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Tax Reform and Payout Policy:

Do Shareholder Clienteles or Payout Policy Adjust?

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ABSTRACT

Changes in taxation of corporate dividends offer excellent opportunities to study dividend clientele effects. We explore payout policies and ownership structures around a major tax reform that took place in Finland in 2004. Consistent with dividend clienteles affecting firms' dividend policy decisions, we find that Finnish firms altered their dividend policies based on the changed tax incentives of their largest shareholders. While firms adjust their payout policies, our results also indicate that ownership structures of Finnish firms also changed around the 2004 reform, consistent with shareholder clienteles adjusting to the new tax system.

KEYWORDS: tax reform, dividends, share repurchases, ownership clienteles

JEL Classification

1. Introduction

Despite more than 40 years of studies of corporate dividend policies, questions such as whether potential dividend clienteles affect corporate payout decisions are largely unanswered. Even the existence of dividend clienteles remains unclear. Most of early research has focused on price and volume reactions around dividend events. Those studies explore permanent dividend clienteles indirectly, and their results are mixed. In more recent work, dividend clienteles are observed more directly by studying the holdings of either institutional investors (Dhaliwal et al., 1999; Grinstein and Michaely, 2005), retail investors (Graham and Kumar, 2006), or half of an entire market as in Dahlquist et al (2006). But do firms take the tax status of their owners into account, or is it mainly investors who make their portfolio choices based on firms' existing dividend policies? Pérez-Gonzales (2003) argues that tax preferences of large shareholders influence dividend payout policies in the U.S. Findings by Chetty and Saez (2005), Blouin, et al. (2007), and Brown et al (2007) suggest that incentives of owners and managers affect firms' payout policy decisions around tax reforms. Jin (2006) finds that embedded capital gains of institutional holders of the firm affect its choice between share repurchases and dividends. In contrast, survey evidence by Brav, et al. (2005) strongly indicates that firms are reluctant to change their dividend policies to reflect changes in tax preferences among their major shareholders. Similarly, Barclay, et al. (2008) find that when a block trade is made from individual taxed investors to corporate investors with a

reduced tax burden on dividend income, the firms fail to take into account the change in the tax preferences of their owners.

In Finland, taxation of dividends changed significantly in 2004 as a full imputation system was abolished, and a system of partial double taxation of corporate income was introduced. The magnitude of the change for individual investors was similar to that studied in Bell and Jenkinson (2002) in the U.K., as the tax burden on dividend income at the personal level in Finland went from zero to 19.6%. In this paper, we study simultaneous reactions to the change in taxation by both firms and investors. By looking at changes in both payout policy when controlling for ownership, and ownership when controlling for payout policy and its tax treatment, we shed light on the *interactions* between these two factors around a major tax reform. The firms' reaction is measured by observing their dividend and share repurchase policies before and after a tax reform. We include measures of ownership structure to consider whether adjustments to the reform were affected by tax-effects of the firms' main ownership groups. The ownership data is further observed throughout the reform to estimate whether the tax change also resulted in changes in ownership patterns.

One can argue that presence of a large block owner makes firms more likely to adjust their dividend policies to reflect the preferences of such investors. Finnish ownership structures are typically much more concentrated than those in the U.S. and the U.K. Compared to evidence on ownership patterns in European countries by Barca and Becht (2001), the Finnish block ownership seems to fall somewhere between the Central European countries and the U.K. Less than 20% of the firms have a block holder owning more than 50% of the shares.¹ Importantly, ownership concentration varies substantially in the cross section of Finnish firms. In the sample used in this study, the ownership share of the top five shareholders varies from 1.5% to 99.9%, with the average fluctuating from year to year around 50%. Combined, the facts that Finnish ownership concentration is between the Central European countries and the Anglo-Saxon countries, and that substantial variation in ownership concentration exists within the Finnish sample, make

¹ Evidence in Barca and Becht (2001) indicates that in Austria, Belgium, Germany, and Italy, a single block holder owns more than 50% of shares in more than half of the listed firms.

Finland an interesting case to study whether firms' ownership patterns affect the likelihood for them to adjust their payout policies.

Our empirical results contrast results by Brav et al (2005), Baker and Wurgler (2004), Denis and Osobov (2008), Brown, et al. (2007), and Barclay, et al. (2008), who all provide evidence suggesting that individual ownership does not affect dividend policies. In reaction to the tax reform, Finnish firms adjusted their payout levels for both dividends and share repurchases based on their ownership structures. Especially in dividend payout decisions, firms take into account the tax effects of their shareholders. In the year prior to the tax reform, we find that ahead of the upcoming dividend taxation at the personal level, firms whose shareholders were more affected by the reform paid out substantially larger amounts to their shareholders. We further find that payout variables are significant determinants of ownership structures.

The structure of the paper is as follows. In section 2, we discuss related literature. In section 3, we present the main features of the 2004 tax reform in Finland. In section 4, the data is presented. Empirical results are reported in section 5, and summary and conclusions follow in section 6.

2. Taxes and Dividend Policy

Tax effects of dividends can be traded away if taxed investors sell their high yield stocks to non-taxed investors who capture the dividend and subsequently sell the stocks back to taxed investors. The connection between firms' dividend policies and taxation of their owners becomes irrelevant if owners with varying tax burdens engage in such tax-induced trading around the ex-dividend day. Several authors offer support for dynamic tax-induced trading by reporting abnormal trading volumes around the ex-dividend day.² However, the U.S. evidence on dividend taxation as the driving force on trading around the ex-dividend day is mixed. The results by Koski and Scruggs (1998) suggest that traders engage in dividend-capturing trading around the ex-dividend day, but that tax

² See e.g. Lakonishok and Vermaelen (1986) and Michaely and Vila (1996) for the U.S., Kato and Lowenstein (1995) for Japan, and Michaely and Murgia (1995) for Italy. For a more detailed analysis of the identity of such traders, see e.g. Koski and Scruggs (1998) for the U.S., and Felixson and Liljeblom (2008) for Finland.

clienteles fail to explain the trading behavior. More recently, Graham and Kumar (2006) study trading behavior of a large sample of U.S. retail investors, and find that their income (and thus their marginal tax rate) significantly affects their trading around the ex-dividend day. The price drop on the ex-dividend day tends to be smaller than the size of the dividend,³ which suggests that the value of dividends is not fully traded away in dividend-capturing trade. In Finland, Rantapuska (2008), and Felixson and Liljeblom (2008) both report evidence consistent with tax-induced trading around the ex-dividend day. Dividends in Finland are normally paid annually, rather than quarterly, which may increase incentives for tax-induced trading around the ex-dividend day, as the amount of dividend relative to transaction costs should increase attractiveness of the activity.

The question of whether investors adjust to firms' dividend policies is considered in several studies of investors' trading behavior around changes in dividend policy, such as dividend changes, initiations or omissions. Mixed evidence on investor adjustment around dividend-altering events is provided by Richardson et al (1986), Michaely et al (1995) and Seida (2001), as well as by Graham and Kumar (2006). Binay (2001) finds significant changes in institutional ownership after dividend omissions and initiations. Grinstein and Michaely (2005) study the interactions between investor adjustments and firm payout policy changes by considering both institutional ownership and payout policy adjustments in the U.S. between 1980 and 1996. They find that despite institutional owners in the U.S. seem to prefer dividend-paying firms over non-dividend-paying firms, the level of dividends does not matter, as increases in dividends fail to attract increased institutional holdings. Grinstein and Michaely (2005) further fail to find evidence of an increase in institutional ownership or ownership concentration leading to changes in firms' payout policy. Holmen, et al. (2008) study the tax records of corporate insiders in Sweden to establish their marginal tax rates, which allows them to explore the connection between marginal tax rates of insiders and dividend policy. They find that firms with insiders who have low tax rates pay higher dividends, and also that when insiders with zero tax rates sell blocks, firms tend to adjust by lowering their dividends. In a recent

³ See e.g. Elton and Gruber (1970), Eades, Hess, and Kim (1984), Green and Rydqvist (1999), and Graham, Michaely and Roberts (2003).

study, Desai and Jin (2008) explore the connection between the presence of dividend-averse institutional investors and firms' payout ratios, and find evidence of both investors adjusting to exogenous changes in the payout policy, and payout policies adjusting to changes in investor composition.

Two recent studies search for evidence of firms catering to dividend clienteles on a country-by-country aggregate level. Denis and Osobov (2008) and von Eije and Megginson (2008) study the connection between the valuation premium of dividend-paying firms and firms' payout behavior. Both studies fail to find evidence of firms adjusting their dividends to the demands of the market.

Annual dividend changes may be too small to induce investors to adjust their holdings in a measurable way. Studying the interactions between firms' payout policies and changes in investor holdings over a long period of time is also technically challenging, as both variables typically contain a time trend. Tax regime changes cause more substantial one-time effects on investors' preferences on dividends versus capital gains. Tax regime changes are also external to the firm, which allows studying of subsequent reactions by both firms and investors.

For the U.S., Perez-Gonzales (2003) studies changes in firms' dividend policies around the tax reforms from 1981 to 1999. He finds some support for firms adjusting their policies in line with investor preferences, as payout levels are negatively related to the tax disadvantage of dividends relative to capital gains according to his results. He further finds that the effect is limited to firms where large shareholders are affected by the tax reforms. Poterba (2004) finds a significant relationship between dividend payouts and average marginal tax rates during 1935 to 2002. Chetty and Saez (2005) document a 20% increase in dividend payments in the U.S. after the dividend tax cut in 2003. The response to the tax cut was the strongest among firms with strong principals whose tax incentives changed. Brown, et al. (2007) find that managerial holdings explain cross-sectional differences in how the firms in the U.S. reacted in 2003. While high *individual* ownership in their sample fails to boost dividends, high *executive ownership* does increase dividend payouts. Finally, Graham and Kumar (2006) study retail investors' portfolio dividend yields around the tax reform of 1993. Although portfolio holdings

offer only an indirect way to test whether the firm or the investor reacts to a regulatory change, their robustness checks that consider additions to portfolios support their main finding that investors rather than firms adjust.

Tax regime changes typically affect investor preferences between dividends and share repurchases. Brown, et al. (2007) and Blouin, et al. (2007) find support for a substitution of dividends for share repurchases after the 2003 tax change. Blouin, et al. (2007) further report that the substitution is concentrated in firms with high individual ownership, suggesting that firms adjust their payout channels depending on their ownership structure. Grullon and Michaely (2002) also find support for substitution in the U.S. cross section over a longer time horizon. While personal taxes are the most obvious factor affecting the choice between dividends and repurchases, other potential factors also exist. Renneboog and Trojanowski (2005) report that dividends tend to be preferred over share repurchases in the U.K. for firms that have block holders, regardless of those block holders' tax status. They propose strict insider trading rules as a possible explanation, as those rules make share repurchases less appealing for the shareholders with an insider status.

In summary, while existence of dividend clienteles is supported by numerous studies, the evidence on firm's adjusting their payout levels is only emerging, especially outside the U.S. Few studies consider the simultaneous reactions of the firms, and the investors'. Understanding the interactions is important for firms and investors alike.

3. The Tax Reform and ownership patterns

Prior to the 2004 tax reform, dividend income taxation in Finland was based on the 1993 legislation, which placed all capital income and corporate profits under a single flat tax rate. Originally, the rate was 25% (in 1993), but it was successively raised to 28% (in 1996), and finally to 29% (in 2000). Furthermore, a full imputation (avoir fiscal) system applied to dividend distributions, which effectively made dividends tax-free for domestic investors at the personal level. The 2004 reform altered the tax rates both at corporate and personal income level, and more importantly replaced the full imputation system by introducing partial double taxation of corporate profits.

The reform lowered the corporate profits tax rate from 29% to 26% and the flat personal capital income tax-rate from 29% to 28%. The abandonment of the full imputation system made 70% of dividends received taxable income (this rate was 57%, for dividends paid during the adjustment year of 2005). Therefore, the effective post-reform tax-rate on dividend income for individual investors is 19.6% (0.7 times 0.28), whereas prior to the reform, the dividend income tax-rate for individual domestic investors was zero, due to the full imputation system.

While the 2004 tax reform increased taxation of dividend income substantially, several exceptions exist. These exceptions are interesting, as they cause different investor groups to view the reform differently. First, several institutions are exempt from dividend taxes, including mutual funds, mutual banking firms, and several governmental institutions, such as the Bank of Finland. Second, dividends received by a corporation from another corporation are tax-free. However, for dividends received from a publicly-listed firm, this rule applies only when the recipient is another listed non-financial firm, or when the equity stake held by the receiving corporation is more than 10% of the shares outstanding. Finally, tax treatment of dividends paid to foreign investors was not amended in the reform. Foreign investors are subject to a withholding tax that depends on bilateral agreements between countries. For most foreign owners, a tax of 15% is withheld from dividends received from a Finnish firm.

The tax reform did not come as a surprise either to the Finnish firms or to the financial markets. A legal challenge against the differential treatment of foreign investors in the old tax system is seen as one of the origins of the 2004 tax reform. The challenge was made in the summer of 2002, and as it was clear that the Finnish dividend taxation was at odds with the EU standards, a change to the system was imminent. Later in 2002, a tax reform panel appointed by the Ministry of Finance published a report that proposed changes to the then-current dividend taxation system. The report suggested sweeping changes, including full double-taxation of dividends, but it was met with resistance within the government. In November of 2003, the government produced a draft of its own

proposal, which was very close to the reform that eventually came into effect in the spring of 2004.⁴

Table 1 provides information on dividend taxation in Finland after the 2004 tax reform, by investor category. As mentioned above, taxation of dividends increased in general, with exceptions of groups such as mutual funds and governmental institutions. The reform also left the tax preference of foreign investors intact, as they continued to face the withholding tax (typically 15%) that was levied on them prior to the reform as well. Table 1 also indicates the tax preference ratio of each investor group. The ratio is calculated following Poterba (2004). As the tax preference ratios reveal, the 2004 reform reduced the preference for dividends for most investor groups, while for some groups, the preference ratio was unaffected by the reform.

Furthermore, Table 1 shows the percentage of total ownership by different investor categories. The statistics are based on the top five shareholders for each firm. The bottom panel of the table accumulates data combined for all investor categories. The top five owners own a significant portion of the aggregate market. As a consequence, our ownership data covers approximately half of the total ownership of Finnish publicly-listed firms. Interestingly, ownership by private persons drops significantly from 2004 to 2005, and mutual funds are increasing their share of ownership. The relative tax-efficiency of mutual fund holdings, compared to direct holdings, improved in the reform, so the shift in ownership pattern is consistent with a suggestion that ownership patterns are affected by the reform.

As mentioned above, block ownership in Finland is between that of the Continental Europe and the Anglo-Saxon countries. Figure 1 indicates prevalence of block ownership in the Finnish cross section. The figure is comparable to the country-by-country graphs in Barca and Becht (2001). Out of the eight European countries that they study, Austria, Belgium, Germany, Italy, Sweden, Spain and the Netherlands exhibit clearly more block ownership than what our sample indicates for Finland. In the U.K., on the other hand, only the top decile contains firms with 30% block owners. It is interesting to note that

⁴ See Kari, et al. (2008) for more details on the proposal by the tax reform panel.

according to Figure 1, block ownership experienced a shift downwards between 2002 and 2005.

4. Data

We use dividend data from the Helsinki Stock Exchange. The data cover all dividends paid during the years 2003 to 2006 for all companies listed on the exchange, corresponding to corporate profits for years 2002 to 2005. In Finland, companies are required to report on completed share repurchases. Our data on share repurchases is gathered from press releases that firms submitted in order to fulfil their reporting requirement. Ownership data come from Pörssitieto manuals, which report holdings and investor types for top five shareholders of each publicly-listed company in Finland. We also use the Finnish Central Securities Depository to obtain the level of foreign ownership. For financial statement data and stock return and price data, we rely on Datastream. The variables used in our analysis are defined in Table 2.

The number of firms listed on the Helsinki Stock Exchange during our sample years is 144 (2003), 136 (2004), 137 (2005) and 131 (2006), which sums up to 548 potential data points. A small number of missing data points and delistings in the middle of the year cause minor deterioration in our sample so that the final full sample consists of 524 firm-year observations for 148 different firms. To avoid further deterioration, we use a substitution method to replace missing data points for firm characteristics that we use as control variables. In the substitution method a missing data point is replaced by the cross sectional average for the data item in that year.⁵

Descriptive statistics for various measures of dividend payout and profitability, along with other firm characteristics, are reported in Table 3. The table provides information regarding both the full sample and two subsamples that are based on the extent to which the firm's top five owners were affected by the tax change. The table indicates very high dividend payouts during the period, as the mean payout ratio is over 140% and the mean

⁵ Despite the resulting smaller sample size, our results are virtually identical when firms with any missing variables are dropped from the regressions.

dividend yield is 4.54%. Out of all holdings by top five owners, the proportion held by investors who were affected by the tax change is approximately 55%, but that percentage varies substantially across firms (averages are 21% and 88% in the two subgroups, respectively). As Table 3 indicates, the two subgroups deviate significantly in size, market-to-book ratio, leverage, and foreign ownership. We control for all these factors in our regression models.

5. Empirical analysis

We report the evolution of dividend payouts, dividend yields, and share repurchases during our sample years in Table 4. The table segregates the sample into two groups of firms, based on whether the total equity ownership of those among the top 5 shareholders who were affected by the tax reform is higher or lower than 30%. The 30% cut-off point is arbitrarily drawn in an attempt to identify a level of reasonably large corporate influence by the tax-affected owners. Since the dividend payout variable exhibits extreme positive skewness due to some firms paying high dividends despite low earnings, we have truncated our payout ratio variable at the level of 10. In Table 4, Panel A, we report statistics on the dividend payout ratio for the full (truncated) sample, as well as for a restricted sample, where payouts higher than 800% have been excluded.⁶ The asterisks in the table indicate statistical significance in the difference between the two groups at the 10% (*), 5% (**), and 1% (***) levels. Due to the relatively small sample sizes in the sub-groups, we use the bootstrapped t-test for means, and the non-parametric median test for medians. The key statistics are also illustrated in Figure 2.

⁶ The regression results reported in the subsequent tables are based on the restricted dividend sample, to provide more robust results, i.e. results not driven by some extreme outliers.

Table 1. Ownership and taxation by investor category

Table indicates proportions of ownership by different investor categories and by sample years. Ownership by owners among the top 5 shareholders of each firm is included. For each investor group, information on the tax status after the 2004 tax reform is also included. The tax preference ratio before and after the reform is calculated following Poterba (2004). The sample includes firms listed on the Helsinki Stock Exchange (HEX).

	Dividend Taxation after 2004	Tax preference ratio			% of Shares Held by Ownership category				
		Before	After		2002	2003	2004	2005	All Years
Banks and Insurance companies (excluding mutual banks)	Taxed	1.4085	1.1167	Mean	0.0514	0.0401	0.0388	0.0306	0.0407
				Stdev	0.1004	0.0902	0.1041	0.0622	0.0915
				Min	0.0000	0.0000	0.0000	0.0000	0.0000
				Max	0.6420	0.6530	0.8337	0.4370	0.8337
Limited Partnership	Taxed	1.4085	1.1167	Mean	0.0055	0.0040	0.0038	0.0008	0.0036
				Stdev	0.0462	0.0303	0.0280	0.0071	0.0318
				Min	0.0000	0.0000	0.0000	0.0000	0.0000
				Max	0.5190	0.3310	0.3010	0.0760	0.5190
Private persons	Taxed	1.4085	1.1167	Mean	0.1555	0.1596	0.1566	0.1242	0.1497
				Stdev	0.2203	0.2226	0.2193	0.1930	0.2146
				Min	0.0000	0.0000	0.0000	0.0000	0.0000
				Max	0.9450	0.9050	0.9400	0.7780	0.9450
Pension institutions	Taxed	1.4085	1.1167	Mean	0.0258	0.0258	0.0243	0.0305	0.0265
				Stdev	0.0420	0.0427	0.0362	0.0421	0.0408
				Min	0.0000	0.0000	0.0000	0.0000	0.0000
				Max	0.2585	0.2585	0.1531	0.2324	0.2585
Towns and municipalities	Taxed if ownership below 10%	1.4085	1.1167	Mean	0.0038	0.0042	0.0034	0.0008	0.0031
				Stdev	0.0326	0.0334	0.0306	0.0062	0.0284
				Min	0.0000	0.0000	0.0000	0.0000	0.0000
				Max	0.3420	0.3420	0.3420	0.0640	0.3420
Non listed companies	Taxed if ownership below 10%	1.4085	1.1167	Mean	0.1215	0.1150	0.1094	0.1089	0.1140
				Stdev	0.1951	0.1842	0.1753	0.1579	0.1790
				Min	0.0000	0.0000	0.0000	0.0000	0.0000
				Max	0.8364	0.7859	0.7650	0.6620	0.8364
Associations	Taxed if ownership below 10%	1.4085	1.1167	Mean	0.0157	0.0164	0.0157	0.0120	0.0150
				Stdev	0.0711	0.0721	0.0713	0.0602	0.0689
				Min	0.0000	0.0000	0.0000	0.0000	0.0000
				Max	0.4860	0.4860	0.4890	0.3981	0.4890
Foreign owners	Withholding tax	0.8500	0.8500	Mean	0.0379	0.0468	0.0471	0.0395	0.0428
				Stdev	0.1148	0.1340	0.1311	0.0987	0.1206
				Min	0.0000	0.0000	0.0000	0.0000	0.0000
				Max	0.6929	0.6929	0.6929	0.4065	0.6929
Listed companies	No tax	1.4085	1.3889	Mean	0.0309	0.0272	0.0185	0.0135	0.0229
				Stdev	0.1015	0.1006	0.0789	0.0562	0.0873
				Min	0.0000	0.0000	0.0000	0.0000	0.0000
				Max	0.6005	0.6005	0.5984	0.4300	0.6005
Mutual Funds	No tax	1.0000	1.0000	Mean	0.0117	0.0137	0.0194	0.0233	0.0168
				Stdev	0.0266	0.0276	0.0333	0.0377	0.0316
				Min	0.0000	0.0000	0.0000	0.0000	0.0000
				Max	0.1778	0.1371	0.1760	0.1790	0.1790
Tax exempt (gov't organisations)	No tax	1.0000	1.0000	Mean	0.0375	0.0330	0.0332	0.0382	0.0354
				Stdev	0.1388	0.1211	0.1175	0.1239	0.1256
				Min	0.0000	0.0000	0.0000	0.0000	0.0000
				Max	0.9530	0.6189	0.6168	0.5630	0.9530
Mutual Banks	No tax	1.4085	1.3889	Mean	0.0033	0.0034	0.0035	0.0000	0.0026
				Stdev	0.0397	0.0397	0.0393	0.0000	0.0347
				Min	0.0000	0.0000	0.0000	0.0000	0.0000
				Max	0.4711	0.4595	0.4486	0.0000	0.4711
Trusts	No tax	1.0000	1.0000	Mean	0.0076	0.0083	0.0090	0.0093	0.0085
				Stdev	0.0354	0.0364	0.0362	0.0354	0.0358
				Min	0.0000	0.0000	0.0000	0.0000	0.0000
				Max	0.2478	0.2534	0.2513	0.2492	0.2534
Total ownership by five largest shareholders		1.3073	1.0927	Mean	0.5082	0.4975	0.4827	0.4316	0.4817
				Stdev	0.2145	0.2058	0.2105	0.1787	0.2051
				Min	0.0154	0.0227	0.0146	0.0447	0.0146
				Max	0.9983	0.9985	0.9985	0.9390	0.9985

Figure 1.

Figure 1 displays the prevalence of block ownership among Finnish firms. The graph is modeled after similar graphs for various European countries in Barca and Becht (2001).

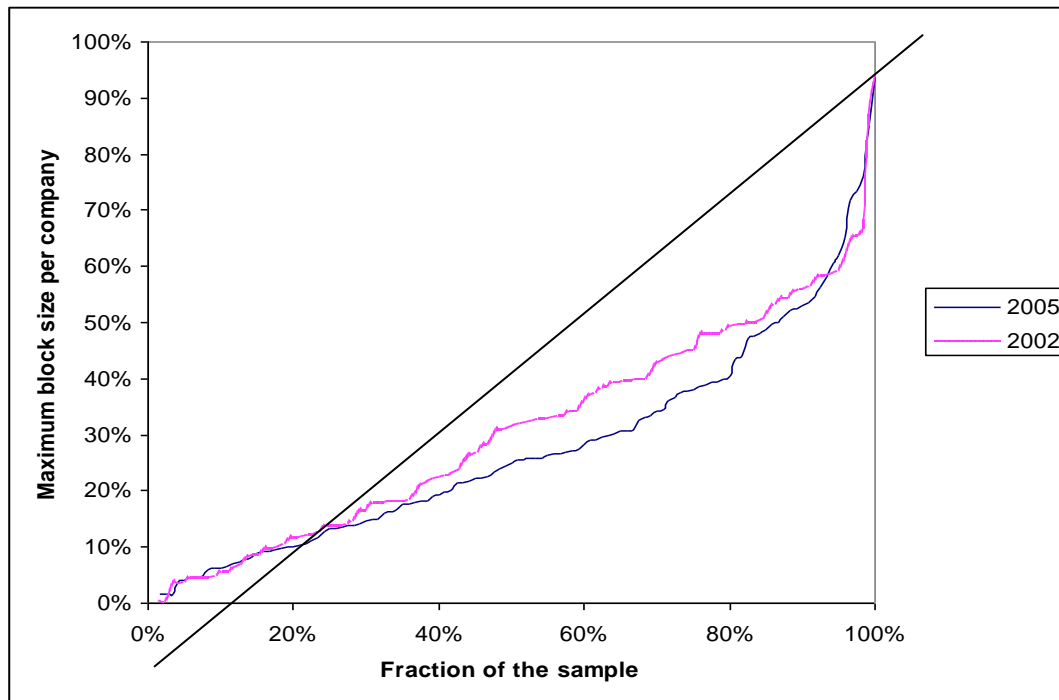


Table 4 and Figure 2 together reveal several interesting features. First, dividends are higher initially (in 2002) in the group with more tax-affected owners: a higher median payout for the full sample, higher mean and median payouts in the restricted sample, and a substantially higher dividend yield. A lower mean paired with a higher median for payout in the full sample for 2002 highlights the skewness issue discussed above. According to Panel B of Table 4, the difference in dividend yield for 2002 (5.57% versus 3.7%) is significant at the 10% level. Tax-affected owners are largely private owners. As they faced a zero tax on dividends prior to the reform, the finding that their ownership among top five shareholders is connected to higher dividend yields before the reform is consistent with taxation of dividends affecting either investors' portfolio choices or firm's payout policies.

In 2003, dividends increase in both groups in anticipation of the reform of 2004, but the increase is more profound for firms with more tax affected owners. The mean (together with median) payout ratio is significantly higher for the tax-affected group in 2003, when using the restricted sample (Table 4, Panel A, right-hand-side columns). Also, the

dividend yields for the two groups differ greatly (Table 4, Panel B, left-hand-side columns). Both differences are statistically significant at the 1% level.

Consistent with increased taxation of dividends, dividends decrease after the reform in both groups. The ultimate payouts and dividend yield levels in 2005 are indifferent between the two groups (payouts of 0.66 and 0.59 in the restricted group, dividend yields of 3.54% versus 3.97%).

Prior to the reform, share repurchases are more common in firms dominated by owners who are not affected by the reform. That group includes foreign owners, who, as mentioned above, were in a tax-disadvantage regarding dividend income prior to the taxation change. After the reform, share repurchases increase in both groups, and the mean levels of share repurchases become more closely aligned between the two groups.

Table 2. Definition of variables

Description of variables used in the analyses. The dividend data is obtained from the Helsinki Stock Exchange. The dividends paid during 2003-2006 are based on corporate profits for years 2002-2005. Data on share repurchases is gathered from press releases submitted through the exchange. Ownership data regarding holdings and investor type of top five shareholders come from Pörssitieto manuals. Levels of foreign ownership are obtained from the Finnish Central Securities Depository. Financial statement data and stock return and price data come from Datastream.

Variable	Description
PAY-OUT	Total dividend per share/Earnings per share.
REPURCHASES	Share repurchases/Total equity available for distribution.
TAXED OWNERS	% of shares held by five largest shareholders whose dividend income became taxable as a result of the tax reform, divided by total % of shares held by five largest shareholders.
PAST RETURN	Change in the market value of the company during the last 6 months of the year.
SIZE	Ln(sales)
MKT-TO-BOOK	Market value of equity/book value of equity.
FCF	(EBIT + depreciation & amortization)/Sales.
ROA	Net profit/total assets.
LEVERAGE	Long-term debt/total assets.
FOREIGN OWN	% of shares held by non-domestic shareholders.
Y2003 - Y2005	Indicator variables taking the value of one for years 2003, 2004, and 2005, respectively, and zero otherwise.

Table 3. Descriptive statistics

The sample consists of firms traded on the Helsinki Stock Exchange (HEX) during the time period from 2003 to 2006. The full sample includes 524 firm-year observations. **Bold** numbers indicate a mean that is higher than that for the comparison group at the 90% confidence level or higher. See Table 1 for variable definitions.

	Full Sample		TAXED OWNERS < median		TAXED OWNERS > median	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Dividend Yield	0.045	0.047	0.042	0.040	0.049	0.053
PAY-OUT	1.417	2.526	1.507	2.745	1.327	2.289
Share Repurchases to Total Payable	0.008	0.047	0.012	0.063	0.004	0.023
Dividends to Total Payable	0.175	0.376	0.167	0.441	0.184	0.299
Dividend Yield (ordinary dividend)	0.040	0.036	0.039	0.034	0.041	0.039
Dividends to Total Payable (ordinary dividend)	0.158	0.355	0.156	0.431	0.159	0.258
PAY-OUT (ordinary dividend)	1.329	2.462	1.431	2.665	1.226	2.242
Lagged PAY-OUT	1.294	2.320	1.365	2.531	1.225	2.096
TAXED OWNERS	0.546	0.367	0.213	0.156	0.880	0.152
PAST RETURN	0.107	0.349	0.102	0.297	0.113	0.395
SIZE	3.882	2.065	4.200	2.174	3.564	1.901
MKT-TO-BOOK	2.089	4.243	1.643	2.671	2.536	5.342
EBIT to Sales	0.062	0.551	0.042	0.590	0.081	0.510
ROA	0.040	0.181	0.044	0.168	0.036	0.194
ROE	0.140	2.108	0.263	2.908	0.016	0.646
FCF	0.173	0.495	0.182	0.532	0.164	0.456
LEVERAGE	0.169	0.197	0.187	0.234	0.151	0.150
FOREIGN OWN	0.177	0.213	0.237	0.238	0.118	0.165
Dummy for Negative EPS	0.225	0.418	0.202	0.403	0.248	0.433

5.1. Determinants of dividend payout

Next, we move to more rigorous analysis of the determinants of dividends, share repurchases and tax clientele ownership structure around the tax reform of 2004 with multiple regression models. We use the dividend Pay-Out Ratio (PAY-OUT), the Share Repurchases to Total Payable (REPURCHASES) and the proportion of tax-sensitive owners among the top 5 shareholders (TAXED OWNERS), as dependent variables in these models.

Studies of dividend payouts and cash distributions are often based on Lintner's (1956) early work. Lintner's partial adjustment model builds on the assumptions that dividends convey signals about the firm's earnings, and that dividend pay-out ratios are sticky, with firms being reluctant to lower them. Consequently, managers consider future sustainability of the firm's earnings before altering the dividend policy. In the partial adjustment model, the change in dividend is explained by prior dividend payout and prior

and current profitability. Both profitability and prior payout are expected to have a positive impact on the current payout. The constant term is also expected to have a positive sign, to reflect firms' reluctance to reduce dividends.

In our simplest regression specification in Column (1) of Table 5, the lagged payout ratio and current and lagged ROA are the only variables explaining the current payout ratio. In line with predictions of Lintner (1956), the dividend payout ratios are positively related to prior payout ratios and prior and current profitability.

Firms' dividend payment behaviour in different countries may vary depending on factors such as accounting standards and practices, and also the structure of the local financial markets. For example, Goergen, et al. (2005) note that German conservative accounting practice may make cash flows a more meaningful determinant of dividend payouts than published earnings. Indeed, Andres, et al. (2009) report findings from Germany that are consistent with that notion. Von Eije and Megginson (2008) also note that earnings have a poor explanatory power on payouts in Europe. When we replace the ROA measures in Column (1) of Table 5 with a measure of free cash flow, we obtain virtually identical results to those reported in the table (results not reported). In later columns of Table 5, we, nevertheless, use free cash flow as an additional control variable.

In order to analyze the effects of the Finnish tax law change, we next include dummies for dividends paid out of profits for accounting years of 2003 to 2005⁷, the variable capturing the effect of the law change on the main owners (TAXED OWNERS), as well as interaction variables for the pre-reform time period (TAXED OWNERS x Y2002 and TAXED OWNERS x Y2003). Our expectation is that firms pay higher dividends prior to the reform, and that the behaviour is stronger for firms whose shareholders are more affected by the law change (recall that the reform made no investor group better off, but some investor groups worse off). In particular, the interaction variable for year 2003 is

⁷ The payment occurs in the subsequent year, so that for example Y2003 captures dividends paid in 2004. Accounting year 2002 is the omitted year, serving as the base case.

interesting, as it captures the effect of ownership structure on “last minute” distributions prior to the new tax regulations coming into effect.⁸ The results are reported in Column (2) of Table 5. The earnings measures and the lagged payout measure continue to exhibit positive and significant signs. The column also indicates a reduction in dividend payouts in the time period after the regulatory change, with the dummy for 2004 entering with a negative and significant sign. Firms with tax-sensitive owners pay higher dividends prior to the reform, as indicated by the positive and significant coefficient for the interaction variable capturing payout behaviour for firms with more tax-sensitive owners in 2003.

Table 4. Payouts in two ownership categories					
Panel A.		Dividend Pay-Out, Full Sample		Dividend Pay-Out, Pay-Out < 8	
		TAXED OWNERS < 30%	TAXED OWNERS > 30%	TAXED OWNERS < 30%	TAXED OWNERS > 30%
2002	Mean	1.5175	1.3988	0.6475	0.9364
	Median	0.5000	0.7500***	0.4531	0.7333***
	St.dev.	2.8766	2.2764	0.8915	1.1076
	N	43	98	39	93
2003	Mean	2.0897	2.2921	0.6326	1.2167***
	Median	0.5128	1.2903***	0.4967	1.0722***
	St.dev.	3.4929	3.112	0.6996	1.2571
	N	45	89	38	78
2004	Mean	0.6817	0.8518	0.4699	0.6314
	Median	0.4112	0.4962	0.4070	0.4848
	St.dev.	1.5466	1.5617	0.6184	0.6387
	N	45	85	44	83
2005	Mean	1.2651	1.1052	0.6557	0.5896
	Median	0.458	0.5128	0.4514	0.4898
	St.dev.	2.5033	2.2279	0.9402	0.576
	N	46	73	43	69

⁸ Recall the peak payouts for year 2003, indicated in Figure 2.

Panel B.		Dividend Yield		Share Repurchases to Total Payable	
		TAXED OWNERS < 30%	TAXED OWNERS > 30%	TAXED OWNERS < 30%	TAXED OWNERS > 30%
2002	Mean	0.037	0.0557**	0.0084*	0.0015*
	Median	0.0398	0.0463	0.0000	0.0000
	St.dev.	0.0365	0.0596	0.0308	0.013
	N	43	98	43	98
2003	Mean	0.0403	0.0637**	0.0101*	0.0021*
	Median	0.0342	0.0548***	0.0000	0.0000
	St.dev.	0.0409	0.0589	0.0418	0.0096
	N	45	89	45	89
2004	Mean	0.0279	0.0410**	0.0206	0.0112
	Median	0.0300	0.0380**	0.0000	0.0000
	St.dev.	0.0235	0.0357	0.1166	0.0509
	N	45	85	45	85
2005	Mean	0.0354	0.0397	0.0120	0.0081
	Median	0.0332	0.0336	0.0000	0.0000
	St.dev.	0.0322	0.0408	0.0466	0.0381
	N	46	73	46	73

Table displays annual descriptive statistics for dividend payouts both with and without extreme observations (payout > 8). Each measure is reported for two types of firms: companies where the owners affected by the tax reform own less than 30% of the total amount of shares owned by the 5 largest shareholders, and firms where that ownership category owns more than 30%. The sample focuses on firm payouts referring to accounting years of 2002 to 2005, and consists of firms traded on the Helsinki Stock Exchange (HEX). The difference between the two ownership groups is tested using a bootstrapped t-test for means and a medians test for medians, with ***, **, * indicating statistical significance at the 1%, 5%, and 10% level, respectively.

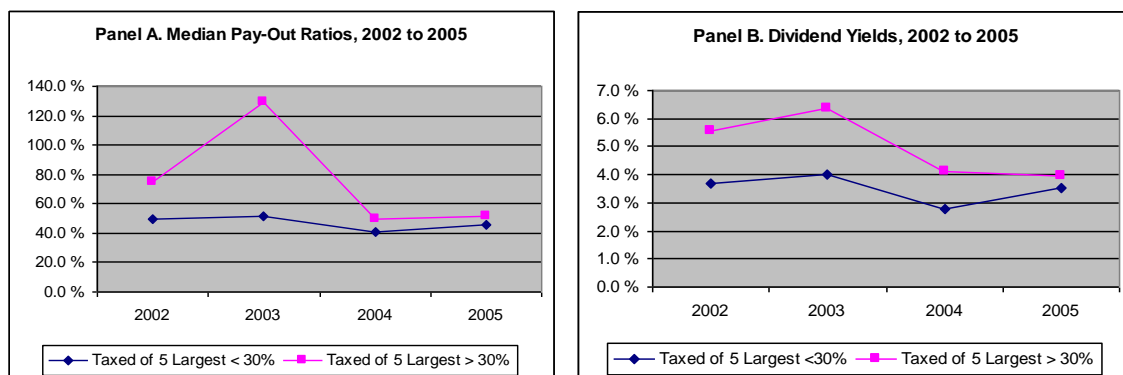
In Column (3) of Table 5, we further include a number of firm-specific control variables. A motive for a firm to signal with dividends is expected to be stronger if the firm is perceived by insiders to be undervalued. We include the stock return for the past six months (PAST RETURN), and the market to book ratio (MKT-TO-BOOK) to control for this potential effect on payouts. Firms with high free cash flow may have an incentive to offer higher dividend payouts to reduce their agency problems (Jensen, 1986), which is why we include free cash flow (FCF) as a control variable⁹. The foreign ownership

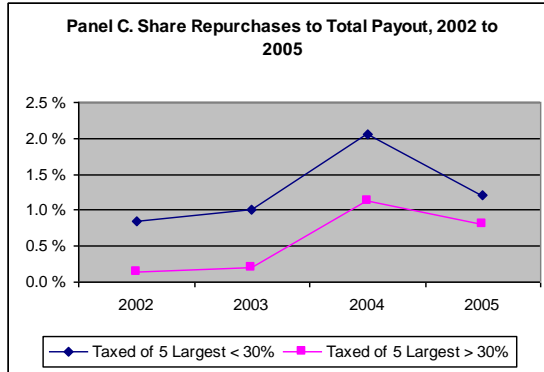
⁹ Our FCF measure is calculated as (EBIT + depreciation&amortization)/Sales. Use of an alternative measure that also captures changes in working capital and investments deteriorates the sample size severely (from 464 to 231) due to data limitations. However, the results within that limited sample are similar to those reported in Table 4.

variable (FOREIGN OWN) is set to capture effects of a differential treatment of foreign owners, reported by Liljeblom and Pasternack (2006). Foreign owners faced a 15% withholding tax on dividends during our sample period, which made them an investor category with a reduced preference for dividends prior to the reform. Larger, more mature firms may have more permanent payout policies, and also smaller growth opportunities, which motivate us to include the natural logarithm of sales (SIZE) as a control variable. Finally, high financial leverage may reduce dividends for firms that are financially constrained, or alternatively indicate higher payouts for firms with low cash flow volatility, as they may be able to both carry a heavier debt load and sustain higher dividend payouts. To control for both of these effects, we include leverage (LEVERAGE) in our regression models.

Figure 2.

Figure 2 displays median Pay-Out Ratios (in Panel A), measured as total dividend per share over earnings per share, average Dividend Yields (in Panel B), measured as total dividend per share over the stock price at the year-end, and average Share Repurchases to Total Payout (in Panel C), measured as the share repurchases in euro over free equity, for firms with taxationally affected owners owning either less than 30%, or over 30%, of the shares held by the five largest shareholders at the year-end. The sample focuses on firm payouts during the time period from 2003 to 2006 (the accounting years of 2002 to 2005, as used in the figures), and consists of firms traded on the Helsinki Stock Exchange (HEX). The figures are based on data for the full sample of 524 firm-years.





The results of our full model in Column (3) of Table 5 indicate that the added control variables do not affect our earlier findings. In this specification, the ownership variables gain some strength. The interaction variable for tax-affected owners in 2003 is now significant at the 5% level. None of the control variables are statistically significant, and interestingly, even as a group, they fail to increase the explanatory power of the model from that in the second column.

Payout preferences of different shareholder types may vary for reasons other than taxation. For example, superior ability to monitor management may lower dividend preferences. To ensure that such effects do not drive our results, we include dummies for twelve different ownership types indicated in Table 1, with Private Persons serving as the omitted group. Each dummy takes the value of one for each firm-year observation where the ownership type is present among the top five shareholders. The results are reported in Column (4) of Table 5, and they are very similar to those reported in Column (3). Interestingly, none of the ownership type dummies exhibits a significant sign. We can therefore conclude that tax-effects dominate any other ownership type specific effects on payout policy.

Our sample includes financial firms, which are commonly left out of corporate finance studies due to differences in accounting practices between financial and industrial firms. We do the same in Column (5) of Table 5, mostly to ensure that our results are not driven by the financial firms in the sample. The results in Column (5) are consistent with those obtained with the full sample. The interaction variable of TAXED OWNERS x 2003

gains further strength. Also, free cash flow (FCF) enters now with a positive and significant sign, in support of an agency cost motivation for higher dividend payouts. It is also interesting to note that the vast shift in dividend payouts that occurred around the tax reform is explained by our independent variables to the extent that none of the year dummies is significant in either column (4) or (5) of Table 5.

Table displays OLS results where the dependent variable is the dividend payout ratio. The sample includes cash distributions referring to accounting years from 2002 to 2005 by all firms listed on the Helsinki Stock Exchange (HEX). Column (1) shows estimation results from a basic Lintner dividend payout model, Column (2) also includes dummy variables for years 2003-2005 and variables measuring the fraction of shareholders affected by the 2004 tax reform, and finally Column (3) includes control variables. In order to exclude extreme outliers in the dependent variable, the sample is restricted to include firm-years where the dividend payout ratio is less than 8. Robust t-values are reported in parentheses, and ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively. See Table 1 for variable definitions.

Table 5. Dividend payout regressions						
Column	(1)	(2)	(3)	(4)	(5)	(6)
sample	full	full	full	full	no financials	only ord. div.
Dependent var.	PAY-OUT	PAY-OUT	PAY-OUT	PAY-OUT	PAY-OUT	PAY-OUT
lagged PAY-OUT	0.1084	0.1308	0.1271	0.1274	0.1191	0.1113
	(3.274)** *	(3.995)* **	(3.939)* **	(3.796)* **	(3.863)***	(3.977)***
ROA	0.4877	0.6646	0.6244	0.6699	0.6664	0.5384
	(2.799)** *	(3.672)* **	(3.497)* **	(3.875)* **	(3.784)***	(3.473)***
lagged ROA	0.7269	0.7322	0.5972	0.6112	0.5746	0.5092
	(3.088)** *	(3.070)* **	(2.488)* *	(2.628)* **	(2.420)**	(2.488)**
Y2003		-0.0152	0.0241	0.035	-0.0245	-0.0841
		(-0.072)	(0.114)	(0.162)	(-0.108)	(-0.441)
Y2004		-0.3342	-0.3197	-0.2742	-0.3331	-0.3120
		(-1.796)*	(-1.749)*	(-1.442)	(-1.634)	(-1.789)*
Y2005		-0.1196	-0.0768	-0.0237	-0.0880	-0.1087
		(-0.611)	(-0.396)	(-0.115)	(-0.405)	(-0.581)
TAXED OWNERS		0.0826	0.1203	0.1076	0.0985	0.1061
		(0.691)	(0.966)	(0.797)	(0.710)	(0.878)
TAXED OWNERS		0.3407	0.3270	0.3693	0.3852	0.1163
x2002		(1.115)	(1.065)	(1.141)	(1.117)	(0.460)
TAXED OWNERS		0.5030	0.5465	0.6209	0.6353	0.4389

x2003		(1.881)*	(2.012)* *	(2.241)* *	(2.107)**	(1.787)*
PAST RETURN			-0.1413	-0.1707	-0.1471	-0.1461
			(-1.252)	(-1.484)	(-1.222)	(-1.455)
SIZE			0.0319	0.036	0.0313	0.0316
			(1.378)	(1.484)	(1.123)	(1.579)
MKT-TO-BOOK			-0.0016	-0.0009	-0.0017	-0.0005
			(-0.444)	(-0.239)	(-0.444)	(-0.144)
FCF			0.1132	0.1011	0.1710	0.1215
			(1.399)	(1.169)	(1.872)*	(1.661)*
LEVERAGE			0.0545	0.017	0.1836	0.1022
			(0.287)	(0.080)	(0.875)	(0.643)
FOREIGN OWN			0.0492	0.0394	0.0225	0.0562
			(0.210)	(0.159)	(0.080)	(0.259)
CONSTANT	0.6242	0.5381	0.3581	0.2332	0.3519	0.3820
	(13.789)* **	(3.339)* **	(2.161)* *	(1.058)	(1.909)*	(2.436)**
Owner type dummies	no	no	no	yes	no	no
N	464	464	464	464	410	464
ADJ. R ²	0.099	0.179	0.177	0.164	0.172	0.162

Lintner (1956) type partial adjustment models are set to capture fractional changes in firms' payout policies. However, our sample contains firms that initiated dividends during the sample period, and thus may not fit the Lintner (1956) model very well. While Denis and Osobov (2008) report that in their international sample, determinants explaining payouts for dividend initiators do not differ from those for firms with continuing dividend payment policies, the reform that we study may have urged an unexpected set of firms to initiate their dividend payments, especially in the year prior to the new law taking effect. To ensure that such firms are not driving our results, we run our main model only with firms that paid dividends in 2002. Compared to columns (3), (4), and (5), the results regarding the effect of taxation of main owners become slightly stronger in that sample (results not reported).

As noted above, many firms paid extraordinary dividends during the run-up to the new dividend tax regulation. In the final column of Table 5, we include only ordinary dividends in the PAY-OUT measure. The results are similar to those reported earlier. The coefficient for the interaction variable (TAXED OWNERS x 2003) is lower and slightly

less significant, indicating that extraordinary dividends paid during our sample period strengthened our earlier findings, but were not driving the results.

In summary, the results in Table 5 indicate the reduction in dividends following the 2004 reform. The payouts were significantly higher immediately prior to the reform among firms whose ownership were to face the most negative consequences of the tax reform. These findings are robust to controlling for various variables that have been found to affect dividend payouts in prior literature. The findings are also robust to various ways to consider firms' payout behaviour.

5.2. Results for share repurchases

To further test the changes in cash distribution around the 2004 tax reform, we analyze share repurchases during our sample period. In the next set of regressions, we use a measure of share repurchases (REPURCHASES, defined as share repurchases divided by total equity capital available for distribution) as the dependent variable. The results of this analysis are reported in Table 6.

In Column (1) of Table 6, we test for changes in repurchase activity during the sample years with year dummies for years 2003-2005. As before, year 2002 acts as a control group. Opposite to dividend payouts in Table 5, each year enters with a positive sign. The size of the coefficient grows much larger when moving from 2003 to 2004, suggesting that a shift from dividends to share repurchases occurred at that time (recall that a similar but opposite shift was reported in Table 5, regarding dividend payouts). However, none of the year dummies is statistically significant. We also include ownership variables of TAXED OWNERS, and an interaction variable showing the effect of TAXED OWNERS during the post-reform years of 2004 and 2005. Out of them, TAXED OWNERS enters with a negative and statistically significant coefficient, providing albeit weak evidence of tax-sensitive ownership reducing repurchase activity during the sample period.

In Column (2) of Table 6, we include the firm control variables that we used in Table 5, except for FOREIGN OWN, which is added in Column (3). TAXED OWNERS loses its statistical significance in Column (2), and in Column (3), FOREIGN OWN seems to

absorb most of the effect of tax-sensitive ownership (the two variables have a correlation coefficient of -0.34). Among control variables, size appears to affect share repurchases positively, and firms with high foreign ownership are much more likely to repurchase their shares. The latter finding is in line with foreign owners being in a tax disadvantage regarding dividend distributions during the first part of the sample.

In the final column of Table 6, we again include dummies for individual ownership types, with Private Persons as the omitted group. While the reported results are not markedly different between columns (3) and (4), two of the ownership types, namely Mutual Funds and Listed Companies, enter the regression with a negative and significant sign. Both ownership groups receive tax-free dividends both before and after the reform, reducing their incentive to demand share repurchases. Also, for listed companies, capital gains are taxable. Furthermore, during our sample period, some mutual funds have been able to report their performance relative to a price index that does not include dividends, giving those funds yet another reason to prefer dividends over share repurchases.

Table displays OLS results where the dependent variable is Share Repurchases to Total Payable, measured as the share repurchases in euro divided by the total capital available for distribution (free equity). The sample includes cash distributions referring to accounting years from 2002 to 2005 by all firms listed on the Helsinki Stock Exchange (HEX). Robust t-values are reported in parentheses, and ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively. See Table 1 for variable definitions.

Table 6. Share repurchase regressions				
Column	(1)	(2)	(3)	(4)
Dependent variable	REPURCHAS ES	REPURCHAS ES	REPURCHAS ES	REPURCHAS ES
Y2003	0.001	0.007	0.0057	0.0055
	(0.372)	(1.552)	(1.314)	(1.211)
Y2004	0.0158	0.0176	0.0156	0.0149
	(1.163)	(1.192)	(1.044)	(1.015)
Y2005	0.01	0.0125	0.0099	0.0097
	(1.122)	(1.268)	(0.995)	(0.946)
TAXED OWNERS	-0.0092	-0.0069	-0.0017	-0.0007
	(-1.902)*	(-1.623)	(-0.388)	(-0.158)
TAXED OWNERS	-0.0096	-0.0105	-0.009	-0.0076
x (Y2004 + Y2005)	(-0.715)	(-0.714)	(-0.601)	(-0.541)
PAST RETURN		-0.0106	-0.0091	-0.009
		(-1.573)	(-1.375)	(-1.372)

SIZE		0.0031	0.0016	0.0014
		(1.961)*	(1.461)	(1.235)
MKT-TO-BOOK		0.0003	0.0003	0.0003
		(1.037)	(1.025)	(0.823)
FCF		0.002	0.0019	0.0027
		(0.844)	(0.796)	(0.933)
LEVERAGE		-0.0148	-0.0146	-0.0132
		(-1.181)	(-1.147)	(-0.938)
ROA		0.0029	0.0011	0.0035
		(0.393)	(0.163)	(0.545)
FOREIGN OWN			0.0382	0.0396
			(2.478)**	(2.681)***
CONSTANT	0.0089	-0.0044	-0.0071	-0.0093
	(2.419)**	(-0.558)	(-0.832)	(-1.024)
Owner type dummies	no	no	no	yes
N	524	524	524	524
ADJ. R ²	0.012	0.032	0.051	0.050

5.3. Ownership and payouts

Next, we explore potential endogeneity of tax-sensitive ownership, and its effect on firms' cash distribution policy. In the regression models shown in Table 7, TAXED OWNERS is the dependent variable, and we include payout and share repurchase variables among the explanatory variables. Studies of cross-sectional ownership patterns, mainly ownership concentration, often follow Demsetz and Lehn (1985), who provide evidence of corporate ownership being endogenous. In their empirical model, they explain ownership concentration in the U.S. with size, control potential proxied by different risk measures, and dummies for regulatory issues in certain industries. Demsetz and Villalonga (2001), further include leverage and firm performance among explanatory variables of ownership concentration.

Our ownership models follow Demsetz and Lehn (1985) and Demsetz and Villalonga (2001), with the exception that we exclude firm specific risk from the models. The variable was not significant in Demsetz and Villalonga (2001). Furthermore, the Finnish

market includes a number of small (and family controlled) firms in high-risk industries, such as the IT-sector, which makes it less likely that high risk would be connected with low ownership concentration in the country.

Larger firms are less likely to have a high concentration of tax-sensitive (mostly private) ownership. We control for that effect with our *SIZE* variable. Demsetz and Villalonga (2001) argue that higher leverage brings about increased monitoring, which in turn may discourage managerial entrenchment through high insider ownership. Accordingly, we also include *LEVERAGE* in our ownership specifications. While our dependent variable is not management ownership, substitution of private control by creditor control motivates an expected negative sign also in our case. Ownership variables tend to be related to profitability and firm valuation (see e.g. Maury 2006 for family firms in Europe), which is why we include *ROA* and *MARKET-TO-BOOK* among our control variables.

Finally, we include an interaction variable *PAY-OUT* x (*Y2004* + *Y2005*) to test for a differential effect on ownership structure based on payouts after the tax reform. A similar variable is also included for share repurchases.

Column (1) of Table 7 indicates a negative and significant relation between share repurchases and tax-sensitive ownership. The payout ratio has an opposite effect on tax-sensitive ownership, and becomes statistically significant in Column (2), where two insignificant variables are dropped. Among control variables, *SIZE*, *MKT-TO-BOOK*, and *LEVERAGE* significantly explain ownership by owners affected by the 2004 tax reform. The interaction terms are statistically insignificant, but the interaction dummy for *PAY-OUT* has the expected sign (we expect a lower interest in dividends after the tax reform). In Column (3) of Table 7, we only include firms where the top five shareholders combined own more than 30% of the shares. The results are very similar to those reported in Column (2). Finally, in Column (4), we leave out *REPURCHASES*, to only concentrate on the connection between payouts and ownership. Our findings regarding

payouts and their shift in the post-reform time period gain strength, with even the interaction variable being very close to statistical significance at the 10% level.

Table 7. Ownership regressions				
Column	(1)	(2)	(3)	(4)
Sample	full	full	block ownership	full
Dependent Var.	TAXED OWNERS	TAXED OWNERS	TAXED OWNERS	TAXED OWNERS
PAY-OUT	0.0857	0.0880	0.0826	0.0944
	(1.535)	(3.113)***	(2.597)***	(3.355)***
REPURCHASES	-0.6476	-0.6486	-0.6379	
	(-3.621)***	(-3.653)***	(-3.937)***	
PAY-OUT	-0.0415	-0.0449	-0.0340	-0.0500
x (Y2004 + Y2005)	(-0.696)	(-1.466)	(-0.978)	(-1.633)
REPURCHASES	-0.003			
x (Y2004 + Y2005)	(-0.045)			
SIZE	-0.0303	-0.0308	-0.0429	-0.0335
	(-3.528)***	(-3.755)***	(-4.549)***	(-4.092)***
MKT-TO-BOOK	0.0094	0.0095	0.0091	0.0094
	(2.707)***	(2.752)***	(2.797)***	(2.805)**
LEVERAGE	-0.2361	-0.2269	-0.2424	-0.2179
	(-3.179)***	(-3.366)***	(-3.470)***	(-3.266)***
ROA	-0.0325			
	(-0.418)			
CONSTANT	0.6697	0.6686	0.6787	0.6714
	(14.248)***	(15.347)***	(13.976)***	(15.346)***
N	487	487	397	487
ADJ. R ²	0.071	0.074	0.086	0.069

Table displays OLS results where the dependent variable is the proportion of shares owned by the taxationally affected large owners in relationship to the shareholdings of all the 5 largest owners. The sample includes cash distributions referring to accounting years from 2002 to 2005 by all firms listed on the Helsinki Stock Exchange (HEX). Observations where the payout ratio takes extreme values (> 800%) are excluded. The block ownership sample includes only firm years when the top five shareholders own more than 30% of the shares outstanding. Robust t-values are reported in parentheses, and ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively. See Table 1 for variable definitions.

5.4. Testing for interactions: results from 3SLS

To further observe the extent to which not only firms but also owners adjusted to the 2004 reform, we next employ simultaneous estimation (3SLS) to estimate a system of equations where the explanatory variables are: 1) the dividend Pay-Out Ratio (PAY-

OUT), 2) Share Repurchases to Total Payable (REPURCHASES), and 3) the proportion of owners among the top 5 shareholders, affected by the reform (TAXED OWNERS). In the model specifications, we include the most important control variables from each previously reported regression model: PAST RETURN, SIZE, and FCF for dividends, SIZE, LEVERAGE, and FOREIGN OWN for share repurchases, and SIZE, MKT-TO-BOOK, and LEVERAGE for Ownership. In the second specification on the right-hand column of Table 8, we have excluded SIZE from the payout stage in order to improve identification of the system.

The results of the 3SLS estimation are consistent with the results reported above in Tables 5, 6 and 7. The results regarding the dividend Pay-Out Ratio are similar to those reported in Table 5 as the interaction variable between tax-affected owners and the dummy variable for 2003 continues to have a positive and significant sign. The first column of Table 8 therefore lends further support for firm-level dividend policy adjustments being affected by dividend clienteles.

The second stage of the left-hand-side regression shows results for share repurchases, which are generally consistent with findings reported in Table 5. Share repurchases increase in 2004, while the tax interaction variable continues to be negative but insignificant.

Finally, results of the last stage of our 3SLS analysis show that owners affected by the tax reform concentrate in smaller firms with higher dividend payouts, and higher market-to-book ratios. The result is particularly strong for the payout ratio (a z-statistic in excess of 5.6), which appears to be the most important determinant of ownership clienteles. As individual investors were one of the main investor groups affected by the reform so that their presence is captured to a large extent with the TAXED OWNERS variable, our findings provide at least indirect support for international evidence on individuals preferring dividend-paying stocks (e.g. Dong et al 2003, Graham and Kumar 2006).

Stage	1	2	3	1	2	3
Dependent Var.	PAY-OUT	REPURCHAS	TAXED	PAY-OUT	REPURCHAS	TAXED

		ES	OWNERS		ES	OWNERS
Lagged PAY-OUT	0.0903			0.0961		
	(5.124)***			(5.427)***		
ROA	0.4005			0.5089		
	(2.021)**			(2.567)**		
lagged ROA	0.3622			(0.471)		
	(1.982)**			(2.581)***		
Y2003	0.0336	0.0023		0.0109	0.0024	
	(-0.189)	(-0.364)		(-0.060)	(-0.378)	
Y2004	-0.2125	0.0176		-0.2311	0.0175	
	(-1.344)	(2.201)**		(-1.444)	(2.185)**	
Y2005	-0.0358	0.0121		-0.0522	0.012	
	(-0.227)	(-1.495)		(-0.327)	(-1.480)	
TAXED OWNERS	1.2039			1.1457		
	(9.503)***			(8.957)***		
TAXED OWNERS	0.2483			0.2628		
x Y2002	(-1.138)			(-1.189)		
TAXED OWNERS	0.3696			0.3859		
x Y2003	(1.718)*			(1.772)*		
PAST RETURN	-0.1205			-0.1073		
	(-1.100)			(-0.968)		
SIZE	0.0691	0.0016	-0.0415	0.0724		
	(3.441)***	(-1.298)	(-4.176)***	(-1.056)		
FCF	0.0683				0.002	-0.0235
	(-1.009)				(-1.615)	(-2.797)***
TAXED OWNERS		-0.0141			-0.0138	
x (Y2004 + Y2005)		(-1.545)			(-1.514)	
LEVERAGE		-0.0143	-0.0549		-0.0139	-0.0457
		(-1.282)	(-0.656)		(-1.247)	(-0.541)
FOREIGN OWN		0.0457			0.0457	
		(3.694)***			(3.689)***	
PAY-OUT			0.2851			0.2739
			(5.871)***			(5.649)***
MKT-TO-BOOK			0.0072			0.0075
			(2.015)**			(2.070)**
CONSTANT	-0.3203	-0.0074	0.4924	-0.0319	-0.009	0.4308
	(2.112)**	(-1.089)	(8.757)***	(-0.246)	(-1.326)	(8.073)***
N	464	464	464	464	464	464

Table 8. Simultaneous equations. Table displays 3SLS estimation results for three simultaneous equations. The sample includes cash distributions referring to accounting years from 2002 to 2005 by all firms listed on the Helsinki Stock Exchange (HEX). T-values are reported in parentheses, and ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively. See Table 1 for variable definitions.

In summary, the simultaneous analysis suggests that firms adjust dividends around the tax reform, taking into account the tax clienteles. Furthermore, payout policy appears to be an important determinant of ownership structure. The interaction between these will be further studied in robustness tests in the next section.

5.4. Robustness tests

As a robustness test, we re-examine our earlier empirical tests with panel data estimation. The results are reported in Table 9. The t-statistics in the table are calculated using firm clustered standard errors, as suggested by Petersen (2009). For each set of regressions, we have determined with Hausman test whether the random effects or the fixed effects model is more appropriate. Results do not markedly differ in any of the regressions between the two techniques, but for brevity, we only report the regressions indicated by Hausman test as more appropriate. For the model with dividend payout as the dependent variable, firm fixed effects results are reported in the first two columns of Table 9. The two columns differ only in that the second column is run with a balanced panel, whereas the first column contains all the firm-year observations that were part of the earlier analysis. The most striking difference between these results and those reported in Table 5 is that TAXED OWNERS enters with a negative and significant sign. In other words, when both pre- and post-reform data is included and firm-specific effects are controlled for, tax-sensitivity of owners is inversely related to dividend payouts. This may be partially explained by the lowered preference for dividends among tax-affected owners after the reform. Namely, the indicator variables, especially that for year 2003, indicate that in the pre-reform years, tax-sensitive ownership is having a positive effect on dividend payouts, which is consistent with our earlier findings, and supports the hypothesis that firms with greater ownership share by shareholders who suffered from the reform distributed more cash in form of dividends during the run-up to the new law. There are no noticeable differences in results between the full data set and the balanced panel.

Table 9. Specification					
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tests						
panel	full	balanced	full	balanced	full	balanced
model	fixed eff.	fixed eff.	random eff.	random eff.	fixed eff.	fixed eff.
Dep. Variable	PAY-OUT	PAY-OUT	REPURCHASES	REPURCHASES	TAXED OWNERS	TAXED OWNERS
lagged PAY-OUT	0.0124	-0.2044				
	(0.358)		(-3.870)***			
lagged ROA	0.2803	0.3740				
	(1.731)*	(1.686)*				
ROA	0.5399	0.5014	0.0051	0.0071		
	(2.362)**	(1.991)**	(0.682)	(0.713)		
Y2003	0.0871	0.0734	0.0057	0.0062		
	(0.394)	(0.297)	(1.508)	(1.273)		
Y2004	-0.0744	0.1005	0.0174	0.0193		
	(-0.315)	(0.318)	(1.113)	(1.030)		
Y2005	-0.0032	0.0272	0.0115	0.0123		
	(-0.012)	(0.076)	(1.132)	(0.987)		
TAXED OWNERS	-0.4922	-0.4317	-0.0028	-0.0056		
	(-2.044)**	(-1.703)*	(-0.836)	(-1.179)		
TAXED OWNERS	0.4622	0.4382				
x Y2002	(1.242)	(0.983)				
TAXED OWNERS	0.7451	0.9025				
x Y2003	(2.568)**	(2.643)***				
TAXED OWNERS			-0.0126	-0.0152		
x (Y2004 + Y2005)			(-0.765)	(-0.773)		
PAY-OUT					0.0367	0.0538
					(1.979)**	(2.653)***
REPURCHASES					-0.5944	-0.8424
					(-2.332)**	(-0.975)
PAY-OUT					-0.0574	-0.0721
x (Y2004 + Y2005)					(-2.892)***	(-3.095)***
PAST RETURN	-0.1852	-0.1539	-0.0093	-0.0104		
	(-1.545)	(-1.526)	(-1.246)	(-1.163)		
SIZE	-0.0450	-0.0329	0.0015	0.0014	0.0001	0.0044
	(-1.262)	(-0.914)	(1.050)	(0.812)	(0.008)	(0.191)
MKT-TO-BOOK	0.0053	0.0039	0.0003	0.0003	0.0028	0.0025
	(1.574)	(1.202)	(0.917)	(0.917)	(4.392)***	(3.573)***
FCF	0.1300	0.0660	0.0026	0.0018		
	(1.250)	(0.888)	(1.212)	(0.714)		
LEVERAGE	-0.1404	-0.2356	-0.0128	-0.0175	0.0481	0.0565
	(-0.414)	(-0.544)	(-1.020)	(-1.174)	(0.422)	(0.468)
FOREIGN OWN	-0.1783	-0.5618	0.0325	0.0407		
	(-0.364)	(-0.982)	(1.335)	(1.353)		
CONSTANT	1.0479	1.1578	-0.0055	-0.0027	0.5675	0.615

	(4.551)** *	(4.182)** *	(-0.604)	(-0.250)	(10.563)***	(6.828)***
N	464	328	524	444	487	328
R ²	0.155	0.206	0.072	0.085	0.081	0.093

Table displays panel estimation results using the payout ratio, share repurchases to total payout, and the proportion of tax-sensitive owners among top 5 shareholders as dependent variables. The sample includes cash distributions referring to accounting years from 2002 to 2005 by all firms listed on the Helsinki Stock Exchange (HEX). The choice between random effects model and firm fixed-effect estimations is based on the Hausman test. For the dividend model and the ownership model, we exclude extreme PAY-OUT values (> 800%). The t-statistics (in parentheses) are calculated using clustered standard errors, as suggested by Petersen (2009), and ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Hausman test indicates random effects as the more appropriate technique for the share repurchase model. In the third and fourth columns of Table 9, we report findings using that technique, again for both full sample and a balanced panel. The regression fails to detect any statistically significant determinants of share repurchases, as none of our explanatory variables enters with a significant coefficient. Even FOREIGN OWN, which has a positive and significant effect on share repurchases according to Table 6 results, is no longer significant. These results suggest that other firm-variables may exist behind the observed share repurchase patterns. Far fewer firms committed share repurchases than dividend payments during our sample years, which makes it difficult for a cross-sectional regression model to detect statistical patterns behind the behaviour.

Finally, we estimate two firm fixed-effects models with TAXED OWNERSHIP as the dependent variable, in columns 5 and 6 of Table 9. Both models indicate that the presence of tax-sensitive owners increases with high dividend payouts and decreases with high share repurchases (the latter finding is not statistically significant in the balanced panel, however). Furthermore, in the years after the reform, payouts have a negative effect on ownership by investors who were affected by the law change. The latter finding was not statistically significant earlier in Table 7, but now offers added support for the connection between ownership structure and the tax treatment of dividends.

Overall, the results in Table 9 are very consistent with the findings reported earlier, suggesting that firm-level effects that are controlled for in the panel data estimation were not driving our earlier results. The connection between ownership structure and dividend payouts becomes only stronger in these tests.

5.5. Extraordinary dividends

We finally examine firms' probability to pay extraordinary dividends. In Finland, corporate dividends are typically paid in one annual payment. However, a firm can at an extraordinary general meeting, obtain a permission to pay out a separate, extraordinary dividend. Recall that in Table 5, we considered ordinary dividend payouts separately from extraordinary dividends. In a given year, extraordinary dividends are rare in Finland. During our sample period, excluding the year 2003, extraordinary dividends were paid out in 19 firm-years out of a total sample of 524 (a probability of 3.6%). When year 2003 is included, the probability of extraordinary dividends jumps to 9.7%. The upcoming reform had a clear impact on extraordinary dividends. The percentage of firms paying extraordinary dividends in 2003 was thus 23.9%. Assuming that extraordinary dividend payment is a random event that follows a binomial distribution with the overall probability of 9.7% as the "success rate", the probability of getting as many as 32 events out of 134 in 2003 is highly significant at the 1% level (with a p-value of 0.0000).

Table 5 presented evidence of firms whose owners were affected by the tax reform altering their payout behaviour regarding regular dividends. In order to explore whether firms' extraordinary dividend payment behaviour was also driven by clientele issues, we observe differences in the sub-samples of firms that paid extraordinary dividends in 2003 and firms that did not. The average value for variable TAXED OWNERS is 67% for payees of extraordinary dividends, as compared to 53% for firms not paying extraordinary dividends. The difference between the averages is statistically significant at the one percent level ($t = 2.96$). We conclude that both ordinary dividend payouts and extraordinary dividend decisions were affected by the effect of the 2004 tax reform on firms' major shareholders.

6. Summary

Tax regime changes offer unique opportunities to study how firms as well as investors react. We provide evidence on changes in dividend and share repurchase policies, as well as changes in large portfolio holdings, around a major dividend tax reform that occurred in Finland in 2004. The reform introduced double taxation of corporate income, as after it, 70% of dividends are taxable income at the personal level. Among the five largest shareholders of each Finnish firm, on average 54% (25% of total equity) were affected adversely by the tax reform. We find that firms increased dividends during the last year of the old tax system, when dividends were still untaxed at the investor level. This behavior was significantly more prevalent in firms where a higher percentage of ownership was in hands of shareholders who were negatively affected by the reform. After the reform, dividend payouts decline across all firms. We also find a significant increase in share repurchases after the reform.

We also explore the determinants of ownership, and ownership changes. Payout policy variables seem to affect ownership structure of Finnish firms, so that investor groups that were affected by the reform altered their holdings depending on dividend payouts. However, while our evidence on firms' reaction to the tax reform is strong, we fail to find statistically significant evidence of investors doing so.

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