Dive into Dividends: How Does the Dividend Yield and Change of Capital Income Tax Affects Dividend Anomaly

Evidence from the Finnish Market[*]

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Abstract

In this study, I study the impact of divided taxation and dividend yield on stock returns around ex-dividend date. I studied how the anomaly has changed over time and over different tax-regimes before and after ex-dividend date in the Finnish market during 1993-2016. Before the tax-reformation in 2004, the abnormal returns were positive and statistically significant before the ex-dividend date. After that time, the significance drops and the taxation has not changed that much but the changes are still visible in the results. The low yielding stocks surprisingly outperformed other yielders during the sample window $-20 < t < 20$ ie. its performance around ex-dividend date was better than high-yielders' cum-dividend performance.

Contents

1. Introduction

At least for the last 50 years' dividends have been an issue in finance literature. Since 1955 when Campbell and Beranek (1955) investigated the effects of dividend payments on stock prices with sample on the New York Stock Exchange and documented that the prices dropped 90% of the dividend paid on the ex-dividend dates, dividend policy papers have received great amount of attention in the literature. When Miller and Modigliani (1961) proposed their theorem about the irrelevancy of companies' capital structure to one's value and thus stated that the company's value is unaffected by its possible dividend policy, the phenomenon of dividend has been regularly studied by many researchers from many different aspects: from the choice of dividend policy (Fama & Babiak, 1968; Miller & Rock, 1985) and clientele effect (Elton & Gruber, 1970) just to name a few aspects (see also Black & Scholes, 1974 and Von Eije & Megginson, 2008).

My research will contribute in the field of dividend yield and taxation for the current literature. I will not study differences between stock repurchase and dividend policies but focus on dividends and how the dividend anomaly changes while dividend income taxation and dividend yield changes. Garcia-Blandon and Martinez-Blasco (2012) studies the price anomaly in the Spanish Stock Market. They confirm also that the prices drop less than the dividend amount. In addition, they report that high trading volumes occur around ex-dividend dates, especially for high-yielding stocks. Explaining the price-pressure around ex-dividend date is commonly studied subject: the traditional explanation for price-pressure is that if dividends have tax-penalty, investors should demand higher before-tax premium from dividend than the dividend amount (Grammatikos, 1989; Elton & Gruber, 1970). Kalay (1982) proposed an explanation known as the short-term trading hypothesis. Still, the dividend literature has not been keen for the impacts of dividend taxation to abnormal stock returns: this is the reason why I wanted to study these effects. The effects of capital taxation in abnormal stock returns in general is a field that has had little focus in dividend literature lately. Due to the capital taxation, companies should carefully decide how to share profits to shareowners. Dividends have been usually favoured way to do it (Von Eije & Megginson 2008). This highlights the importance to study more dividend anomalies.

My paper forms a contribution to the existing literature about ex-dividend anomalies in few reasons. I will study how changes in capital income taxation effects on dividend anomaly returns in Finnish stocks and what role does dividend yield play on this scheme. In Finland taxation between dividends and share repurchases are taxed theoretically with the same percent before tax imputations (see section 1.1). Unlike dividend tax, capital gains can be postponed (in the 2016 capital income tax-reformation also the dividend gains could have been postponed and imputed too). This means that if investor wants to sell stocks with profit, the investor can also sell stocks with losses to offset capital gains in personal taxation. The investor then can repurchase these stocks at the market price possibly after a delay. Thus, Finnish markets are not the best sample to examine differences between share repurchase and dividend policies even though the effective tax rates for these two different capital income source are different. I will discuss shortly about Finnish taxation in the next chapter.

Finland offers a convenient sample for my study due to the clear changes in taxation. In addition, Finnish stocks have also mostly payed dividends once a year, which makes the ex-dividend anomalies more visible (Rantapuska 2008). In addition, my period under review is $-20 < t < 20$. Many papers that handle dividend anomalies, study only ex-dividend day and/or day before and after of it. I wanted to have a more clear and solid picture about the dividend phenomenon: the volumes start to noise earlier than ex-dividend date (Garcia-Blandon & Martinez-Blasco 2012).

My paper is organized as follows: in the next section, I will explain the changes of dividend taxation in Finland during my sample period and demonstrate the tax-regimes I used in my study. In Section 2, I introduce my hypothesis. Section 3 describes the data. Section 5 studies the results for the impacts of dividend taxation and dividend yield changes around ex-dividend date. Finally, in section 5 I will conclude my study and suggest directions for further research.

1.1 The dividend taxation in Finland

Finland started to raise tax from dividends and other capital incomes in 1993 as its own taxation. Before 1993, dividends have been taxed with the same way than every other income. Taxation between public listed companies and private companies differs but in my study I handle only listed companies and will leave the private companies out. Nowadays, the investment income tax rate is 30% until 30 000€ and after that 34% for publicly listed companies. However, 15% of the

investment income is tax-free income. This leads to a theoretic effective tax rate 25.5%-28.9%. Since the adaption of capital taxation in Finland, we have had eight different tax-regimes presented below

Table 1.1. Basic capital income tax-percentages for a taxable domestic investor. Presented time, nominal and effective taxation rate that takes into account the tax-free part.

Time	Tax percent	Tax-free	Effective percent
2016-2017	30% / 34% (after 30 000)	15 %	25.5% / 28.9%
2015	30% / 33% (after 30 000)	15 %	25.5% / 28.1%
2014	30% / 32% (after 40 000)	15 %	25.5% / 27.2%
2012-2013	30% / 32% (after 50 000)	30 %	21.0% / 22.4%
2005-2011	28 %	30 %	19.6%
2000-2004	29 %	100 %*	0 %
1996-1999	28 %	100 %*	0 %
1993-1995	25 %	100 %*	0 %

*During 1990-2004 Finland had full imputation system of dividends ("Avoir Fiscal") that prevented double-taxation. Thus, an investor could have imputed the whole corporate tax in personal taxation, which led to 0 % taxation in dividends (Viitala 2017).

However, only the percent does not tell us all about the taxation: As said, nowadays the tax-free part is 15% but before 2014, it has been 30%. In addition, during the sample period in 2004 the full imputation system of dividends, which related to double-taxation, has been removed (aka. "Avoir Fiscal"). This is the greatest change considering my study because the effective tax-rate was now clearly more than before the change. In 2016, the Finnish Government also changed more the imputation system: before the change, an investor could impute earned profits with losses. After 2016, if investor had no capital gains from sold stocks, one could impute the losses with other capital gains, such as dividends (Viitala 2017).[1]

For example, mutual funds are in Finland nontaxable investors (Rantapuska 2008) which effects on their trading decisions around ex-dividend date. Finland has some taxation partnerships with foreign countries for example with the UK, the USA, France and Ireland. They have 15% tax-rate and other have 20% / 30% (Viitala 2017).

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[1] I would like to thank Ph.D. Tomi Viitala individually for his valuable and informative notes to chapter "1.1 Capital taxation in Finland". We discussed thoroughly the issues in capital income taxation and I got a deep brief about the changes in domestic capital income taxation and in-depth analysis in foreign investor's taxation.

2. Hypothesis and research question

If the capital income tax structure favors either stock repurchases or dividend payouts, the clientele effect changes the investors' preferences about capital incomes. This leads to price-pressure before (after) ex-dividend with high-yielding (low-yielding) stocks (Lakonishok & Vermaelen, 1986). As said, if dividends have tax-penalty, investors should demand higher before-tax premium from dividend than the dividend amount (Grammatikos, 1989; Elton & Gruber, 1970). When the taxation spread between capital income taxation and dividend taxation decreases, the abnormal returns disappear (Lasfer, 1995). These are the reasons for the expected behaviour of returns during ex-dividend date. Thus, hypothesis of my bachelor's thesis is

Stocks with high (low) dividend yield have high (low) buying pressure before ex-dividend date. Thus, they have positive (negative) returns before ex-dividend date and negative (positive) after ex-dividend date due clientele effects and taxation reasons. In addition, when capital income taxation increases, it will decrease (increase) the dividend anomaly in stocks with high (low) dividend yield.

3. Data and methodology

I have collected data from two different sources: 1. The stock relative data, which includes returns, dividend yields and ex-dividend dates, is originally from Datastream. 2. As the control factors I used European level data from French Data Library website.

3.1 Daily stock data

My sample consists of Finnish stocks, which have paid dividend even once during my period under review, which is 1.1.1990-30.6.2016. It means I have 276 firms to consider and 6914 trading days. The data is originally from Datastream. I manually corrected the data for dividend yields and ex-dividend days. I also excluded 15 companies that had false return indices or had only zero returns. These companies were usually dead but somehow had returns in the data, which were of course zero. I started with 607 companies which were all the companies that have been in Finnish market

in my sample period and 276 of them had payed even once dividend. At the end, I had 2270 events (one event is returns for a company for time scope $-20 < t < 20$, where t is ex-dividend date).

Due to the poor dividend data, I had to sort carefully stocks by their dividend yield. I double-checked the dividend yields from the companies' annual reports when the yields where something unexpected. Then, I took the average of one company's yield and then found its place by dividend yield when comparing the companies with each other. Now I was able to sort the companies to the largest and smallest yielders, and research these returns of baskets around ex-dividend date. I sorted the companies to top 25%, middle 50%, and bottom 25%. I also tried sorting with 10%, but the samples were then small and the robustness and meaningfulness of my current sorting was good. In addition, the data about dividends was somewhat inaccurate so I had to pool my data to somewhat bigger baskets than I beforehand wanted.

Table 3.1. Descripting data. This table shows the number of events, number of companies and number of trading days in my study during 1993-2016. In addition, it presents how the events are distributed by tax-regimes (horizontal) and by dividend yield baskets (vertical).

Number of events	2270									
Number of companies	276									
Number of trading days	6914									
Number of events sorted by tax-regime and dividend yield		93-95	96-99	00-04	05-11	12-13	14	15	16	Σ
	Top	26	72	136	163	39	19	18	18	491
	Middle	76	197	333	465	87	41	48	46	1293
	Bot	41	87	107	137	45	22	25	22	486
	Σ	143	356	576	765	171	82	91	86	2270

Table 3.2. Dividend yield data after cleaning 15 wrong dividend yields 1993-2016 representing minimum, bottom 25%, mean, median, top 25%, maximum and sample size in every tax-regime.

Tax-regimes	Min	Q25	Mean	Median	Q75	Max	N
1993-1995	0.11	1.54	3.10	2.06	3.64	25.65	87
1996-1999	0.95	2.65	4.20	3.65	4.61	47.39	115
2000-2004	0.16	2.49	5.29	4.06	5.83	65.60	156
2005-2011	0.64	3.19	4.53	4.15	5.17	21.83	151
2012-2013	1.17	3.71	5.05	4.59	6.03	10.62	100
2014	0.38	2.69	3.88	3.90	5.03	9.40	92
2015	0.13	2.62	4.46	3.96	4.97	25.93	99
2016	0.27	2.44	3.85	3.83	4.80	12.86	100

3.2 Daily control factors from French Data Library

I collected the daily control factor data from Kenneth French Data Library website. The data was available for my period under review. I gathered daily risk-free returns, daily market excess returns, daily small minus big excess returns and daily high minus low excess returns. The European data was the most accurate data I could get for my Finnish sample. I also decided to use the offered market returns even though it is in European level. I also collected OMXH25 and Stoxx 600 data from Datastream and used them but in this paper, I will report the models with the use of French's European excess returns.

4. Results

Considering the regression, I am using FF3 (Fama & French 1992) in my models as the control variables, as presented in the "data and methology" –section. The basic FF3-model ((Fama & French 1992) is presented as

$$R_p - R_f = \alpha + \beta_1 (R_m - R_f) + \beta_s SMB + \beta_v HML + \varepsilon$$

Where $R_p - R_f$ stands for the excess return of my portfolio, $\beta_1 (R_m - R_f)$ for the excess market returns weighted with beta, and $\beta_s SMB$ and $\beta_v HML$ for size and value factors accordingly. α is the abnormal return and ε residual.

With these control variables, I regress my model with the interaction of tax-regimes and yield-regimes. I will use in my regression the following notations

$$R_p - R_f = \beta_1(R_m - R_f) + \beta_s SMB + \beta_v HML + D_{yieldregime} \cdot D_{taxregime} + \varepsilon$$

Where FF3-factors are as said above and $D_{yieldregime} \cdot D_{taxregime}$ tells us the abnormal return in the specific dividend yield –regime and tax-regime.

Table 4.1. Tax-regimes' and yield-regimes' notations in regression and tables. Yield-regimes are sorted to top 25%, middle 50% and bottom 25% dividend yielding stocks.

	Taxregimes	Effective tax-percent		Yieldregimes
1	1993-1995	0 %	1	top
2	1996-1999	0 %	2	bot
3	2000-2004	0 %	3	middle
4	2005-2011	19.6%		
5	2012-2013	21.0% / 22.4%		
6	2014	25.5% / 27.2%		
7	2015	25.5% / 28.1%		
8	2016	25.5% / 28.9%		

Even though there has happened considering capital income taxation, I chose these regimes due to simplicity: These are concrete changes, and the greatest reformations have usually occurred between these changes.

I will study the phenomenon in two parts: (1) 20 days before ex-dividend date, which includes the ex-dividend date and (2) 20 after ex-dividend date. The returns represented in the following Panel4.1A and Panel4.1B are event returns: daily returns or annual returns would not be meaningful to present due that my study has 20 days in one event, and the returns are divided biased to the event and this trading strategy is not tradeable around the whole year, at least when considering only Finnish market.

Panel 4.1A. Excess event returns 20 days before ex-dividend date by tax-regimes and dividend yield –regimes and control variables and R-squared. The columns represent tax-regimes as showed in table 4.1. *T-values* are in brackets under coefficient estimates and are reported with *, ** and *** to sign statistical significance at 10%, 5% and 1% levels respectively.

	1	2	3	4	5	6	7	8	Mean
Top	0.0435**	0.0326***	0.0703***	0.0478***	-0.0191	0.0217	0.0290	0.0319	0.032
	(2.26)	(2.80)	(8.19)	(6.06)	(-1.21)	(0.96)	(1.25)	(1.38)	
Middle	0.0498***	0.0298***	0.0479***	0.0329***	0.0158	0.0211	0.04586***	0.03466**	0.035
	(4.40)	(4.21)	(8.33)	(6.88)	(1.49)	(1.38)	(3.24)	(2.37)	
Bottom	0.004	0.0523***	0.0416***	0.021**	0.0161	0.0149	0.0160	0.0459	0.026
	(0.26)	(4.94)	(4.27)	(2.47)	(1.09)	(0.71)	(0.82)	(2.18)	
Mean	0.032	0.038	0.053	0.034	0.004	0.019	0.030	0.038	

$R_m - R_f$	0.5602***	R^2	0.2066
	(11.81)	Adj. R^2	0.1974
β_{SMB}	0.6501***		
	(6.00)		
β_{HML}	-0.1108		
	(-1.32)		

Panel 4.1B. Excess event returns 20 days after ex-dividend date by tax-regimes and dividend yield –regimes and control variables and R-squared. The columns represent tax-regimes as showed in table 4.1. *T-values* are in brackets under coefficient estimates and are reported with *, ** and *** to sign statistical significance at 10%, 5% and 1% levels respectively.

	1	2	3	4	5	6	7	8	Mean
Top	-0.015	-0.005	-0.043***	-0.0311***	-0.0239	0.0180	-0.0209	0.0005	-0.015
	(-0.85)	(-0.49)	(-5.59)	(-4.40)	(-1.67)	(0.88)	(-0.99)	(0.02)	
Middle	-0.010	-0.009	-0.0138***	-0.004	-0.0108	0.0016	-0.0364***	-0.0045	-0.011
	(-0.94)	(-1.37)	(-2.68)	(-0.81)	(-1.12)	(0.11)	(-2.78)	(-0.34)	
Bottom	0.1120	0.0381***	0.010	0.0078	-0.0144	0.0262	-0.0196	-0.0018	0.020
	(0.86)	(3.94)	(1.16)	(1.01)	(1.07)	(1.37)	(-1.09)	(-0.10)	
Mean	0.029	0.008	-0.016	-0.010	-0.009	0.015	-0.026	-0.002	

$R_m - R_f$	0.5899***	R^2	0.1272
	(13.97)	Adj. R^2	0.1171
β_{SMB}	0.5989***		
	(6.50)		
β_{HML}	0.2817***		
	(3.57)		

The results gave mostly expected outcomes and are in line with the hypothesis of returns being influenced by taxes around ex-dividend day. The dividend anomaly is statistically significant before the greatest taxation reformations in 2004 (when the Government of Finland removed the possibility to full impute dividends with corporate taxation to avoid double-taxation) before the ex-dividend date. The results after ex-dividend date are not systematically significant which signalizes of the willing to invest before ex-dividend date rather than after it. What was surprising in the results was that the bottom yielders, which usually paid dividend with 0.1% - 1% dividend yield, also resulted positive abnormal results before the ex-dividend date, even the best alphas during 1996-1999.

The results in every dividend yield -regime after year 2011 are not significant. There are two reasons: (1) the samples are small with the size of 19-87 (see table 3.1) and (2) the effective taxation for a domestic taxable investor increased from 19.6 % to 21.0 % / 22.4 % (See Table 4.1). The spread between taxation in capital gains from sold shares and in dividend converges which leads to decreasing abnormal returns. This is an aspect in my bachelor thesis, which I want to underline: the taxation reformation in 2004 has affected significantly and a lot to these dividend anomalies. These results are interesting for countries, which still applies the full imputation of dividends, such as Australia, Chile, Malta and New Zealand (Richardson 2014). The fourth tax-regime (2005-2011) is worth to discuss through: in the year of 2005 Finland moved to the system where the possibility to full imputation of corporate tax was eliminated. The tax-rate was 28%, but 43% of the dividend income was tax-free. This leads to situation, where the effective tax-rate for dividends are still clearly more lower than the tax-rate of capital gains when selling stocks with profit for a domestic taxable investor. These changes in taxation and the results for abnormal returns are in line with the study by Lasfer (1995), where he studied the returns around the ex-dividend dates before and after the 1988 Income and Corporation Taxes in the UK.

In the following figures, I will show the cumulative excess returns in every tax-regime for every dividend yield regime. The cum-dividend period ($20 < t$) behaves surprisingly considering the bottom yielders (see for example figure 4.1B). I was expecting that the bottom yielders return negative abnormal returns. Middle and top dividend yielders graph behaves like expected: first, the stocks have buying-pressure and ex-dividend the returns falls. This is in line with the clientele effect theory: there are in the markets investors who prefer high-yielding stocks and there are

investors who prefer low-yielding stocks. Thus, the buying pressure is relatively high on high-yielders cum-dividend and high on low-yielders ex-dividend as in theorem (Lakonishok & Vermaelen, 1986).

The last four figures, 4.1E-4.1H had no regularity in statistical significances. Tax-regime 2012-2013 is the first tax-regime with no significance alphas and the top yielders were starts to fall already cum-dividend period (-0.0191 coefficient). The taxation spread between dividend income and capital income by sold share is in this point too small that the dividend strategy is not anymore as profitable (Viitala 2017). I present also in the Appendix figure with all tax-regimes pooled together and average daily excess returns for every dividend yield regimes.
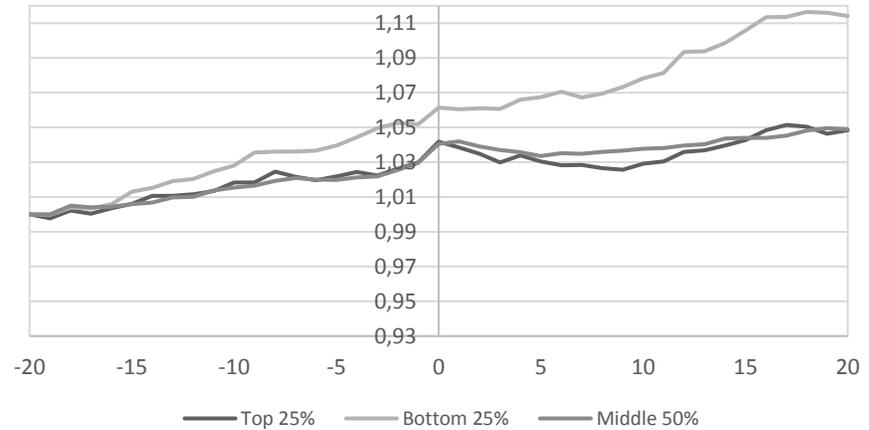
Tax-regime 1993-1995
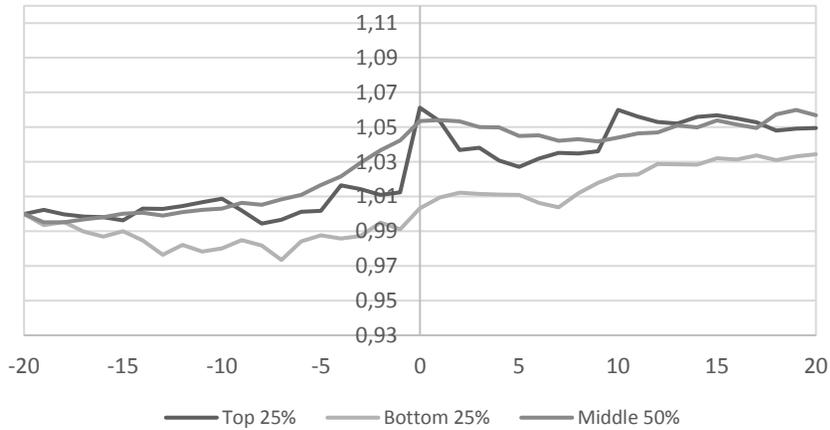
Figure 4.1A. Cumulative returns during tax-regime 1993-1995 around the ex-dividend day (t=0) for the three dividend yield regimes. Table 3.2 shows more data about the dividend yield.

Tax-regime 1996-1999

Figure 4.1B. Cumulative returns during tax-regime 1996-1999 around the ex-dividend day (t=0) for the three dividend yield regimes. Table 3.2 shows more data about the dividend yield.
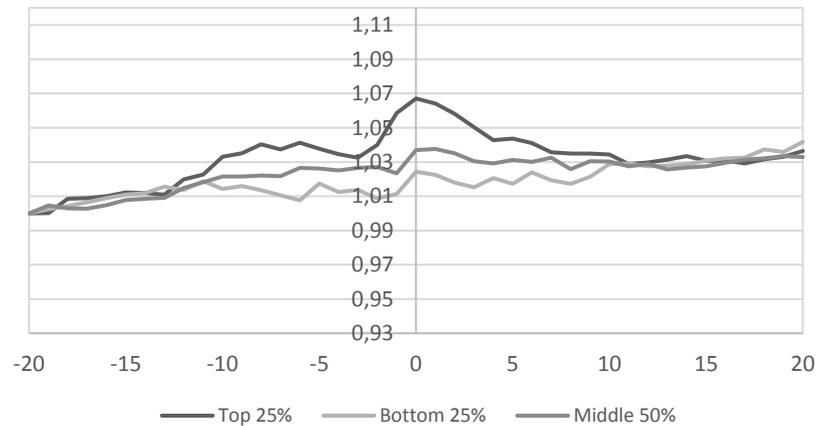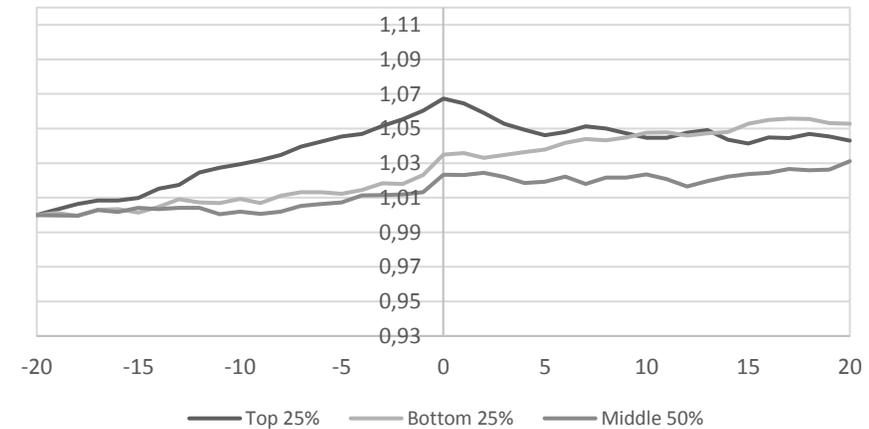
Tax-regime 2000-2004

Figure 4.1C. Cumulative returns during tax-regime 2000-2004 around the ex-dividend day (t=0) for the three dividend yield regimes. Table 3.2 shows more data about the dividend yield.

Tax-regime 2005-2011

Figure 4.1D. Cumulative returns during tax-regime 2005-2011 around the ex-dividend day (t=0) for the three dividend yield regimes. Table 3.2 shows more data about the dividend yield.
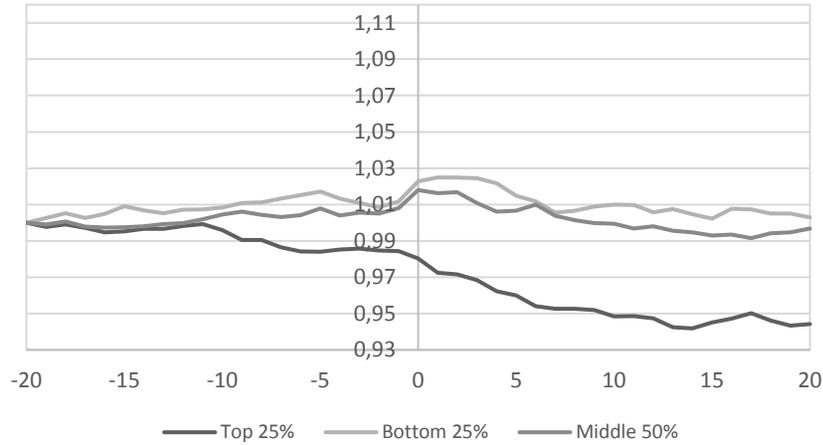
Tax-regime 2012-2013

Figure 4.1E. Cumulative returns during tax-regime 2012-2013 around the ex-dividend day (t=0) for the three dividend yield regimes. Table 3.2 shows more data about the dividend yield.
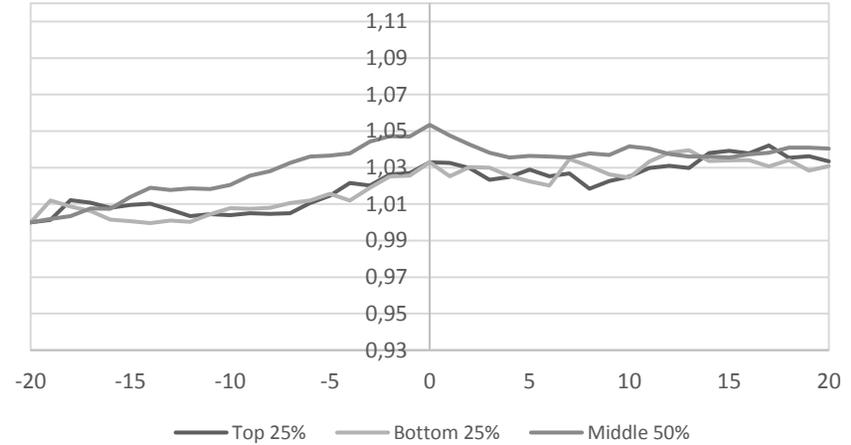
Tax-regime 2015

Figure 4.1G. Cumulative returns during tax-regime 2015 around the ex-dividend day (t=0) for the three dividend yield regimes. Table 3.2 shows more data about the dividend yield.
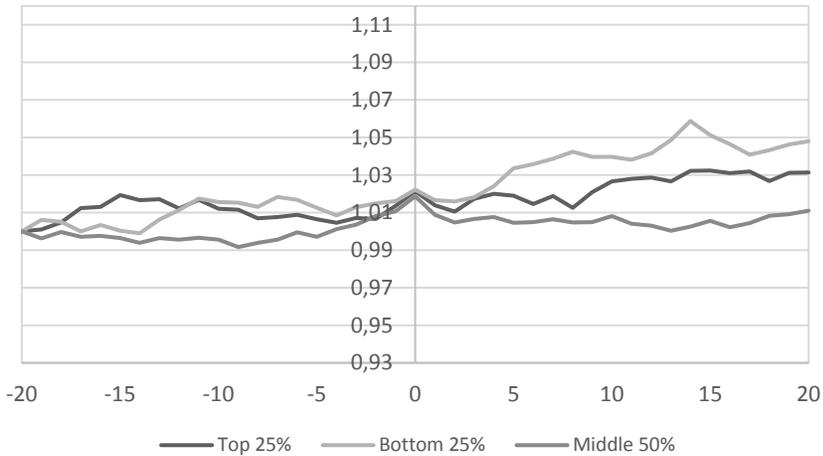
Tax-regime 2014

Figure 4.1F. Cumulative returns during tax-regime 2014 around the ex-dividend day (t=0) for the three dividend yield regimes. Table 3.2 shows more data about the dividend yield.
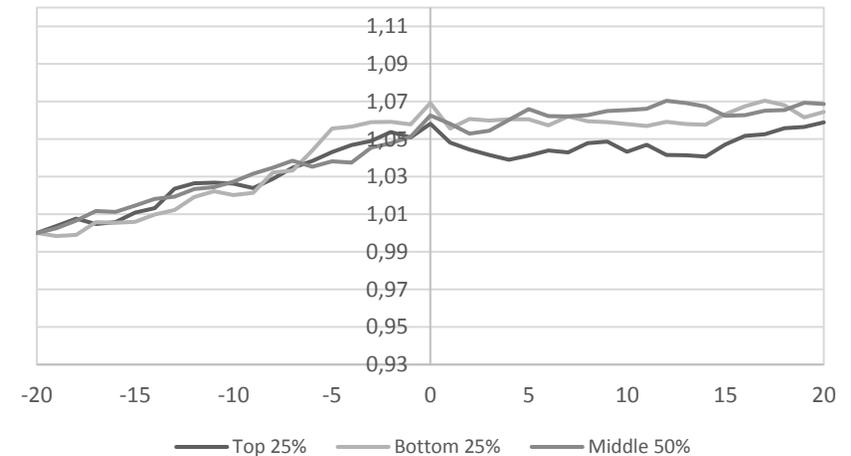
Tax-regime 2016

Figure 4.1H. Cumulative returns during tax-regime 2016 around the ex-dividend day (t=0) for the three dividend yield regimes. Table 3.2 shows more data about the dividend yield.

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4.1 Robustness checks

I also run robustness tests for the data: I excluded 1% top and bottom observations by excess returns. I did this to correct the possible mistakes in return indices, in total of 56 observations. In addition, I removed the events, which had zero returns during the sample period, in total of 22 observations. I also dig in to the seventh tax-regime (2015) and studied why the results were statistically significant upon that time. I did this separately for both before ex-dividend date and after ex-dividend date data.

After removing these 78 observations, I ran the regressions and the results are shown in Panels 4.2A and 4.2B.

Panel 4.2A. Excess event returns 20 days before ex-dividend date by tax-regimes and dividend yield –regimes and control variables and R-squared with the robustness-checked data (excl. 78 observations). The columns represent tax-regimes as showed in table 4.1. *T-values* are in brackets under coefficient estimates and are reported with *, ** and *** to sign statistical significance at 10%, 5% and 1% levels respectively.

	1	2	3	4	5	6	7	8	Mean
Top	0.0317**	0.0306***	0.0438***	0.0419***	-0.0036	0.0179	0.0304	0.0348	0.0284
	(2.04)	(3.28)	(6.37)	(6.66)	(-0.27)	(1.00)	(1.66)	(1.86)	
Middle	0.0401***	0.0271***	0.0396***	0.0303***	0.0226***	0.0180	0.0474***	0.0378***	0.0328
	(4.40)	(4.77)	(8.62)	(7.82)	(2.69)	(1.47)	(4.10)	(3.27)	
Bot	0.0024	0.0379***	0.0432***	0.0212***	0.0233**	0.0108	0.0273	0.0508***	0.0271
	(0.19)	(4.41)	(5.39)	(3.08)	(2.02)	(0.64)	(1.72)	(3.01)	
Mean	0.0248	0.0319	0.0422	0.0311	0.014	0.0155	0.03502	0.0412	

$R_m - R_f$	0.4531***	R^2	0.2557
	(11.81)	Adj. R^2	0.2469
β_{SMB}	0.4667***		
	(5.31)		
β_{HML}	0.2382***		
	(3.46)		

Panel 4.2B. Excess event returns 20 days after ex-dividend date by tax-regimes and dividend yield –regimes and control variables and R-squared with the robustness-checked data (excl. 78 observations). The columns represent tax-regimes as showed in table 4.1. *T-values* are in brackets under coefficient estimates and are reported with *, ** and *** to sign statistical significance at 10%, 5% and 1% levels respectively.

	1	2	3	4	5	6	7	8	Mean
Top	-0.0203	-0.0025	-0.0321***	-0.0274***	-0.0247**	0.0169	-0.0158	0.0023	-0.013
	(-1.35)	(-0.28)	(-4.83)	(-4.62)	(-2.07)	(0.99)	(-0.9)	(0.13)	
Middle	-0.0080	-0.0051	-0.0104**	-0.0035	-0.0120	0.0020	-0.0266**	0.0035	-0.008
	(-0.93)	(-0.95)	(-2.36)	(-0.96)	(-1.48)	(0.16)	(-2.32)	(0.31)	
Bot	0.0141	0.0211***	-0.0005	0.0016	-0.0156	0.0272	-0.0139	-0.0001	0.004
	(1.21)	(2.58)	(-0.07)	(0.24)	(-1.34)	(1.67)	(-0.91)	(-0.01)	
Mean	-0.005	0.005	-0.014	-0.010	-0.017	0.015	-0.019	0.002	

$R_m - R_f$	0.4823***	R^2	0.1148
	13.22	Adj. R^2	0.1041
β_{SMB}	0.4289***		
	5.45		
β_{HML}	0.2496***		
	3.67		

The R^2 of the before ex-dividend model gets stronger (0.2066 versus 0.2557) and also the model returns more significant results also for later time period than for the first four tax-regimes. From the after ex-dividend date model we cannot say anything: the results do not strengthen with robustness check from its start point and the R^2 also decreases. The robustness check does not change the results when reading them from the original Panels 4.1A and 4.1B. The robustness check was still valid to do due some inaccuracy of the data, which was discussed in section 3.

5. Conclusion

In my bachelor thesis, I study the joint-effects of dividend yield and dividend income taxation to dividend anomaly with Finnish sample during 1990-2016. Applying these two parts in dividend anomaly literature is, unexpectedly, quite new phenomenon. Lasfer (1995) studies the effects of the 1988 Income and Corporation Taxes Act in the UK and Grammatikos (1989) the effect of the 1984 Tax Reform to ex-dividend day behavior but these papers focuses only to one change while my paper gives a picture for many changes and their effects to price-pressures. The results follows partly my hypothesis and then there were some surprises: the "real" dividend yielding stocks, which clearly had a clear dividend yield usually year after year, behaved like expected before and after ex-dividend date. The stocks with low dividend yield, even with a "noise" dividend yield, outperformed the two else dividend-groups, which was surprising: I expected from them zero returns or a thin reflection to top dividend yielders due the dividend yield spread and diversity of this group. Still, the exact taxation spread, which would lead to nonprofitability is not yet unknown due the surprising tax-regime 2005-2011. This was the first tax-regime I was expecting that the abnormal returns would be missing.

The sample in my study is relatively small and thus the research would be interesting to expand for example to European level or US level. In addition, the behaviour of low yielding stocks was surprising and it would be valuable to study it furthermore. As said, due to my sample size it is hard to expand these results to general literature. I made my study with Finnish data in Finnish environment and the results could be completely different in regimes with completely different capital income taxation or with no capital income / dividend taxation at all. In addition, what would be the results in a region with high spread in taxation between sold stocks and dividend? Do the results follow my results? The differences in dividend anomaly between different countries and their taxation environment is definitely a region in finance literature, which is interesting for the writer of this thesis. In addition, this study would also get more meaning while adding level of different traders as a new layer to the study: what is the real number of taxable investors, foreign investors and non-taxable investors during ex-dividend date. This information would give more information about the reasons for the results and might explain the low yielding stocks' behaviour. Knowing for example the number of long positions from the UK around ex-dividend date during

every tax-regimes would be a valuable addition to this study: UK has this special taxation contract with Finland.

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Appendix

Figure 1. Daily average excess returns around ex-dividend date for top 25%. bottom 25% and middle 50% sorted by dividend yield in every tax-regime.
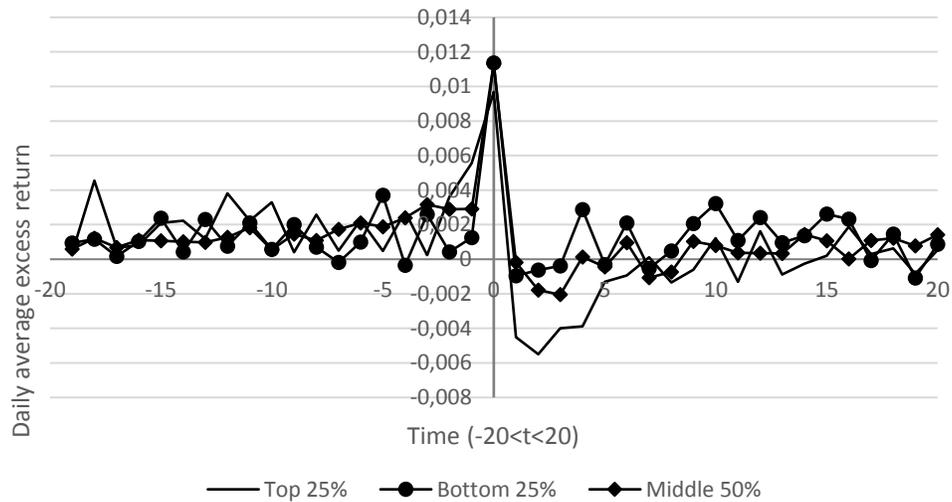

Figure 2A. Daily average excess returns around ex-dividend date for top 25% dividend yielders. Includes every tax-regimes.
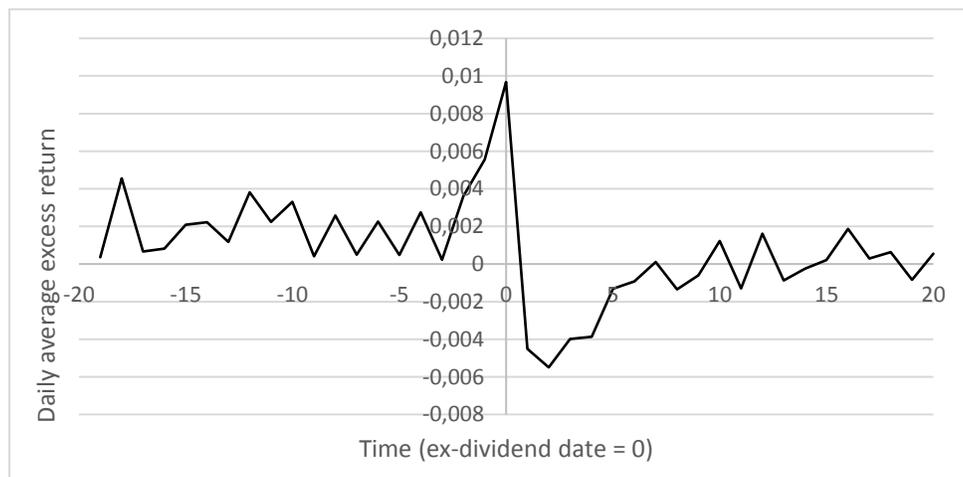
Figure 2B. Daily average excess returns around ex-dividend date for middle 50% dividend yielders. Includes every tax-regimes.
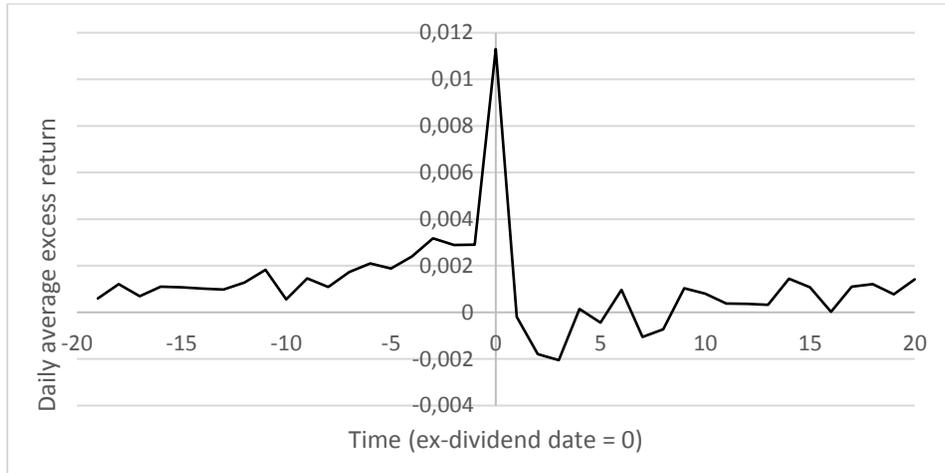

Figure 2C. Daily average excess returns around ex-dividend date for bottom 25% dividend yielders. Includes every tax-regimes.
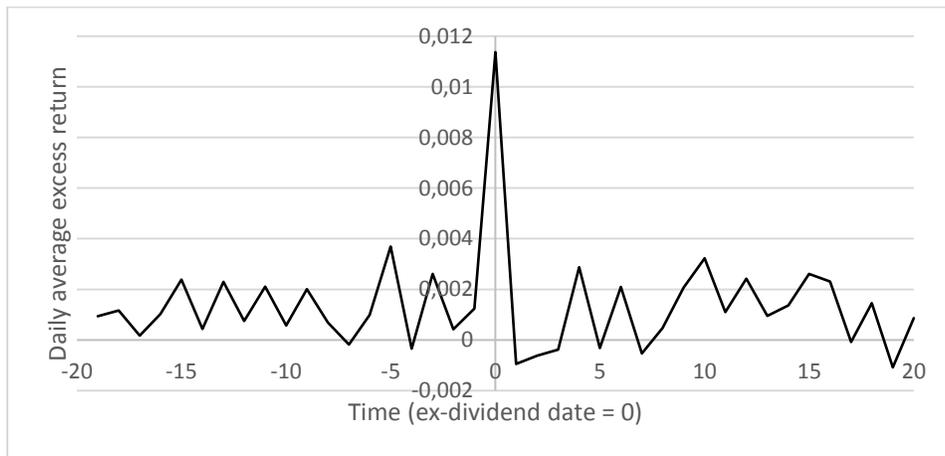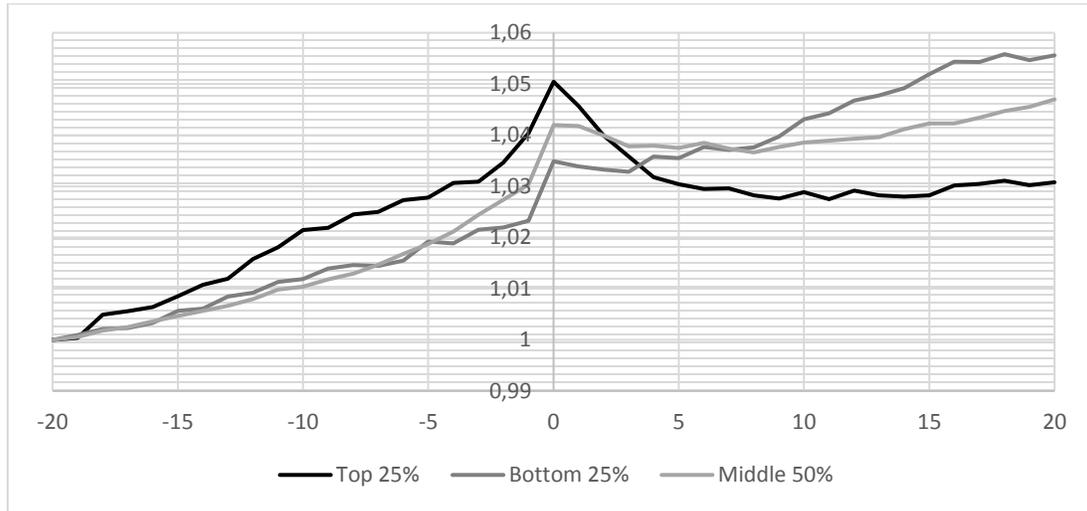
Figure 4.1. Cumulative daily excess returns 1993-2016 around ex-dividend date (t=0). Dividend paying shares are sorted by one's dividend yields in every tax-regimes.

Panel 1A. The regression ran with control variables and tax-regimes: Excess event returns before the ex-dividend date during 1990-2016. *T-values* are in brackets under coefficient estimates and are reported with *, ** and *** to sign statistical significance at 10%, 5% and 1% levels respectively.

	1	2	3	4	5	6	7	8	Mean
Tax-regime	0.0353***	0.0356***	0.0525***	0.0334***	-0.0079	0.0196	0.0342***	0.0365***	0.030
	(4.25)	(6.64)	(11.52)	(8.71)	(1.80)	(1.80)	(3.31)	(3.36)	

Panel 1B. The regression ran with control variables and tax-regimes: Excess event returns after the ex-dividend date during 1990-2016. *T-values* are in brackets under coefficient estimates and are reported with *, ** and *** to sign statistical significance at 10%, 5% and 1% levels respectively.

	1	2	3	4	5	6	7	8	Mean
Tax-regime	-0.0045	0.0034	-0.0166***	-0.0074**	-0.0146**	0.0117	-0.0284***	-0.0028	-0.007
	(-0.59)	(0.69)	(-4.10)	(-2.13)	(-2.10)	(1.16)	(-2.94)	(-0.28)	