax change the institution valuation of dividend income was found to be less, also institutions were more interested in the low-yielding companies. Research was done by using DOR-ratios (price drop to dividend), which are normally used in ex-dividend day studies. The DOR-ratios showed that the larger companies lowered dividend payments, and they found that the institution were marginal owners of these larger companies. The researchers drew a conclusion that the change in the taxation had affected the dividend payments.

3.3.7. Germany

Amihud and Murgia (1997) have compared the dividend payments between Germany and United states between 1988 and 1992, have found that even though Germany has more favourable taxation on dividend income the companies still choose to pay less than in the United States. They reason that the agency costs in Germany are greater, since banks that lend to these companies have major control in the shareholder's meetings and therefore prefer that the companies pay low dividends. Secondly the cost of issuing equity to replace the dividend payments is high.

3.5. Earlier research of taxation in Finland

Kasanen and Niskanen (1992) studied the effect of the 1969 Finnish tax reform. Their study was concentrated on the effect of reform to different industries. This question rouse from the study conducted by Lindström (1987), which had caused him to claim that the dividend policy of the Finnish firms had been stabile. Therefore the Kasanen et al. (1992) study tried to find out if this stability had changed after the tax reform, also they wanted to know if there were differences between different types of industries.

The sample firms were selected on the basis of information availability, since all of the companies did not have information during the whole study period. Banks and insurance companies were left out, because of their stronger regulations; also, there was no data readily available. Only industrial, transportation and commercial firms were selected. The study was performed on 33 firms, which accounted for 86.0 % of the market value of the industrial and commercial firms in 1982. Stock market data was not available for all the firms during the period therefore they used current earnings as a proxy for company performance. (Kasanen et al. 1992: 12 – 13.)

Kasanen et al. (1992) thought that one of the major reasons behind the passive dividend policies were the traditionally dominant role of institutional ownership. Finnish stock markets are thinly traded and therefore the cash dividends are important to the institutions, which would have hard time getting cash flows through selling large amounts of stocks on these thinly traded markets.

The findings suggested that current earnings were statistically significant explanatory variable when looking at the whole sample; however when they ran regression for the two sub periods before and after the tax reform the results were not significant. Also, the fact that the trend-autoregressive dividend model performed as well as the primary dividend adjustment model, suggested that the current earnings might not be so important. This result supports the hypothesis of stable dividend behaviour were current earnings do not play a major role. Lagged dividends were found to have more importance determining the current dividend payments than the current earnings. (Kasanen et al 1992: 7, 24.)

Results of this study confirmed the Lindström (1987) statement of stable dividends. Main reason for this could be the dominant role of institutions' demand for dividends. The average share ownership of institutions was 63.8% during 1985. Tax reform had an effect on the dividend policies; however it was different among industries. Strongest effect was found among the paper industry, which is the core sector of Finnish economy. Dividend taxation was lowered and the firms started to pay more dividends. As the amount of dividend payments raised the growth rate of dividend payments went downwards. (Kasanen et al. 1992: 23 – 25.)

3.6. Ex-Dividend day research

First to conduct an empirical study using ex-dividend day were Elton and Gruber (1970), since then many have followed the same path. There have been modifications that have been made to enhance the equation, which Elton and Gruber used (see equation 10). Bell and Jenkinson (2002) state that the use of average ex-day drop-off ratios appeals at first, but after closer examination there are several reasons that discourage its use. The empirical distributions of the ratios are not normally distributed. And the error term ϵ_i^* is heteroskedastic, meaning the drop-off ratios vary strongly among different firms. Vermaelen (1983) and Michaely (1991) state that this might have strong influence on the price change of small dividends relative to large dividends.

Formulas that are used in the ex-day study vary. There is a trend to use market adjustment either throughout using average market return (R_m), or market return with volatility (σ_i). These have been used by various authors (see Lamdin & Hiemstra 1993; Sorjonen 2000; Liljeblom, Löflund, Hedvall 2001; Bell & Jenkinson 2002). The use of market adjustment is said to correct the heteroskedastic that has been found to be problematic, when conducting tax research. Lamdin and Hiemstra (1993) used the following equations:

$$\frac{P_C - [\frac{P_E}{(1+R_M)}]}{D} = \frac{(1-t_d)}{(1-t_c)} \tag{11}$$

$$R = \{[\frac{P_E - P_C + D)}{P_C}] - R_M\} * 100 \tag{12}$$

Sorjonen (2002) started by thoroughly examining different types of formulas that can be used. All of the formulas he used include the variance term, since Michaely (1991) explained that the GLS estimator would help in correcting the errors, which the heteroskedasticity has produced in the ex-day studies. First formula, which Sorjonen (2000) started with was the following:

$$\frac{d_i}{\sigma_i} \frac{P_{i,cum}(1+\overline{r_i}) - P_{i,ex}}{D_i} = \alpha \frac{d_i}{\sigma_i} + \eta_i \tag{13}$$

This formula (13) was rearranged into the following:

$$\frac{d_i}{\sigma_i} \frac{P_{i,cum}(1+\overline{r_i}) - P_{i,ex}}{D_i} = \alpha \frac{d_i}{\sigma_i} + \eta_i \tag{14}$$

Modifications to the formula were made, because the GLS estimator of α was used for the weights of the individual ex-ratios $w_i = d_i/\sigma_i$. This was done to make the residual term homoskedastic, since the heteroskedasticy had caused problems with earlier research as indicated by Vermaely (1983) and Michaely (1991). Formula (15) was the actual formula used in his research:

$$\frac{d_i}{\sigma_i} \frac{P_{i,cum} - P_{i,ex}}{D_i} = \beta_0 + \beta_1 \frac{d_i}{\sigma_i} + \beta_2 \frac{\overline{r_i}}{\sigma_i} + \eta_i, \tag{15}$$

$$\eta_i = N(0, \sigma^2)$$

In order to correct the formula Sorjonen (2000: 81) used one that had no adjustment for the normal return. He continued the research with the following formula:

(16) $$\frac{d_i}{\sigma_i}\frac{P_{i,cum}-P_{i,ex}}{D_i}=\beta_0+\beta_i\frac{d_i}{\sigma_i}+\eta_i$$

Sorjonen (2000) wrote that there were some problems using return adjustment. He explained that there was either no need for the adjustment or that the return adjustment was wrong. Therefore he ended up with the formula (16), where the term $\beta_2(r_i/\sigma_i)$ was removed.

Bell et al. (2002: 1335 – 1337) researched the drop-off ratios. They used two different formulas. First one did not include intercept, and the second included it. They reasoned that in order to avoid the problems that Elton et al. (1970) first equation had they would use formula that gives less weight to lower yielding stock with higher ex-day price variability. They start with the following formula.

(17) $$\hat{DOR}=\frac{1}{N}\sum_i^N(\frac{P_c-P_e}{D})$$

Equation (17) is the classic work of Elton and Gruber (1970). Statistic can be estimated as the intercept of the regression. The ϵ_i^* represents the error term with an assumed mean of zero. The equation however presented problems as stated by Michaely (1991) and Sorjonen (2000). The following equation presents how Elton and Gruber (1970) did their analysis:

(18) $$\hat{DOR}=\overline{DOR}+\epsilon_i^*$$

Bell et al. (2002) continue by assuming that the ex-dividend day returns R_e can be described by the following equation:

(19) $$R_{ei}=(\frac{P_c-P_e+D}{P_c})_i=(1-\overline{DOR})(\frac{D}{P_c})_i+\epsilon_i^*$$

The error term ϵ_i is defined as $E(\epsilon_i)=0$ and variance of the term is $Var(\epsilon_i)=(\sigma^2)$. There is a problem with using this equation in the ordinary least squares, since the residual variance is decreasing in the dividend yield. Therefore they correct it with creating the following equation:

(20) $$(\frac{P_c - P_e}{P_c})_i = \beta(\frac{D}{P_c})_i + \in_i^*$$

The correction is done so that the drop-off ratio will give less weight to lower yielding stocks, which have higher ex-day price variability. Also, the drop-off ratio is modified to represent the slope coefficient in the OLS regression model (DOR = β). This equation, however has an intercept of 0. Bell et al. (2002) wanted to relax this condition, because Frank et al. (1998) had developed micro-structure models describing the ex-day trading behaviour and these had lead to imply that there were negative intercept in regressions in the equation (20), therefore by adding α they also used the following:

(21) $$(\frac{P_c - P_e}{P_c})_i = \alpha + \beta(\frac{D}{P_c})_i + \in_i^*$$

(22) $$(\frac{P_c - P_e}{P_c})_i = \alpha + \beta_{PreTax}(PreTax2004 * \frac{D}{P_c})_i + \beta_{PostTax}(PostTax2004 * \frac{D}{P_c})_i + \in_i^*$$

Equations (20) and (23) were used in their research. In the actual research they calculated ex-day differences by using the market adjusted values and unadjusted values. A dummy technique was used to find out the affect between the two different periods as shown in equation (22). The variables *PreTax*2004 and *PostTax*2004 were used as interactive dummies 0 and 1 were used depending on the period for which each observation belonged to. The market adjustment was done through the following equation:

(23) $$P_e^* = P_e - P_c \beta R_e^m$$

This adjustment is quite similar to the one used by Lamdin et al. (1993) in equations (11) and (12). Only difference is that the equation (23) also uses the β-coefficient, which describes the risk.

3.7. Problems with research

Many have argued against it stating that either short-term selling or market microstructure may cause the affect that has been called tax affect (see Kalay 1982; Lakonishok et al. 1983; Michaely 1991; Brown et al. 1993; Bali et al. 1993; Boyd et al. 1994). With looking at the several different markets it seems that the taxation and its affect seem to vary strongly in the different markets. The actual transaction prices and other regulations may affect it as well as the individual investor's action. Mention that event clustering might have caused some problems researching the affect, since several firms seem to be paying dividends during the same days, which may have affected their prices so that the actual affect is not what it should have been (Bell et al. 2002: 1338). Heteroskedastic of the data has been one of the big problems early on, but it was solved first by Michaely (1991).

Boyd et al. (1994) and Frank et al. (1998) studied the tick size affect on ex-day ratios. In the Frank et al. (1998) case the study was conducted in markets that had no taxes. Only small price drops were observed. They thought that this was caused by the fact that most trades are made at bid prices on last cum day and at ask during the ex-dividend day. The models used in these two studies assumed that dividends fall between ticks or at tick multiples; however the expected price will only drop one tick less than without the regulation. There were few stocks in Bali and Hite (1998) study which actually dropped by only one tick, which indicates that the regulation infers with the ex-day study. In another study by Liljeblom et al. (2001), they point out that this tick size effect does not have huge impact on the Finnish market. They do state that tick size might effect, however they go on saying that it would only have a small influence on the ex-day study. Tick sizes at Finnish markets were rather small compared to dividends.

4. FINNISH DIVIDEND TAXATION

Dividends are seen as payout for firms. According to Finnish legislation this is one of the correct ways of sharing the profits of the company to the shareholders. Repurchases are also mentioned. The main principle is that the companies cannot distribute other wealth, besides the free capital before discharging the company. This is done to protect the interests of the creditors. Companies may also use other wealth besides cash when they are performing payouts, such other forms may include stocks of other companies and bonds, when these cannot create discrimination between stockowners or lead to division in which certain stockowners have greater benefits. (Kyläkallio, Iirola & Kyläkallio 2002: 879 – 880).

The following chapters will describe the two different tax changes that have happened in Finland. First chapter 4.1 explains the prior changes in Finnish taxation of dividends during 1987 until 1993. The chapters 4.2, 4.3, and 4.4 describe the decision making of dividend payments in Finnish firms. Purpose of this chapter is to explain the laws around dividend payments. Finnish law requires that certain procedures need to be followed, and there are some restrictions. Minority shareholders can claim their own dividend based on certain rules. Last chapter 4.5 describes the 2005 tax reform.

4.1. Taxation in Finland

There have been two major tax changes in the Finnish dividend taxation during 1987 until 2005. First of these changes was made gradually through several years by different changes of the law. These changes include the: in 1987 increasing the amount of tax bases and also lower tax rates, after 1990 adoption of an avoir fisca system for the corporate income taxation, changes in the interest taxation during 1991, and the last one was made in 1993 when the earned and capital incomes were separated and corporate income taxation was changed. Before the 90's tax change the corporate taxation was 25 percent and dividend taxation 13 percent. After the change corporate taxation rose to 28 percent and the dividend taxation of Finnish stockholders, with Finnish stocks was dimin-

ished to zero, these investors had to pay taxes on dividends received from abroad. (Valkonen 1999: 46 – 47.)

Table 6. Finnish tax changes during 1987 to 2005 (Juusela 2004: 21; Ahonen-Rautio, Päivi, Kirsti Auranen, Ari Blomqvist, Tommi Etholén, Elina Helikoski, Markku Järvenoja, Hannele Liede, Annu Nikkanen, Tarja Kettunen, Anne Klemola, Eija Kuivisto, Ilkka Ojala, Petri Pulkkanen, Timo Sneck, Eija Tannisto, Minna Tanska, Susanna Uusitalo, Heikki Vuopala, Leena Äärilä 2004: 14; Valkonen 1999: 47)

	-1987	1987-1996	1996-2000	2000-2005	2005-
Individual taxation of Capital gains	0 %	25 %	28 %	29 %	28 %
Individual taxation of Dividends	13 %	13 %	0 %	29 %	28 %

Starting from the year 1993 Finnish tax legislation was changed into differentiated income tax system and income from dividends was seen as a capital gains. Before this change companies did not pay considerable amounts of dividends. There was no sense in paying dividends, since the dividends were taxed as ordinary income, and also the Finnish tax system had double taxation of distributed profits. Finnish taxation of capital gains was 25 percent until 1996 and from 1996 on it was 28 percent and after 2000 it was changed again to 29 percent, also dividends are seen as capital income (Juusela 2004: 9).There were certain incentives for some small companies, which were operated by small group of peoples; however these were not sufficient enough for even these companies to consider paying dividends instead of ordinary wages. After the change in taxation during 1993 dividends became more convenient, since instead of paying wages and certain other payments which are included for companies paying wages, these other expenses could be saved through paying dividends. Dividends were also taxed at a lower rate than wages. (Järvenoja 1997: 2 – 3.)

Basic idea behind the Finnish avoir fiscal policy was that the taxation distributed profits of incorporations and shareholders is integrated. The shareholder will pay taxes according to his own taxation; this requires that the double taxation of dividends is removed. Therefore taxes which the company has already paid are subtracted from the taxes that the shareholder has to pay on his dividends, thereby removing the double taxation. From the example below it is easy to see that the individuals with higher taxation have to pay more taxes, and individuals with lower taxation are paid a refund from the tax office. (Im-

monen, Leppiniemi, Niskakangas, Pallonen, Päivärinta, Tikka 1990: 29 – 30.) Example:

> Let's assume that there is a company called A, and its shareholder B and C. The shareholder receives 5000 Euros of dividends (Euros will be used even though marks were used still during 1997). Assuming that the taxation of B was 28% and C was 50%.

Dividends received by B	5.000
+(avoir fiscal based on dividends 7/18)	1.944,5
Taxable income of B	6.944,5
Tax rate 28%	1.944,5
-avoir fiscal	1.944,5
Amount of taxes B has to pay	0

Dividends received by C	5.000
+(avoir fiscal based on dividends 7/18)	1.944,5
Taxable income of C	6.944,5
Tax rate 50%	3.472,32
-avoir fiscal	1.944,5
Amount of taxes C has to pay	1.527,82

(Järvenoja 1997: 26 – 27.)

4.2. Decision making process

According to OYL 12:41 § General Meeting always decides upon the distribution of profits. Time of the payment may be left to board of directors, if there is no order on the timing of the payment it must be paid immediately after the General Meeting. Dividend payments can consist of the profits from either one or several fiscal year. General meeting cannot decide to payout more than the board of directors has proposed or accepted, however this will be accepted if the larger amount is based on the minority shareholders claim to minimum payment dividends or the company is required by the certificate of incorporation to pay more dividends than the board of directors has approved or proposed. (Kyläkallio Iirola & Kyläkallio 2002: 890). General Meeting can however pay any amount of dividends that it wants, if they change the board of direc-

tors, also there is a need to stay with in the limits which minority shareholders could have demanded, if minority shareholders have made no demand they can choose any allowed amount. Companies may choose to pay dividends more than once a year, since there is nothing in the OYL that deny such payments. (Järvenoja 1997:18 – 19, 36.)

There are some limitations to the General Meetings power to pay dividends, which are:

1) Permission from the trade registers is required in certain cases when the company has lowered its share capital require. The permission in these cases is required for the period of next three years, after the lowering of the share capital has taken place. No permission is acquired, if the share capital has been raised to equal the amount, which it was lowered (Järvenoja 1997: 20).

2) Maximum amount of dividends which may be decided by General Meeting:
   a) OYL laws concerning the amount of distributed profits.
   b) Certificate of incorporation may include certain regulations.
   c) The proposal made by the board of directors is binding, however there are certain exceptions.

3) There are restrictions concerning the minimum amount of dividends, which may be distributed. These are:
   a) Regulation in the certification of incorporation, which oblige the company to the distribution of profits.
   b) Minority shareholders demand for minority payment dividends.

(Kyläkallio et al. 2002: 889 – 890.)

The board of directors proposes a decision, which is either accepted or abandoned by the General Meeting. They hold the final power over the dividend payment decision, since they can deny such payments, and they also hold the power to change the board of directors. Dividend payouts that are not accepted or proposed by the board of directors are invalid, and these payments may not be fulfilled. In the case of payment in this case it will be called illegal distribution of profits. (Kyläkallio et al. 2002: 883).

Dividend payments may also be needed to be cancelled. There are certain regulations that explain when this is needed to be done, or has to be done. Mainly these decisions should be made in situations. That require that the equity does not diminish. Cancellations may be made: the amount of dividends is too large according to the regulations of OYL, the decision making has not been done according to the law or there has been something else that is not done according to the OYL, the company has made losses and the liquidity of the company is at risk, or the decision has not been made according the official last fiscal years confirmed balance sheet. (Järvenoja 1997: 40.)

Actual dividends are paid through the Finnish Central Securities Depository, which has archives of all the stockowners. Companies may receive the registers of those stockowners, which should be paid, or they can purchase such a service from financial institutions. Dividends will have to be paid before 13.00 or exactly at 13.00 during the decided dividend payment day. Registering takes three days, therefore for example a dividend payment that is made during Wednesday which is the cum-dividend day will have an ex-dividend day during Friday, since it takes three days to register the transfer of the actual ownership. These rules are all stated in FCSD (Finnish Central Security Deposit) or APK (the Arvopaperikeskus) regulations 3.3.14, which deals about the profit payments in the OM-system. (Arvopaperikeskus 2007.)

4.3. Quantity of distributable profits

There are strong regulations to the amount of cash that companies may distribute among the shareholders. According to legislation the maximum and minimum amount that can be paid is decided upon the last completed fiscal years balance sheet, which has to be confirmed. Maximum amount that may be paid out can be 8 percent of the total equity. (Järvenoja 1997: 18). It could be said that the minority shareholders create the minimum amount of dividends, which must be paid, however the certification of incorporation may include minimum amount, and it has to be followed by the board of directors. (Kyläkallio et al. 2002: 881)

Permission to distribute profits through dividends is decided from the latest fiscal years contribution margin, no other years contribution margin may be used. In the case the company uses other than the latest fiscal years contribution margin, it will be called illegal distribution of profits. (Kyläkallio et al. 2002: 883)

Payout decision may only be made so large that it does not exceed the equity after subtracting losses and other undistributable parts. These undistributable parts include:

1) Activated costs of founding.
2) Share capital, which has been acquired by parent company or the company.
3) Other amounts, which have been transferred according to articles of association into reserve funds or other funds that cannot be distributed.

(Järvenoja 1997: 16 – 17).

Role of the board of directors demands that if there has been major change in the prospects of the firm or it has made losses that they cannot accept dividend payments, which cannot be defended after the change in their situation. This regulation is one of those that protect the creditors' stake in the corporations. (Kyläkallio et al. 2002: 883).

4.4. Minority shareholders portion

According to the legislation General Meeting usually decides upon the amount of dividends. This rule may also be passed however, if the minority shareholders demand their legal right of minority dividends. The maximum amount of dividends that may be demanded by the minority rights are 50 percent from the latest fiscal years distribution, which are found in the balance sheet. There are certain regulations, which may lower or totally nullify the maximum amount, which the minority shareholder may demand. There are strong regulations to the amount of cash that companies may distribute among the shareholders. (Kyläkallio et al. 2002: 882, 897, 899, 901).

Minority shareholders need to consist of an individual or a group of shareholder that own at least one tenth of the shares or the required minimum

amount in the articles of association. This demand has to be made in the actual General Meeting before the decision making concerning the use of profits (Järvenoja 1997: 17 – 18). All the limitation in the law that prohibit the use certain parts of profits to be dividend may lead into a situation where the minority shareholders dividends are only a small amount of the total profits that were made during the last fiscal year. (Kyläkallio et al. 2002: 900.)

4.5. Changes in the Finnish taxation

In May 2004 the Finnish government announced its proposal for the reform of corporate and capital taxation. The proposal included altering the taxation of dividend income by giving up the imputation system, which meant that the company that issued the dividend paid the tax on the behalf of the investor so that it was taxed only once, and making a transition to partial double taxation. This new system required that companies pay taxes for their profits and the shareholders will also have to pay tax for the dividend, hence the name double taxation. The law was adopted by the Finnish parliament in July 2004. This means that the taxation system becomes more complex and open to interpretation. The new regulations were applied for the first time in the taxation of dividend income in 2005. (Rasinaho & Taajamaa: 2006.)

The imputation system of corporate tax was in conflict with the regulations of the European Union. According to the EU article 58.3 the national tax legislation cannot be a way of arbitrary discrimination, and there should not be any obstacles in the movement of capital inside the union. The European Community court deemed it as discriminating because domestic and foreign shareholders were not treated equally by the system. Court decision was made after the Finnish government had agreed upon new dividend tax legislation. Finnish investors were better off with respect to taxation when they invested in Finnish shares instead of foreign ones. (Juusela 2004: 34.)

The new tax system means that the taxation of domestic dividend income has become more severe for the individual stockholders. In case of publicly held companies, for a private individual 70 percent of the dividend income is liable to taxation from which he or she is taxed after the capital income tax base which

is 28 percent. So the tax burden of an individual investor is 19.6 percent (70 percent x 28 percent) of the dividend income. 30 percent of the income is completely tax-free. Capital gains will also be taxed at 28 percent. The total taxation of dividends will be 40.5 percent, which is made from the taxes paid by the stockowner and the company. Example:

	2006	**2005**
Profit	100	100
Taxation	**26%**	**26%**
Profit after tax	74	74
Dividends	74	74
70% (2006) under tax	51.8	
57% (2005) under tax		42.18
Taxes	**14.5**	**11.81**
Total taxes:	40.5%	37.81%

(Koponen 2004: 173 – 179.)

Before 2005 dividends were taxed at 29 percent, but the domestic shareholder received the tax back due to the imputation system. There was a transition period into the new system in the year 2005. During that year, 43 percent of the income was free of tax and 57 percent was liable to it. The actual taxation during 2005 is therefore 37.81% percent (26% company tax plus 11.81% individual). (Leppiniemi 2004: 72.) Thus the new system has been at full use since the beginning of year 2007.

Owners of the non-listed companies are allowed up to 90 000 Euros worth of dividend income tax-free. There are however regulations, which require that the company's mathematical value has to be 1 000 000 Euros, in order for the individual can receive full tax benefit. All dividend payments that are higher than 9 percent of the mathematical value of the company will be taxed as normal income. (Verohallinto 2004.)

Under the new regime, in some cases dividends received by companies would become subject to tax. But generally dividends received by corporate entities are tax-exempt. If a Finnish company receives dividends from a company not residing in the EU, the dividend is taxable income for the Finnish company

(Rasinaho & Taajamaa 2006). In these situations tax treaties may limit Finland's taxation rights. The new act reduces the taxation of companies' profits from 29 to 26 percent, thus the government tries to protect growth companies and maintain Finnish company headquarters and production in the country (Teollisuus ja Työnantajat 2004: 3–4). Dividend taxation is very much a current affair in the world of finance. In the United States, the tax act of 2003 brought substantial tax relief with respect to dividend income.

Under the new tax regime of the capital gain income was raised by one percent from 28 to 29. According to the Finnish government this was done, so that individuals with mortgage would not suffer more taxes. Under the Finnish tax system the interest of the mortgage create a deficit in the capital income of these individuals. The compensation for the deficit is made according to the capital gain income tax, therefore lowering the taxation would actually increase taxation of such individuals. (Koponen 2004: 14)

Dividends received by Finnish companies are generally free of tax. This means that they have a big tax benefit on dividends in comparison with individual investors. When non listed corporations receive dividends from listed corporations they will have to pay taxes on 75 percent of such income, if they own at least 10 percent of the company they will not have to pay taxes. Listed companies do not have to pay taxes when receiving dividends from other listed companies. Accordingly receiving listed companies may prefer dividends instead of capital gains. (Koponen 2004: 180.) It is possible that managers have to take a close look on the structure of their share owners' tax status before making decisions on their dividend policies. There is clearly a conflict of interest between individual and corporate shareholders, due to which it will be interesting to see if the change of tax regime causes changes in dividend payments.

4.6. Individual stockowner

Finnish individuals mostly buy stocks for long time periods, and number of people saying this was found to be 91 percent (2005) and 87 (2006). Many households 46.7 percent (2005) and 49.5 (2006) informed that they owned stocks. Many households have invested in other investment opportunities, and the largest amounts of investments are in equity funds that are managed by

banks or other investment companies. Only 25 percent of total investments had been invested directly into stocks during 2006. (Pörssisäätiö 2005; Pörssisäätiö 2006.) 20 percent of the Finnish investors held stocks of the company, which they worked for during 2003 (Pörssisäätiö 2003). The low amount of stock ownership is caused by the high amount of money that has been placed in houses and summer cabins. The amount of that money invested in these households is 67 percent in Finland, which is quite high compared to European average of47 percent or 27 percent in the United States. This is also seen as one of the major components of risk along with the low amount of stocks that Finnish private persons own. The average Finnish stock owners have not diversified their investments. (Böckerman 2004: 15 – 16)

According to Böckerman (2004: 13 – 34) major part of the Finnish private persons, which own stock are wealthy and have a university degree. The major reason behind this is that following stock investments requires certain knowledge, which this group of people already has. During 1998 only 5 percent of the total amount of privately held wealth was invested in stocks. This number is higher when looking at older person e.g. 55 – 64 year olds owned 8 percent. It was also noted that young 25 – 34 year old office workers are anomaly, since they own more stocks compared to other groups.

Private investors are minority owners in Finnish companies. During 1995 private investors owned more stocks per percentage term by owning 17.1 percents, however this figure has diminished during the years and during 2000 it was only 8.4 percent. The private owners are noted to be larger owners in smaller Finnish companies. Most of the larger international Finnish companies such as Nokia, TeliaSonera and Nordea are mostly held by foreign investors, if Nokia's ownership was out ruled the foreign ownership in Finnish stock markets would only be 32 percent. Private investors hold more of the small and risky companies, and have poorly diversified portfolios only 11.7 percent hold portfolio of five or more stocks. (Karhunen & Keloharju 2000: 189 – 195, 216 – 218)

5. DESCRIPTION OF THE DATA GATHERING

Research data was formed by Finnish corporations, which were listed during the study period on the main list. Data was received from the OMX exchange databases. The study is concentrated on the effect of dividends payments on stock prices, therefore there were small differences between the different years since some firms started payments while others stopped paying dividends. Research was done on data gathered throughout the years of 2001 to 2007. The purpose was to have several years of data before the actual change and few years after, since during 2005 the tax change was not fully in place this year had only a slight change in taxation, therefore the study was concentrated on comparing the years between 2001 until 2004 with 2006 until 2007. There are also statistics with comparison between 2001 until 2004 with 2005 until 2007. The data was collected with similar fashion to Sorjonen (2000) and Liljeblom et al. (2001) by choosing only those firms which had at least 15 days of trading during the -60 to -5 day period, which was used to calculate market returns and volatilities. Those firms, which were thinly traded were dropped from the data. Total amount of accepted dividend payments was 615 during the whole period, with least amount on the 2007 with only 70 observations and most during 2004 with 112 observations. This was also the first year when the market knew about the change and large number of firms paid extra dividends because of the change. The 2007 data was a little bit smaller compared to others, since the data was used from the beginning of the year, however most dividends are paid during this time. Data did not include sufficient amount of opening data to perform studies with those data, therefore the study was performed by only using closing price data. The data sets were narrowed down and as we can see from Table 8 the skewness figures were quite high 6.48, 6.52 and 9.43, which are beneath one in the narrow sample. It can be said that the figures that are beneath one follow the normal distribution (Morgan, Leech, Gloeckner, Barrett 2004: 46 – 47, 49). Similar chances can be found between the other two pairs of data sets in the Table 9 with the whole sample and in the Table 10 with narrow figures going from greatly above one two underneath one, also in the Table 11 and Table 12.

Table 7. Descriptive statistics of variables for Sorjonen equation, narrow sample

	N	Range	Minimum	Maximum	Mean	Std.	Variance	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Sorjonen	448	58.89142	.24111	59.13253	19.57584	15.63623	244.492	.667	.115
dO	448	87.74395	.15080	87.89475	23.41858	18.26366	333.561	.974	.115
Sorjonen_m_adj	448	71.11667	-6.91708	64.19959	19.42678	15.97572	255.224	.728	.115

Table 8. Descriptive statistics of variables for Sorjonen equation whole sample

	N	Range	Minimum	Maximum	Mean	Std.	Variance	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Sorjonen	615	1324.953	-22.98215	1301.971	51.21038	103.8318	10781.036	6.475	.099
dO	615	1288.115	.15080	1288.266	44.17012	73.11508	5345.815	9.437	.099
Sorjonen_m_adj	615	1324.337	-23.27606	1301.061	50.60035	103.5265	10717.737	6.524	.099

Data used for the Sorjonen formula has been demonstrated in the Tables 7 and 8. In Table 7 is data from all of the years 2001 to 2007 with the narrow sample and Table 8 is the same for the whole sample. There were some dividend payments and prices that changed only slightly, which created huge numbers for the formulas such outliers were removed.

Table 9. Descriptive statistics of variables for Bell & Jenkinson equation whole sample, 2001 – 2004 compared to 2005 – 2007

	N	Range	Minimu	Maximu	Mean	Std.	Varianc	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
BJ	615	1.03766	-.03766	1.00000	.0527474	.07968807	.006	8.780	.099
DP	615	.45174	.00280	.45455	.0490295	.03645932	.001	4.190	.099
BJ1	615	1.04829	-.03882	1.00947	.0519637	.08007836	.006	8.766	.099

Table 10. Descriptive statistics of variables for Bell & Jenkinson equation narrow sample, 2001 – 2004 compared to 2005 – 2007

	N	Range	Minimum	Maximu	Mean	Std.	Varianc	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statist	Std.
BJ	527	.09970	.00030	.10000	.0403986	.0237377	.001	.496	.106
DP	527	.10761	.00280	.11042	.0420638	.0186730	.000	.634	.106
BJ1	527	.10459	.00002	.10461	.0399492	.0236408	.001	.550	.106

Table 11. Descriptive statistics of variables for Bell & Jenkinson equation whole sample, 2001 – 2004 compared to 2006 – 2007

	N	Range	Minimum	Maximum	Mean	Std.	Variance	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
BJ	524	1.03750	-.03750	1.00000	.0559527	08513428	.007	8.348	.107
DP	524	.27653	.00280	.27933	.0500284	03382891	.001	2.677	.107
BJ1	524	1.04745	-.03798	1.00947	.0551864	08563910	.007	8.312	.107

Table 12. Descriptive statistics of variables for Bell & Jenkinson equation narrow sample, 2001 – 2004 compared to 2006 – 2007

	N	Range	Minimu	Maximu	Mean	Std.	Variance	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statist	Std.
BJ	446	.09970	.00030	.10000	.0416235	.02426963	.001	.435	.116
DP	446	.10761	.00280	.11042	.0430302	.01913655	.000	.554	.116
BJ1	446	.10459	.00002	.10461	.0411722	.02413285	.001	.496	.116

There are four different Tables of the descriptive statistics data used for the Bell & Jenkinson (2002) formulas, since the study was conducted on two different sets of years 2001 to 2004 which was compared with 2005 to 2007 and 2006 to 2007. The Table 9 includes the descriptive statistics of the whole data for all the years, and Table 10 for the same years with narrow sample and the outliers are picked out from the data. Tables 11 and 12 are the same for the second study period of 2001 to 2004 compared with 2006 and 2007. The first Table 11 includes the descriptive statistics for the whole sample with years 2001 to 2004 and 2006 to 2007, and the Table 12 includes the same for the narrow sample.

6. EMPIRICAL STUDY

The equation (16) used by Sorjonen (2000) in his research was used to calculate the ex-ratios shown in Table 13, the market adjustment was done by using the equation (23). The values in the plain sample are quite high 1.139 for the 2001 – 2004 and 1.011 for 2005 – 2007, and 1.031 for 2006 – 2007. These values might be high, since the data might include some outliers. The actual figures for the narrowed sample give better picture of the situation. The plain narrow sample for the first period 2001 – 2004 gave 0.79 and with market adjustment 0.78. These ratios are quite similar to the ones found by Liljeblom et al. (2001) and Hietala (1990) with the average found on the Finnish market being close to 0.80. Comparing these two different periods of tax change 2005 – 2007 and 2006 – 2007 does not give us indications of the tax change having a major affect on the market, since the figures are slightly different for the two periods with the plain sample 0.741 for the 2005 – 2007 and 0.729 for the 2006 – 2007. Comparing the market adjusted figures 0.765 for 2005 – 2007 and 0.78 for 2006 – 2007 there seems to be no real change in the ex-dividend day ratios between the two periods. Changes between plain and market adjusted narrow samples are going into separate direction during 2001 – 2004 to 2006 – 2007. In the plain narrow sample the ex-dividend day ratios are going down and in the market adjusted one the change seems to have changed direction, so that after the tax change the dividends are seen with higher value than before.

(16) $$\frac{d_i}{\sigma_i}\frac{P_{i,cum}-P_{i,ex}}{D_i}=\beta_0+\beta_i\frac{d_i}{\sigma_i}+\eta_i$$

(23) $$P_e^*=P_e-P_c\beta R_e^m$$

Tax change affect seems vague looking at the ex-ratios show in the Table 13. The ex-ratios of the big sample all indicate that the ex-ratios fell. The figures drop from clearly above one to close to one. Strongest change can be seen when looking at the 2001 – 2004 compared with 2005 – 2007 with the ex-ratios going from 0.79 to 0.741 in the plain sample and 0.78 to 0.765 for the market adjusted

ratios. The change is not significant when looking at the market adjusted ratios. It is clear that there seems to be no difference, since the values are exactly the same after ruling out the problematic year of 2005.

Table 13. Sorjonen ex-dividend day ratios of Finnish Ex-Day ratios

Sorjonen			
Big Sample	**2001-2004**	**2005-2007**	**2006-2007**
β	**1,139**	**1,011**	**1,031**
Std Error	0,041	0,027	0,036
DF	362	253	162
R^2	0,68	0,849	0,837
T	27,712	37,714	28,756
p-value	0,000	0,000	0,000
β-Market Adjusted	**1,133**	**0,997**	**1,017**
Std Error	0,041	0,024	0,031
R^2	0,677	0,873	0,873
T	27,477	41,557	33,226
p-value	0,000	0,000	0,000
Narrow Sample	**2001-2004**	**2005-2007**	**2006-2007**
β	**0,79**	**0,741**	**0,729**
Std Error	0,025	0,023	0,029
DF	247	201	129
R^2	0,802	0,84	0,828
T	31,556	32,386	24,839
p-value	0,000	0,000	0,000
β-Market Adjusted	**0,78**	**0,765**	**0,78**
Std Error	0,025	0,022	0,028
R^2	0,802	0,861	0,861
T	31,534	35,145	28,159
p-value	0,000	0,000	0,000

Results given by the Bell and Jenkinson equation (22) and (24) do not yield similar picture, which was seen using the Sorjonen equation, the equation (20) has no constant, whereas in the equation (21) the constant is included. Dummy variables were used in equations (22) and (24), so that *PreTax*2004 and *PostTax*2004 were given value of 0 and 1 depending on the period of observation. Looking at the big sample in the Table 15 and narrow sample can be seen from Table 14, we can see similar picture with Sorjonen, since all the numbers seem

to have fallen for the latter period after the tax change. There is noticeable difference, since the ex-ratio differences do not change when looking at the narrow sample. Ratios do not indicate a change as strong that can be seen in the whole sample. In the plain big sample (see Table 14) with constant there seems to be small change with the two periods going from 0.814 to 0.77, and the change just goes lower when the constant is taken out with 0.937 dropping to 0.935, for these periods the differences are -0.044 for the plain sample with constant and -0.002 without the constant. Differences witnessed here are -0,025 for the market adjusted with the constant term and the actual ex-ratios are 0.826 for the period before and 0.801 for the period after the tax change. When using the market adjusted figures with no constant the whole change seems to have just gone backwards with the figures going slightly higher on the second period from 0.927 to 0.935 for the latter period, which indicated a difference of 0.008.

(20) $$(\frac{P_c - P_e}{P})_i = \beta(\frac{D}{P})_i + \in_i^*$$

(21) $$(\frac{P_c - P_e}{P_c})_i = \alpha + \beta(\frac{D}{P_c})_i + \in_i^*$$

(22) $$(\frac{P_c - P_e}{P_c})_i = \alpha + \beta_{PreTax}(PreTax2004 * \frac{D}{P_c})_i + \beta_{PostTax}(PostTax2004 * \frac{D}{P_c})_i + \in_i^*$$

(24) $$(\frac{P_c - P_e}{P_c})_i = \beta_{PreTax}(PreTax2004 * \frac{D}{P_c})_i + \beta_{PostTax}(PostTax2004 * \frac{D}{P_c})_i + \in_i^*$$

Dropping out the 2005 year and only looking at years 2001 to 2004 compared with 2006 to 2007 the change seems to be even smaller. The whole sample gives similar picture to the 2001 to 2004 compared with 2005 and 2007, but as can be seen from the Table 16 the changes in the narrow sample are very small between the two periods. The regressions for the big sample are show in the Table 17. Only changes which are going according to the tax hypothesis are the plain and market adjusted ratios with constant (see table 16). For the plain sample the ratio goes from 0.793 to 0.749 indicating a statistically significant difference of -0.044 and with the market adjustment from 0.808 to 0.791, which has difference of -0.017 and this is also statistically significant. The interceptors have been noted to remove biases caused in the results as can be seen from research con-

ducted by Bell et al. (2002: 1337). Boyd et al. (1994) and Frank et al. (1998) have developed microstructure models of ex-day trading behavior and found the interceptors to be negative. It has been said that these might have effects on producing biased estimates of the slope coefficients. This might be the case in this study, since the results change direction when the interceptors are included in the equation. Before using the interceptors the difference between the both periods is negative without year 2005 the difference is -0,025 and 2005 included 0,008, and after it turns from 0,017 without year 2005 and -0,025 when the year 2005 is included. We can therefore conclude that statistically significant effect can be witnessed in the markets, which support tax hypotheses.

Results that are show have indication of 5 percent (10 percent) significance level with ** (*), this is used in all of the tables, differences that have no ** (*) are not significant at all.

Table 14. Bell & Jenkinson ex-dividend day ratios of Finnish Ex-Day ratios, 2001 – 2004 compared to 2005 – 2007 Narrow sample

Bell & Jenkinson				
Narrow Sample		**2001-2004**	**2005-2007**	
	Interceptor	β-Pre	β-Post	Diff.
Plain	**0,07**	**0,814**	**0,77**	**-0,044****
Std Error		0,043	0,058	0,018
DF		526	526	
T		19,131	13,162	
R^2	0,413			
Plain	-	**0,937**	**0,935**	**-0,002****
Std Error		0,021	0,031	0,018
T		44,564	30,097	
R^2	0,846			
Market Adjusted	**0,06**	**0,826**	**0,801**	**-0,025****
Std Error		0,042	0,058	0,018
DF		526	526	
T		19,737	13,918	
R^2	0,427			
Market Adjusted	-	**0,927**	**0,935**	**0,008****
Std Error		0,021	0,03	0,018
R^2	0,579			
T		44,939	30,715	
R^2	0,849			

Table 15. Bell & Jenkinson ex-dividend day ratios of Finnish Ex-Day ratios, 2001 – 2004 compared to 2005 – 2007 Big sample

Bell & Jenkinson				
Big Sample		**2001-2004**	**2005-2007**	
	Interceptor	β-Pre	β-Post	Diff.
Plain	**0,021**	**0,799**	**0,341**	**-0,458****
Std Error		0,085	0,122	0,074
DF	614	614	614	
T		9,395	2,792	
R^2	0,13			
Plain	-	**1,055**	**0,662**	**-0,393****
Std Error		0,058	0,095	0,075
T		18,041	6,975	
R^2	0,379			
Market Adjusted	**0,02**	**0,801**	**0,341**	**-0,460****
Std Error		0,085	0,123	0,075
DF	614	614	614	
T		9,368	2,773	
R^2	0,13			
Market Adjusted	-	**1,046**	**0,648**	**-0,398****
Std Error		0,059	0,095	0,076
T		17,825	6,806	
R^2	0,373			

Table 16. Bell & Jenkinson ex-dividend day ratios of Finnish Ex-Day ratios, 2001 – 2004 compared to 2006 – 2007 Narrow sample

Bell & Jenkinson				
Narrow Sample		**2001-2004**	**2006-2007**	
	Interceptor	β-Pre	β-Post	Diff.
Plain	**0,08**	**0,793**	**0,749**	**-0,044****
Std Error		0,047	0,069	0,019
DF		445	445	
T		16,885	10,79	
R^2	0,395			
Plain	-	**0,937**	**0,945**	**0,008****
Std Error		0,022	0,04	0,019
T		42,819	23,348	
R^2	0,843			
Market Adjusted	**0,07**	**0,808**	**0,791**	**-0,017****
Std Error		0,046	0,068	0,019
DF		445	445	
T		17,553	11,624	
R^2	0,412			
Market Adjusted	-	**0,927**	**0,952**	**0,025****
Std Error		0,021	0,04	0,019
T		43,358	24,087	
R^2	0,847			

Table 17. Bell & Jenkinson ex-dividend day ratios of Finnish Ex-Day ratios, 2001 – 2004 compared to 2006 – 2007 Big sample

Bell & Jenkinson				
Big Sample		**2001-2004**	**2006-2007**	
	Interceptor	β-Pre	β-Post	
Plain	**0,016**	**0,853**	**0,568**	**-0,285****
Std Error		0,104	0,227	0,08
DF	614			
T		8,129	2,503	
R^2	0,124			
Plain	-	**1,055**	**0,954**	**-0,101****
Std Error		0,062	0,161	0,08
T		16,96	5,906	
R^2	0,382			
Market Adjusted	**0,02**	**0,865**	**0,610**	**-0,255****
Std Error		0,105	0,228	0,08
DF	614			
T		8,271	2,674	
R^2	0,125			
Market Adjusted	-	**1,046**	**0,955**	**-0,091****
Std Error		0,062	0,162	0,08
T		16,752	5,889	
R^2	0,377			

6.1. Ex-dividend ratios based on dividend payments

This addition study was conducted on three different types of dividend paying firms low, medium and high. This was done to gain deeper understanding on how dividend amount had affected the ex-day ratios, and to test the hypothesis. These groups were based on the study conducted by Niemi (2004), where the companies were placed in three groups of stocks depending on their payments. The three groups were defined as follows: low those who paid under 2.5 percent of dividends, medium those who paid between 2.5 and 5 percent and high those were the ones paying higher than 5 percent of stock price as dividends. Using these same groups ex-dividend day ratios were calculated using Sorjonen (2000) and Bell et al. (2002).

Results given by the different groups clearly give a better picture of how the taxes have affected market valuation of stocks. The Sorjonen equation had a slight down fall using these groups, since the low dividend paying stocks was quite small after ruling out the year 2005. The figures given in the Table 18 concerning the low paying stocks would clearly indicate that the low paying stocks

changed strongly after the tax change to the opposite direction than the tax hypothesis suggests. The figures went from 0.549 to 0.76 for the plain sample, and from 0.266 to 1.004 for the market adjusted ratio, however the 0.266 ex-ratio is not significant. The two other groups behaved according to the tax hypothesis. The medium group gave ex-ratio of 0.692 before tax change and 0.637 after it, for the high group ex-ratio of 0.813 was found before and ex-ratio of 0.663 after the tax change. These ex-ratios would indicate that for the medium and high dividend paying stocks the dividend valuation had changed. The market adjusted values do not show the same change as strongly for the medium paying with 0.705 changing into 0.696 during the later period, which would indicate that there was some change, but not a strong one. For the high paying stock the change turns around when looking at the market adjusted ratios, since before tax change the ex-ratio was 0.789 and after tax period ex-ratio was 0.775. There is a problem with the high ratio, since the data did not include more than 11 observations for the period after the tax change. It seems on whole that the results given by Sorjonen equation were showing strong tax affect until market adjustment was done and afterwards there were only small changes. The trend was however according to the hypotheses as the ex-ratios fell for medium and high dividend paying stocks.

Table 18. Sorjonen ex-dividend day ratios of Finnish Ex-Day ratios, , comparison of low, medium and high yielding stocks

Sorjonen						
	Low		**Medium**		**High**	
	2001-2004	**2006-2007**	**2001-2004**	**2006-2007**	**2001-2004**	**2006-2007**
β	**0,549****	**0,76****	**0,692****	**0,637****	**0,813****	**0,663****
Std. Error	0,165	0,184	0,062	0,071	0,070	0,086
DF	35	17	109	76	86	11
R2	0,239	0,502	0,535	0,514	0,611	0,845
T	3,319	4,140	11,197	8,973	11,625	7,730
β-Market Adjusted	**0,266**	**1,004****	**0,705****	**0,696****	**0,789****	**0,775****
Std. Error	0,175	0,233	0,061	0,065	0,071	0,107
DF	35	17	109	76	86	11
R2	0,062	0,737	0,552	0,774	0,538	0,826
T	1,515	4,501	11,582	10,650	11,083	7,218

It seems as the problems associated with the use of the Sorjonen (2000) equation can be avoided by using the Bell et al. (2002) equation. There are more valid observations for the equation; however the equation uses dummies, which do not indicate how many observations fall into each tax period. There were 31 observations for the high dividend paying stocks after the tax change and 123 observations for the period before change. For the medium there are 133 observations before and 97 after the tax change. The low paying stocks had 41 observations after the tax change and 53 observations for the period before change.

Low dividend paying stocks gave very low ex-ratios for both of the samples. It seems there is some difficulty using the constant as Sorjonen (2000) has mentioned when using the close-close prices. All of the plain ratios for the plain sample without constant act according to the tax hypothesis and fall down after the change, however the high dividend paying stocks do so only slightly by falling from 0.954 to 0.945 with a difference of -0.009, which is statistically significant, the results can be seen in the Table 19. There is clearly a very high ex-ratio of 1.225 for the 2001 – 2004 for the low paying stocks the ex-ratio is 1.028 after doing the market adjustment. The marked adjusted ratios of the high paying stocks change opposite to the hypothesis, when marked adjusted figures are used with the interceptor. The high paying stocks behave oddly since both of the marked adjusted figures are going opposite to the tax hypotheses by having negative effect with ex-ratio being higher after the change. Both the low and medium paying stocks follow the tax hypothesis by going down in the latter period. The ratios for the low paying stocks with marked adjustment changes from 1.028 to 0.850 difference is -0.178 and for the medium the change is from 1.016 to 0.938 with difference of -0.078, both results are statistically significant. Results from the market adjusted low ratios included the interceptor are not significant, however without the interceptor the results are according to the hypotheses and are significant at the five percent level for the low ratios. The medium dividend paying stocks have statistically significant affect with and without the interceptor when using market adjusted ratios and these are both significant at the five percent level.

Table 19. Bell & Jenkinson ex-dividend day ratios of Finnish Ex-Day ratios, comparison of low, medium and high yielding stocks

Bell & Jenksinson												
Constant	**Low**				**Medium**				**High**			
		2001-2004	**2006-2007**			**2001-2004**	**2006-2007**			**2001-2004**	**2006-2007**	
	Interc.	β-Pre	β-Post	Diff.	Interc.	β-Pre	β-Post	Diff.	Interc.	β-Pre	β-Post	Diff.
Plain	**0,019**	**0,145**	**0,01**	**-0,135**	**-0,009**	**1,265**	**1,172**	**-0,093***	**-0,002**	**0,975**	**0,969**	**-0,006****
Std. Error	0,008	0,457	0,406	0,020	0,008	0,203	0,216	0,021	0,006	0,134	0,268	0,023
DF	94				229				154			
R2	0,004				0,150				0,263			
T		0,317	0,025			6,226	5,423			7,299	5,784	
Market Adj.	**0,014**	**0,251**	**0,167**	**-0,084**	**-0,009**	**1,246**	**1,181**	**-0,065***	**0,001**	**0,932**	**0,951**	**0,019****
Std. Error	0,007	0,427	0,377	0,018	0,008	0,201	0,217	0,021	0,080	0,140	0,176	0,024
DF	94				229				154			
R2	0,004				0,147				0,226			
T		0,593	0,442			6,196	5,521			6,634	5,400	
No Constant	**Low**				**Medium**				**High**			
		2001-2004	**2006-2007**			**2001-2004**	**2006-2007**			**2001-2004**	**2006-2007**	
		β-Pre	β-Post			β-Pre	β-Post			β-Pre	β-Post	
Plain	**-**	**1,225**	**0,96**	**-0,265***	**-**	**1,038**	**0,932**	**-0,106***	**-**	**0,954**	**0,945**	**-0,009****
Std. Error		0,163	0,156	0,020		0,047	0,058	0,021		0,028	0,076	0,023
DF	94				229				154			
R2	0,504				0,756				0,945			
T		7,537	6,137			22,019	16,009			33,621	12,046	
Market Adj.	**-**	**1,028**	**0,85**	**-0,178***	**-**	**1,016**	**0,938**	**-0,078***	**-**	**0,949**	**0,971**	**0,022****
Std. Error				0,018				0,021				0,024
DF	94				229				154			
R2	0,47				0,704				0,883			

7. CONCLUSIONS AND RECOMENDATIONS

The hypothesis has to be rejected, since there was difference to the opposite direction found in the high dividend paying stocks when using the Bell & Jenkinson equation, while Sorjonen did show evidence of small affect the sample size was too small. This might be true, since the individual stock owners owned one fifth of the stocks, and this number has been decreasing rapidly, therefore it is quite clear that the impact of tax changes to this group is only going to have a slight impact on the markets. This owner group has been found to own stocks for long time periods. They are only a minor part of the traders in the markets with their 18 percent ownership on all of the stocks. Owners of high paying stocks may not be individual investors, or other vice they would have not understood the effect of the tax change. There is a possibility that firms paying high dividends are owned more by other companies or by mutual funds.

Results are however puzzling, the change in the valuation of the dividends should have been found in the high dividend paying groups instead it was found in the two groups that should not have been affected strongly. These stocks should have the least amount of affect due to their dividend size, which seems not to be the case. Perhaps the individual stock owners have not preferred high dividend paying stocks, instead they have owned the stocks which have paid only low and medium amount of dividends. The differences found between the ex-ratios of the whole market were found to act according to the tax hypotheses.

The tick size effect was ruled out in the Finnish studies, because of the small size of ticks. Transaction costs and the thin trading might have caused the figures that we saw in the empirical part. The actual change in taxation might have had such a slight effect because of the reluctance of the individual shareholders towards active trading. The thin trading might cause that some stock might not be exploited for gains by the short-term traders, since there is no possibility to do so. The clientele of the Finnish companies might be homogeneous for some stocks, but even with these stocks the portion of individual owners might be the small, therefore the tax affect may be witnessed for the whole markets. Even

though the high dividend paying stock might not be affected, this might be an indication of ownership, or that the owners of these high dividend paying stocks are not active traders. Management might also have its part in the tax affect, and therefore changes of dividend payments are done slowly, which might have affected the amount of dividends.

Results might be more visible if such study was conducted with a larger set of data after the tax change. The change should also be studied by separating those stocks that have gone down during the dividend payment and those that have risen during the same period. The stocks could also be divided into different groups based on firm size.

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