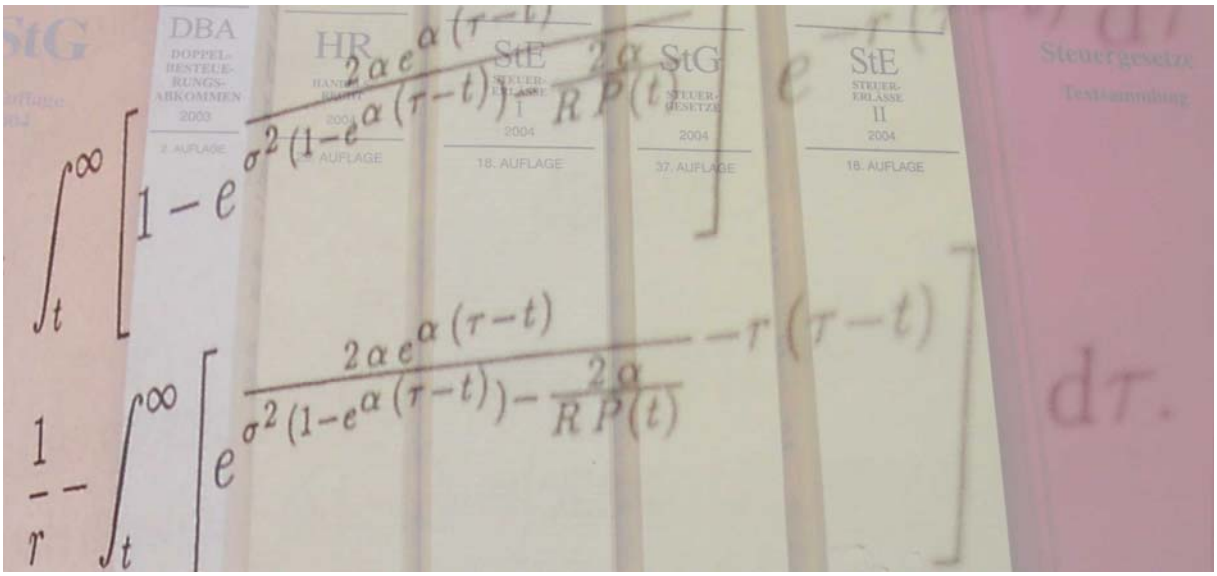
arqus

Arbeitskreis Quantitative Steuerlehre

www.arqus.info



Diskussionsbeitrag Nr. 117

Christian Haesner / Deborah Schanz

Taxes and the Valuation of Dividends:
A Study of Dividend Announcements in Germany

April 2011

arqus Diskussionsbeiträge zur Quantitativen Steuerlehre
arqus Discussion Papers in Quantitative Tax Research
ISSN 1861-8944

Taxes and the Valuation of Dividends: A Study of Dividend Announcements in Germany

Christian Haesner[a] and Deborah Schanz[b]

Chair of Taxation and Accounting, WHU – Otto Beisheim School of Management,
Burgplatz 2, 56179 Vallendar, Germany, phone: +49-261-6509 350
[a] *e-mail: christian.haesner@whu.edu*
[b] *e-mail: deborah.schanz@whu.edu*

April 2011

Abstract: This paper investigates the impact of the 2001 tax reform in Germany on dividend announcement returns. With this major tax reform, the full imputation system was replaced by the half-income system, which had a significant impact on the relative taxation of dividends and capital gains for most investor classes. In an event study framework, we separate the tax effect of dividends from their positive signaling and agency cost effects to offer a more comprehensive picture of the valuation implications of dividends in Germany. Controlling for signaling and agency cost effects of dividends we find that the market response to positive dividend surprises is more pronounced under the full imputation system, where dividends are generally more favorable to investors from a tax perspective, than under the half-income system. Our results suggest that the observed decline in the dividend response coefficient is synchronized with the 2001 tax reform and hence attributable to the 2001 tax reform.

JEL Classification: G35, G14, H3, G34

Keywords: Dividend Announcements, Taxation

---

1 Introduction

Miller and Modigliani argue that a differential taxation of dividends and capital gains has the potential to make dividends value-relevant. In equilibrium, any differential between dividend and capital gains taxes should be capitalized into equity share prices (Brennan, 1970). In the U.S., dividends were traditionally taxed at a higher rate than capital gains at the personal level. This tax penalty raises the question as to why dividends are paid at all. In contrast, under the full imputation system in Germany that has been effective until 2001, most investor classes, e.g. individual short-term and corporate investors, had a clear preference for dividends. So, it might be argued that there has been a tax rationale for dividend payments.

The 2001 Corporate Tax Reform in Germany (hereinafter 2001 tax reform or 2001TR) replaced the full imputation tax system by the half-income system and involved a fundamental change in the relative taxation of dividend income and capital gains for most investor classes thereby eliminating much of the tax advantage of dividend payments over capital gains. Thus, the 2001TR provides a good opportunity to shed light on the question of whether dividends in Germany have tax-related valuation effects.

This paper investigates the impact of the 2001TR by analyzing dividend announcement returns. Numerous empirical studies, especially for the U.S. market, have shown that dividends have positive valuation implications due to the signaling and agency cost effects (Aharony and Swary, 1980; Lang and Litzenberger, 1989; Yoon and Starks, 1995; Amihud and Li, 2006). Empirical studies on dividend announcement effects on the German stock market also show a positive (negative) market response to the announcement of dividend increases (decreases), suggesting that in Germany dividend changes have information content (Brandi, 1977; Sahling, 1981; Amihud and Murgia, 1997; Gerke, Oerke and Sentner, 1997; Heiden, 2002; Gugler and Yurtoglu, 2003). We examine how the market reacts to dividend surprises over the two tax systems and, in particular, how the market response is related to the differential taxation of dividend and capital income. In an event study framework we separate the tax effect of dividends from their positive signaling and agency cost effects to offer a more comprehensive picture of the valuation implications of dividends in Germany. To the best of our knowledge, there exist no other study on the tax effects on dividend announcement returns for the German stock market.

Under the full imputation system that has been in place until 2001, dividend income is tax advantaged for German investors that actively trade or have substantial stockholdings, for German individuals in lower tax brackets and for domestic corporations. Long-term individual investors in higher tax brackets prefer capital gains over dividend income. With the 2001 tax reform however there is a dramatic decline in the relative advantage of after-tax dividend income over capital gains for all domestic shareholders irrespective of the category of investor. Under the half-income system, most investor classes prefer capital gains over dividends or are at least indifferent between payouts or earnings retentions from a tax perspective. We therefore hypothesize that the share price response to a given magnitude of dividend surprise, i.e. the dividend response coefficient, should absolutely decrease over both tax regimes and that this decrease should be synchronized with the 2001TR.

Controlling for signaling and agency cost effects of dividends we find that the market response to positive dividend surprises is more pronounced under the full imputation system. Our results

indicate that the observed decline in the dividend response coefficient is synchronized with the 2001 tax reform. Using the individual firm's ownership structure we construct a holding clientele-based measure to proxy for the tax attributes of the marginal investor and to account for cross-sectional variations in individual investor's dividend taxation. Our holding clientele-based measure however produces inconclusive results, as we do not find considerable effects on dividend surprises resulting from cross-sectional variations in the dividend taxation.

The remainder of this paper is organized as follows. In the next section, we review the literature and the German tax environment and develop our hypotheses. Section 3 describes the research design, data and statistical methodology. The fourth section discusses the empirical results. Section 5 concludes.

2 Literature and Hypotheses

2.1 Signaling and Agency Cost Arguments of Dividends

Dividends have information content due to the existence of information asymmetries and incomplete contracts and they mitigate agency cost problems. The cash flow signaling hypothesis implies a monotonic positive relation between unexpected changes in dividend policy and changes in shareholder wealth as costly dividends can be used to signal future cash flow, thus reducing the level of information asymmetry (Bhattacharya, 1979; Miller and Rock, 1985; John and Williams, 1985).

Jensen considers the agency conflict between outside shareholders and inside managers and the agency cost effect of free cash flow. Firms with poor investment opportunities may reduce agency costs and thus increase shareholder value by distributing free cash flows to shareholders. Hence, paying dividends can be an effective instrument to prevent managers from investing in negative net present value projects, reducing the severity of the management-shareholder agency cost problem and enhancing firm value.

Gugler and Yurtoglu develop an alternative agency cost-based explanation of why dividend changes affect shareholder value which suits the particular Continental European and German corporate governance framework. In Germany, we observe a corporate governance system which is characterized by concentrated share ownership (Franks and Mayer, 2001; Becht and Boehmer, 2001; Faccio and Lang, 2002; Mayer, 2008; Andres, 2008) and weak minority shareholder protection (La Porta et al., 2000). Within such an institutional framework we expect, on the one hand, conflicts of interest between owners and managers in widely held firms but additionally, on the other hand, conflicts of interest between large block holders and minority shareholders in firms with concentrated ownership. Shleifer and Vishny formulate the rent extraction hypothesis which focuses on the conf1ict between the large controlling owner and the small outside shareholders and on the discretion and incentives of the controlling owner to extract private benefits of control. Gugler and Yurtoglu argue that dividends, as a pro-rata pay to all shareholders, are a device for limiting rent extraction at the burden of minority shareholders. Accordingly, dividend change announcements provide new information about this conflict. The rent extraction hypothesis also suggests that dividends are positively related to equity value.

Though distinct, the signaling and the agency cost theories of dividends are not mutually

exclusive. Both predict a positive market response to dividend surprises. Empirical evidence on U.S. data trying to separate both theories however is mixed with numerous studies supporting either the cash flow signaling hypothesis (Aharony and Swary, 1980; Yoon and Starks, 1995; Bernheim and Wantz, 1995; Amihud and Li, 2006) or the agency costs arguments of dividends (Lang and Litzenberger, 1989). Examining data on the German stock market from 1992 to 1998, Gugler and Yurtoglu provide some evidence in favor of the Jensen free cash flow and partially of the rent extraction hypothesis. Addressing the dividend signaling hypothesis by examining the post-announcement operating performance of German companies, Savov does not find any evidence that dividend increases convey information about future operating performance.

2.2 Dividends and Taxes

Amongst other approaches,[1] researchers have investigated whether and how a differential taxation of dividends and capital gains affects dividend announcement returns (Bernheim and Wantz, 1995; Li, 2007; Bajaj and Vijh, 1990; Siddiqi, 1997). Bernheim and Wantz explore time series variations in U.S. investors' taxation in order to differentiate between signaling models and other dividend-preference theories. Dividend signaling models predict that firm value is more sensitive to a more costly signal: For a given change in dividend yield there should be a monotonic relationship between the costs of the tax burden of dividends[2] and the market response to dividend surprises. On the other hand, agency cost arguments imply that an increase in relative taxation should decrease the after-tax value of dividends. Examining U.S. data from 1962 to 1988, Bernheim and Wantz show that the share price response per dollar of dividend is positively related to the relative after-tax income on dividends over the after-tax capital gains. This is consistent with the prediction of tax-based dividend signaling models.

In a more recent study using U.S. data from 1989 to 2000, Li provides evidence that the market response to dividend surprises decreases as the relative taxation of dividends and capital gains increases over several tax reforms. This is consistent with the argument that a dividend tax penalty partially offsets the positive signaling and agency cost effects of dividends. Furthermore, Li shows that this negative tax effect is mitigated by the presence of a marginal investor whose dividend income is relatively less tax-disadvantaged.

Other studies attempt to separate the tax and information effects of dividends by examining different tax clienteles. Bajaj and Vijh argue that if investors whose dividend income is tax advantaged are the marginal investors in high-dividend yield stocks, the price reaction to a dividend change should be larger, the higher the anticipated yield of the stock. Tax and information effects reinforce each other in high-yield stocks. Siddiqi uses ex-dividend day returns as a proxy for the identity of the marginal investor on the announcement day. Supporting Bajaj and Vijh, Siddiqi shows that abnormal returns are significantly more pronounced in stocks where the marginal investor has a tax preference for dividends rather than in tax penalized stocks.

[1] For example, the CAPM-based studies (Brennan, 1970) on the dividend tax capitalization hypothesis test whether a tax-penalized dividend yield is a priced factor (Litzenberger and Ramaswamy, 1979; Litzenberger and Ramaswamy, 1982; Black and Scholes, 1974; Fama and French, 1998; Dhaliwal, Zhen Li and Trezevant, 2003; Dhaliwal et al., 2005) while other works explores the effect of taxation on ex-dividend day price behavior (Elton and Gruber, 1970; Elton, Gruber and Blake, 2005; Whitworth and Rao, 2010) each approach yielding incloncusive results.

[2] dividends were tax-penalized relative to capital gains in the U.S. until 2003

For Germany, empirical studies that address the question of whether there are tax-related valuation effects of dividends primarily focus on ex-dividend day stock behavior (Bay, 1990; McDonald, 2001; Lasfer, 2008) or test whether a differential taxation of dividends and capital gains is capitalized into stock prices (Murphy and Schlag, 1999; König, 1990). Examining the tax-based dividend signaling hypothesis for Germany, Amihud and Murgia have been the first to address the differential taxation of dividends and capital gains to dividend announcements. They argue that under the full imputation system dividends are tax-advantaged for most investor classes and, hence, taxes do not constitute a form of signaling cost. Tax-based dividend signaling models predict that, absent the necessary conditions of higher dividend taxation, announcements of dividend changes should not induce a market reaction. However, Amihud and Murgia find positive (negative) announcement returns to dividend increases (decreases) suggesting that dividend changes have information content that is related to other factors.

2.3 The tax environment in Germany

To analyze the tax environment in Germany and the implications of the enactment of the half-income system in 2001, we construct a tax discrimination variable in line with Poterba and Summers and Schulz that captures the tax differential between dividends and capital gains. In the simple case of a classical tax system, the ratio of the after-income tax on dividends over the after-tax capital gains is

$$\Theta_y = \frac{1-\tau_y^{c,d}}{1-\tau_y^{c,re}} \cdot \frac{1-\tau_y^{d}}{1-\tau_y^{g}}$$

where $\tau_y^{c,d}$ is the firm level tax rate if year y's earnings are distributed, $\tau_y^{c,re}$ is the firm-level tax rate if earnings are retained, τ_y^{d} is the effective investor-level income tax rate on dividends, and τ_y^{g} is the effective income tax rate on capital gains. The German local business tax is neglected because it is levied on both retained and distributed earnings and has not been changed systematically in the course of the 2001TR. Θ_y assumes that one unit of retained earnings generates one unit of capital gains.[3] If Θ_y is larger than unity then, from a tax perspective, investors will prefer dividend income over capital gains.

Until the 2001TR, Germany operated a combination of a split-rate corporate tax and full imputation tax system. At firm level, distributed profits were subject to a lower corporate tax rate of 30% than retained earnings (45% until 1998 and 40% thereafter). Under the full imputation system, dividends paid by domestic corporations entitled domestic taxable investors to a tax credit equal to $\tau^{c,d}/(1-\tau^{c,d})$ per dividend received. Dividends are effectively not taxed at the firm level as domestic taxable investors are eligible to claim the full corporation tax paid on dividends. There is still an additional tax on distributed profits, a withholding tax, τ^{wh}, of 25%, that is deducted at source from the dividend paid to shareholders. This tax, however, can also be fully claimed by domestic investors against their income tax liability. Formally, the ratio of the after-income tax on dividends over the after-tax capital gains under the full imputation

[3] It is implicitly assumed that retained earnings are reinvested in capital value-neutral projects and are not paid out in the future. Moreover, dividend and capital gains taxes are supposed to be paid simultaneously.

system for domestic investors is

$$\Theta_y^{FI} = \frac{1}{1-\tau_y^{c,re}} \cdot \frac{1-\tau_y^d}{1-\tau_y^g}.$$

The relative tax preference for dividends over capital gains generally depends on the tax status of the different type of shareholder. We consider two categories of shareholders: Domestic individual investors (i.e. German citizens) and taxable German corporate investors (i.e. commercial and industrial firms, financial institutions and insurers).

For *domestic individual investors*, dividends are effectively subject only to the individual income tax rate. The individual income tax rate, τ_y^{ind}, declines from a range of 25.9% to 53.0% in 1996 to a range of 19.9% to 48.5% in 2000/2001. Long-term capital gains from shares that are held for more than six months[4] are tax-exempt for individual shareholders if they have no substantial interest in these shares. The threshold for non-substantial interest is defined as shareholdings below 25% up to 1998, below 10% from 1999 to 2001, and below 1% thereafter. Short-term capital gains and capital gains for shareholders with substantial interest are taxed at the personal income rate. Both, corporate and individual tax rates are increased by a solidarity surcharge. The solidarity surcharge decreases from 7.5% to 5.5% over the sample period. *German corporations*' dividend and capital gain income is fully taxed at the corporate level. However, for dividends, the full tax credit is granted to corporate shareholders, thus, dividends are again only taxed once. The applicable tax rate of the dividend receiving corporation depends on whether the earnings of the target company are retained or distributed.

Table 1 reports a numerical simulation of Θ_{yj} for different investor classes j, i.e. high and low tax-bracket individual investors, corporate investors and foreign investors. The tax discrimination variable is calculated for individual investors in the highest and lowest tax bracket and further divided into investors whose capital gains are taxable (τ_y^g = stand.) and investors with tax-exempt capital gains ($\tau_y^g = 0$). If capital gains are taxed with the nominal personal income tax rate (τ_y^g = stand.) as a result of selling substantial holdings or holding stock for less than six months, then Θ_{yj} is the inverse of the after-tax retained earnings, i.e. $1/(1-\tau_y^{c,re})$. Long-term individual investors with non-substantial interests do not pay any capital gains taxes. Here, for high tax payers, Θ_{yj} is 0.83 in 1996, decreases to 0.80 in 1999, and (due to a reduction in personal income tax rates) increases slightly to 0.84 in 2000/2001. For long-term individual investors in the lowest tax bracket, Θ_{yj} is 1.40 in 1996, and moves through a series of smaller changes in tax rates to 1.37 in 2000/2001. For corporate investors, capital gains are taxed as corporate income, so that the relative tax burden for corporations is equal to that of individuals with taxable capital gains.[5]

Under the full-imputation system, dividend income is preferred by German investors that actively trade or have substantial stockholdings, by German individuals in lower tax brackets and by domestic corporations. Long-term individual investors in higher tax brackets and foreign investors prefer capital gains over dividend income.

[4] After 1999 a stock has to be held for at least one year in order to receive tax free capital gains.

[5] Although domestic corporate investors must treat realized capital gains as normal taxable income they may always have deferred capital gains taxation through a buy-and-hold strategy. Hence, the tax preference for dividends could be considerably lower under both, the full imputation and the half-income system.

With the 2001TR, there is a dramatic decline in the relative after-tax dividend income over capital gains for most investor classes. With the replacement of the full imputation system by the half-income system only half of the distributed profits of a corporation are included in the shareholders' taxable base. In return, the imputation of corporate tax credits is no longer possible and corporate income is taxed consistently, irrespective of whether profits are distributed or retained within the firm. Formally we can write the tax discrimination variable under the half-income system as

$$\Theta_y^{HI} = \frac{1 - 0.5\tau_y^d}{1 - 0.5\tau_y^g}.$$

Table 1 shows that Θ_{yj} declines with the 2001TR irrespective of the category of investor. Individual investors whose capital gains are taxable with the nominal income tax rate and corporate investors are now indifferent between dividend income and capital gains, $\Theta_{yj} = 1$. Long-term individual investors with non-substantial interest now always prefer capital gains over dividend income: For investors in the highest tax bracket, Θ_{yj} declines from 0.84 for dividends paid out of year 2000 earnings to 0.74 in 2001 and from 1.37 to 0.90 for low-taxed investors. The increase in the tax discrimination variable from 2001 to 2006 for individual investors whose capital gains are tax exempt is attributable to the decrease in the personal income tax rates.

So far, we did not consider foreign investors. While a description of global taxation is far beyond the scope of this article, we briefly outline some general important issues. Foreign investors are not entitled to a tax credit by the German fiscal authorities, i.e. the corporate tax credit and the withholding tax, and might be subject to double taxation with regard to dividends under the full imputation system. Moreover, over the last decades dividend income has generally not been tax favored relative to capital gains for foreign investors in most major

Table 1: Tax Discrimination Variable Θ_{yj}

Year	Regime	Individual Investor				Corporate Investor
		Highest Tax Bracket		Lowest Tax Bracket		
		τ_y^g = stand.	$\tau_y^g = 0$	τ_y^g = stand.	$\tau_y^g = 0$	
1996	FI	1.94	0.83	1.94	1.40	1.94
1997	FI	1.94	0.85	1.94	1.41	1.94
1998	FI	1.90	0.84	1.90	1.42	1.90
1999	FI	1.73	0.80	1.73	1.31	1.73
2000	FI	1.73	0.84	1.73	1.37	1.73
2001	FI/HI	1.73/1.00	0.84/0.74	1.73/1.00	1.37/0.90	1.73/1.00
2002	HI	1.00	0.74	1.00	0.90	1.00
2003	HI	1.00	0.76	1.00	0.92	1.00
2004	HI	1.00	0.78	1.00	0.92	1.00
2005	HI	1.00	0.78	1.00	0.92	1.00
2006	HI	1.00	0.78	1.00	0.92	1.00

This table presents the evolution of the tax discrimination variables, Θ_{yj}, for different investor classes j, where y is the fiscal year for that a dividend is paid or earnings are retained under the assumption that announcement and payment is made in the following calendar year. The tax discrimination variable is the ratio of investor's after-tax dividend income over the after-tax capital gains assuming that 1 unit of retained earnings generates 1 unit of capital gains. FI is the full imputation system until 2001 and HI is the half-income system. Investor classes are individual investors in the highest and the lowest tax bracket and corporate investors Θ_{yj} is calculated for individual investors whose capital gains are taxable, τ_y^g = stand., and indivudual investors with tax-exempt capital gains, $\tau_y^g = 0$. For a description of the calculation of Θ_{yj} for different investor classes under both tax system see section 2.3.

countries.[6] Thus, it seems reasonable to expect that most foreign investors should prefer capital gains over dividends under the full imputation system. With the removal of the dividend tax credit, foreign investors are no longer tax-disadvantaged compared to German investors by not receiving an imputation credit. In contrast, the introduction of the symmetric taxation of retained and distributed corporate income with the 2001TR increases the after-tax value of capital gains. We assume that the relative tax preference of dividends over capital gains does not substantially change with 2001TR for most foreign investors.

To conclude, the arguments suggest that the share price response to a magnitude of dividend surprise should absolutely decrease over the sample period with a sharp decline around the 2001 tax reform. However, if domestic individual investors in the highest tax bracket, whose capital gains are not taxed, are the marginal investors, the decline should be less distinct.

2.4 Hypotheses

Under the full German full imputation system dividends are not tax-disadvantaged and in fact are taxed lower for most investor classes until 2001. In absence of the necessary conditions for tax-based signaling models of higher dividend taxation, the empirical findings of Amihud and Murgia and other studies on the German stock market suggest that factors other than tax-based signaling might explain the information content of dividend surprises. For example, prior empirical examinations of dividend surprises in Germany find agency-cost related factors that can explain announcement returns. However, prior studies do not explicitly control for dividend tax effects. Since lower tax rates on dividends relative to capital gains increase the after-tax value of dividends over capital gains, this tax effect should reinforce the positive signaling and agency cost effect. Hence, if we do not control for tax effects, the positive market reaction to unexpected dividend announcements is overestimated. In contrast, if dividends are tax-disadvantaged relative to capital gains for the marginal investor, a tax penalty should partially offset the positive announcement returns to dividend surprises. We therefore formulate the following hypothesis:

Hypothesis 1 *The relative after-tax income of dividends and capital gains, measured by Θ, is positively related to the market response to a given magnitude of dividend surprise. Thus, the market reaction to dividend surprises is more pronounced if the tax rate on dividends is lower than on capital gains.*

Our analysis of the German tax framework suggests that with the replacement of the full imputation tax system by the half-income system, the relative after-tax income of dividends to capital gains is reduced for most investor classes. Our second hypothesis therefore is:

Hypothesis 2 *Attributable to the 2001 tax reform, the market reaction to a given magnitude of dividend announcement is stronger under the full imputation system than under the half-income system.*

While hypothesis 2 considers the time-series variations in the relative taxation of dividends and capitals gains, one might also expect to observe tax-related valuation effects due to cross-

[6] La Porta et al. and Ferreira, Massa and Matos survey dividend tax preferences for long-term investors in most major countries in 1995 and 2007, respectively.

sectional variations in investors' taxation. In situations where the marginal investor's dividend income is relatively less tax-disadvantaged as compared to other investors, one would expect this tax effect to reinforce the signaling and agency cost effects. In contrast, the announcement returns for stocks that are traded by relatively dividend-tax-disadvantaged investors might be expected to be mitigated by a negative tax effect. We will proxy for the identity of the marginal investor using a holding-clientele based measure. Our third hypothesis is:

Hypothesis 3 *In the presence of investors whose dividend income is relatively less tax-disadvantaged compared to other investors, the market reaction to a given magnitude of dividend surprise is more pronounced.*

3 Research design

Theory of market efficiency (Fama and French, 1998) suggests that the market response to dividend announcements is positively related to the unexpected part of the announcement. The information content of the magnitude of the unexpected portion of the dividend announcement is measured by the dividend response coefficient, α_1:

$$AR = \alpha_0 + \alpha_1 \textit{Dividend surprise} + \epsilon.$$

If a dividend surprise provides new information to the market, the dividend response coefficient, which Bernheim and Wantz call the "bang-for-the-buck", is expected to be positive ($\alpha_1 > 0$). Positive dividend surprises induce positive abnormal returns (AR) around the dividend announcement, and vice versa. We test how the relative taxation of dividends and capital gains influence the market response to a given magnitude of dividend surprise, α_1.

3.1 Measurement of abnormal returns

We measure the market response to the announcement of dividend payments using standard event-study methodology. Based on the market model (Brown and Warner, 1985), the abnormal return AR_{it} for firm i on day t is calculated as $AR_{it} = R_{it} - (\widehat{\alpha_i} + \widehat{\beta}_i R_{mt})$, where R_{it} is the return of firm i on day t, and R_{mt} is the return on the CDAX value weighted market index[7] on day t. The coefficients $\widehat{\alpha_i}$ and $\widehat{\beta}_i$ are OLS estimates obtained from regressions of firm i's daily returns on the market return over the estimation window [-121;-2] relative to the announcement day ($t = 0$)). We use two measures of abnormal returns: The cumulative average abnormal returns for N stocks observed, $CAAR_{-1,+1}$, measured over the three-day interval centered on the event day and the average abnormal return on the announcement day, AAR_0. The statistical tests are based on the standardized cross-sectional t-statistic proposed by Boehmer, Musumeci and Poulsen and the non-parametric Corrado test statistic.[8]

[7] The CDAX is a broad, value-weighted German index and comprises all shares listed in the prime and general standard on the Frankfurt stock exchange.

[8] While the Boehmer, Musumeci and Poulsen test statistic is robust against event induced increases in the variance of abnormal returns, the rank test of Corrado is robust against event clustering, i.e. overlapping event windows. This is particularly useful within the German institutional framework, where most dividend announcements are made annually in the first months of the year.

3.2 Measurement of Θ

The standard approach to measuring the relative tax burden on dividends and capital gains assumes that each investor's tax parameters affect the aggregate tax preference for dividends over capital gains in proportion to the investor's ownership of corporate stock (Poterba, 2004). In line with the studies of Bernheim and Wantz and Li, we use an aggregate tax discrimination variable, Θ_y. We calculate Θ_y for each year y of our sample period applying aggregate equity ownership weights w_{yj} for each investor class j to investor class j's tax discrimination variable Θ_{yj}:[9]

$$\Theta_y = \sum_{j=1}^{k} w_{yj} \cdot \Theta_{yj}.$$

The tax discrimination variables for different investor classes, Θ_{yj}, are provided in table 2. Following da Silva, Goergen and Renneboog the ownership weights w_{yj} are gathered from stock market statistics provided by the German central bank in Deutsche Bundesbank. This source provides yearly information of the total holdings of German stocks for the following sectors: Private households, non-financial domestic corporations, public authorities, domestic monetary financial institutions (e.g. public and private banks), domestic other financial institutions (mainly open investment funds), insurance companies and non-residents. We consider the first shareholder level. The taxation of shareholders at lower levels of a pyramid ownership structure are ignored.[10] Although Θ_y does not measure the tax treatment of any particular investor it reflects the movements in the relative taxation of dividends and capital gains over the sample period.

For our analysis private households and domestic other domestic financial institutions are summarized in the individual investor class. Other domestic financial institutions mainly comprise investment funds that can be supposed to be ultimately owned by private investors. We assume that individual investors are long-term investors without substantial interest. We further suppose that it is predominantly the more wealthy individuals who invest in shares, thus individual investors are assumed to be taxed in the highest tax bracket. In the class of corporate investorwe sum up the holdings of non-financial domestic companies, public authorities, domestic monetary financial institutions, and domestic insurance companies.

Table 2 shows the percentages of shares traded on German stock exchanges that were in hands of our domestic individual investor and domestic corporate investor classes along with the resulting sample mean Θ_y for the years 1996 to 2006. The ownership share assigned to individual investors is relatively stable over the sample period varying between around 29.3% to 35.7%. The aggregate tax discrimination variable decreases from 1.61 for dividends paid out of results for fiscal years ending in 1996 to 1.44 in 2000. In year 2001 we observe a significant drop

[9] To account for minor differences in the annual tax discrimination variable between firms with calendar and firms with non-calendar fiscal years, we use the following calculation method of Θ_y: We first calculate the total tax burden on dividends and capital gains for each investor class for a specific firm-year observation. Thereby, we consider the specific ex-dividend date of that observation and the investor's tax rates applying to dividends paid on that date. For example, if a dividend is paid out of income earned in a fiscal year ending in the same calendar year where the dividend is paid, different tax rates may apply than in cases where the dividend is paid in the next calendar year. Then, we weight the resulting Θ_{yj} for the respective investor class for each firm-year observation with the aggregate ownership weights of the calendar year in which the fiscal year ends.

[10] This assumption is reasonable since top-level shareholders can optimize their own cash flow to the ultimate owner.

in Θ_y to 0.92 for firms with calendar year-ends that follow the rules of the half-income system for the first time. For firms with non-calendar fiscal year-ends we obtain a tax discrimination variable of 1.44 for year 2001. With the 2001TR, dividends become relatively tax-disadvantaged with respect to capital gains. The tax discimination variable ranges from 0.91 in 2002 to 0.93 in 2006.

3.3 Measurement of dividend surprises

It is crucial to use an appropriate measure of dividend surprises. If markets are assumed to be semi-strong efficient in the Fama-sense, stock price reactions should only occur if we observe dividend changes that deviate from their expected change, hence if they are unanticipated by the market. Nevertheless, the majority of empirical studies uses a naïve expectation model as a proxy for market expectation which makes the simplifying assumption that the expected dividend equals the previous dividend paid out (Amihud and Murgia, 1997; Gerke, Oerke and Sentner, 1997; Gugler and Yurtoglu, 2003). In Germany, the time horizon for the market to process public information into security prices, however, is relatively long as dividends are usually paid on an annual basis. Thus, with yearly dividend payments this naïve model may imply large forecast errors. Indeed, Andres et al. (2011) show that share prices react to the surprise component of the announcement, not to the dividend change per se. We therefore use analysts' forecasts as proxy for market expectations. Dividend surprises are proxied by the dividend estimation error which is calculated as the difference between the actual dividend and the corresponding analysts' forecast. In section 4.1 we provide evidence that suggests the use of the dividend estimation error rather than the change in dividend as the appropriate measure for dividend surprises.

Table 2: Evolution of Aggregate Tax Discrimination Variables Θ_y

Year	Regime	Individual Investor		Corporate Investor		Θ_y
		Θ_{yj}	%	Θ_{yj}	%	
1996	FI	0.83	29.3	1.94	70.7	1.61
1997	FI	0.85	30.6	1.94	69.4	1.60
1998	FI	0.84	34.4	1.90	65.6	1.54
1999	FI	0.80	35.7	1.73	64.3	1.41
2000	FI	0.84	32.8	1.73	67.2	1.44
2001	FI/HI	0.84/0.74	33.2	1.73/1.00	66.8	1.44/0.92
2002	HI	0.74	34.3	1.00	65.7	0.91
2003	HI	0.76	33.9	1.00	66.1	0.92
2004	HI	0.78	34.0	1.00	66.0	0.92
2005	HI	0.78	33.3	1.00	66.7	0.93
2006	HI	0.78	30.9	1.00	69.1	0.93

This table presents the evolution of the economy-wide aggregate tax discrimination variable Θ_y from 1996 to 2006, and of the shareholdings of domestic individual and of corporate investors, which are the aggregate equity ownership weights w_{yj} for investor's Θ_{yj} in each sample year y (source: Deutsche Bundesbank (2008)). Individual investors are assumed to have non-substantial long-term interest, thus capital gains are not taxed on the personal level. Capital gains of corporations and institutions, however, are taxed with nominal tax rates on the personal level.

3.4 Data

The initial sample for our analysis comprises all firms included in the DAX, MDAX, or SDAX[11] index as of December 31, 2002 (i.e. the 150 largest exchange-listed German firms). Our sample period covers the years 1996 to 2006. German firms pay dividends on an annual basis. Thus, our sample potentially consists of 1,650 firm-year observations. We exclude 312 firm-year observations, because it was not possible to identify the exact dividend announcement date. Data on announcements are obtained from Reuters newswires. All accounting data items and share price data are obtained from Thompson Financial's Datastream database.

In line with Amihud and Li, we exclude firms in the financial service sector (122 firm-year observations). In addition, firm-years in which a firm has a control agreement[12] in place (7 firm-years), or years in which firms acted as either acquirer or target in a corporate transaction (11 firm-years) are dropped from the sample. 31 firm-year observations are excluded because of missing data items. We keep those observations where a dividend and earnings announcement were made on the same date. In order to control for the information conveyed by the earnings announcement, we include the earnings surprise as a control variable in our analysis. We exclude 65 contaminated observations in which other value-relevant information (e.g. restructurings, changes in the board etc.) is released on the same day as the dividend announcement. This procedure results in a sample of 1,102 firm-year observations.

Andres et al. (2011) show that the dividend expectation error based on analysts' forecasts is a more appropriate measure of dividend surprises than dividend changes (naïve expectation model). We employ I/B/E/S analysts' forecasts[13] as a proxy for the market's expected dividend payments. We use the arithmetic mean of the final dividend forecasts made by the analysts following a firm prior to the dividend announcement. Observations are excluded when no analyst forecasts are available for the three months preceding the dividend announcement. We require a firm to be covered by at least two analysts in any one year. This requirement leads to the exclusion of another 181 firm-year observations and reduces the final sample to 921 firm-year observations.

Some of our sample firms (21 firms in 2002) have issued multiple share classes, usually shares that carry a voting right along with non-voting preference shares. In these cases, we only include the share class for which analyst forecasts are available in our sample.[14] Special dividends are included in our dividends per share measure. It has been pointed out in the literature (Goergen, Renneboog and da Silva, 2005; Andres et al., 2009) that special dividends frequently reflect permanent changes in dividend policy rather than transitory increases. However, large one-off payments - which are associated with special anniversaries or the sale of subsidiaries - are

[11] The DAX (largest firms), MDAX (mid caps), and SDAX (small caps) are the three major indexes of Deutsche Börse AG for firms from classic market sectors.

[12] Control agreements are defined as agreements between a company and its parent company and take the form of either Profit and Loss Agreements or Subordination of Management Agreements.

[13] Data are taken from the Institutional Brokers' Estimate System (I/B/E/S) summary file. Support for the use of I/B/E/S forecasts as proxy for market expectation comes from Brown et al. (2008), who document that I/B/E/S dividend forecasts are an accurate proxy for market expectations in Germany as the dividend forecast error is relatively low.

[14] It should be noted that focusing on one of the two share classes should not induce a bias in our analysis. A closer look at these firms reveals that dividends on ordinary shares usually change along with dividends on preference shares, a finding that confirms the observations of Goergen, Renneboog and da Silva on German firms during the period from 1984 to 1993.

excluded. This procedure is also in line with previous studies on the dividend policy of German firms (Behm and Zimmermann, 1993; Goergen, Renneboog and da Silva, 2005; Andres et al., 2009).

We classify dividend announcements into three categories: Announcements that are 2.5% higher (lower) than the expected dividend are classified as good (bad) news. If the announced dividend lies in between the 5% range around the expected dividend, the announcement is classified as no news. We also classify dividend announcements into dividend increases and decreases using a 2.5% threshold. Dividend change by less than 2.5% are considered as unchanged dividends since many of these small changes reflect rounding changes.[15] In 541 out of the 921 firm-year observations (59%), firms increased their dividends, 291 observations (32%) are associated with maintained dividends, and in only 89 firm-years (10%) dividend payments were reduced. 349 announcements (38%) were considered to be good news, 329 observations (36%) were classified as bad news. The distribution of dividend increases, decreases and unchanged dividends mirrors broad market movements over the sample period suggesting that the composition of our sample is representative of all exchange-listed firms. The distribution of good news and bad news announcements however is are relatively homogenous over the sample period.

4 Empirical Results

4.1 Dividend Announcements Effects and Market Expectations

Table 3 reports the event study results for unexpected dividends and dividend changes. Good news and bad news announcements are further subdivided into dividend increases, decreases and unchanged dividends. Dividend increases and decreases are further subdivided into good news, bad news, and no news announcements (as defined in section 3.4). We do not report results for two subgroups with ten observations or less.

Our results show that dividend announcements that are good news to the market trigger positive AAR_0, of 0.89% and a three-day $CAAR_{-1,+1}$ of 1.29% (both highly significant). Thereby, positive dividend surprises are associated with positive abnormal returns, irrespective of whether dividends are increased or unchanged and of whether returns are measured on announcement day or the three-day interval around the announcement. In contrast, announcements of dividend increases are not necessarily associated with positive abnormal returns if these announcements are bad news to the market. While the AAR_0 for all dividend increases amounts to 0.71% and the three-day $CAAR_{-1,+1}$ is 1.11%, abnormal returns on the event day are negative if the market expected an even higher increase. Bad news are associated with significantly negative abnormal returns on the announcement day. Dividend decreases also trigger a significantly negative share price reaction on and around the event day. In both cases the share price reactions are more pronounced when the dividend decrease represents bad news.[16]

[15] Rounding changes are usually due to stock splits or currency conversions from Deutsche Mark to Euro. It should be noted that Amihud and Li use a threshold of 0.5%. Their sample is based on U.S. firms, which pay dividends on a quarterly basis, leading to small changes. Since German firms pay dividends on a yearly basis, dividend changes are usually comparatively large.

[16] In the other two cases (dividend reductions that are good news or no news) the number of observations is too small to report reliable results.

Table 3: Dividend Announcement Effects

	Obs.	AAR_0	T-Stat.	Corrado	$CAAR_{-1,+1}$	T-Stat.	Corrado
				Unexpected Dividends			
Good News	**349**	**0.89%**	**5.64*****	**5.58*****	**1.29%**	**5.83*****	**4.96*****
Increases	309	0.94%	5.27***	5.19***	1.35%	5.49***	4.54***
Decraeses	9	-	-	-	-	-	-
No Change	31	0.57%	2.28**	2.12**	1.09%	1.95*	1.90*
Bad News	**329**	**-0.25%**	**1.58**	**-2.38****	**0.11%**	**0.11**	**0.10**
Increases	107	-0.10%	-0.54	-0.85	0.18%	0.44	0.12
Decreases	72	-0.93%	-3.51***	-3.58***	-0.52%	-1.69*	-0.86
No Change	150	-0.22%	-0.01	-0.07	0.36%	0.74	0.94
				Dividend Changes			
Increases	**541**	**0.71%**	**4.84*****	**4.46*****	**1.11%**	**5.36*****	**4.60*****
Good News	309	0.94%	5.27***	5.19***	1.35%	5.49***	4.54***
Bad News	107	-0.10%	-0.54	-0.85	0.18%	0.44	0.12
No News	125	0.84%	2.48**	2.37**	1.34%	2.33**	3.07***
Decreases	**89**	**-0.85%**	**-3.42*****	**-3.48*****	**-0.29%**	**-1.16**	**-0.35**
Good News	9	-	-	-	-	-	-
Bad News	72	-0.93%	-3.51***	-3.58***	-0.52%	-1.69*	-0.86
No News	8	-	-	-	-	-	-

This table presents the average abnormal returns on the announcement date, AAR_0, and the cumulative average abnormal returns, $CAAR_{-1,+1}$, over the event window [-1;+1] estimated by the market model. The market index return is the return realized by the CDAX value-weighted index and the coefficients $\widehat{\alpha_i}$ and $\widehat{\beta_i}$ are OLS estimates obtained from regressions of firm i's daily returns on the market return over the estimation window [-121;-2] relative to the announcement day ($t = 0$)). Dividend announcements are classified in unexpected dividends and dividend changes. Good news and bad news announcements are subdivided into dividend increases, decreases and unchanged dividends. Dividend increases and decreases are subdivided into good news, bad news, and no news. The respective classification threshold is 2.5%. The test statistic proposed by Boehmer et al. (1991) and the non-parametric test statistic of Corrado (1989) are reported in columns 4 and 5 and in columns 7 and 8, respectively. Asterisks denote statistical significance at the 0.01(***), 0.05(**) and 0.10(*)-level.

Our results clearly show that market expectations are an important determinant of the market response to dividend announcements. However, the descriptive analysis does not answer the question of whether the dividend surprise has explanatory power once we control for the dividend change. We therefore employ a multivariate regression framework to test whether market expectations or dividend changes are the determinants of dividend announcement returns. We estimate three panel models based on the following equation:

$$\begin{aligned} CAR_{iy} = \alpha_0 + \alpha_1 DIVERR_{iy}\delta_1 + \alpha_2 CDIVY_{iy}\delta_2 + \alpha_3 EPSERR_{iy} \\ + \sum_{y=1}^{11} \alpha_{8y} YEAR_{yi} + \sum_{m=1}^{16} \alpha_{9m} IND_{mi} + e_{iy}. \end{aligned} \tag{1}$$

In line with Bernheim and Wantz, CAR_{iy}, for stock i in year y is measured over the event window [-1;+1] relative to the announcement date. The dividend estimation error, $DIVERR_{iy}$, is calculated as $(DIV_{iy} - ESTDIV_{iy})/P_{iy}$, where DIV_{iy} is the total (adjusted) dividend per share for stock i announced for year y, $ESTDIV_{iy}$ is last I/B/E/S consensus mean dividend estimate before the dividend announcement, and P_{iy} is the share price 14 days before the dividend announcement. The change in dividend yield, $CDIVY_{iy}$, is defined as $(DIV_{iy} - DIV_{iy-1})/P_{iy}$, where $DIV_{i,y-1}$ is the total (adjusted) dividend per share for stock i for the preceding year $y-1$.

In order to differentiate between the information content of the dividend estimation error and of the change in dividend we first estimate the information content of the dividend estimation error and exclude $CDIVY_{iy}$ from the model, i.e. $\delta_1 = 1$ and $\delta_2 = 0$. The second specification estimates the information content of the magnitude of the change in dividend yield, i.e. $\delta_1 = 0$ and $\delta_2 = 1$, and the third version includes both variables of interest, $DIVERR_{iy}$ and $CDIVY_{iy}$, i.e. $\delta_1 = 1$ and $\delta_2 = 1$.

In order to disentangle the effects of simultaneous dividend and earnings announcements on share prices, we include the earnings surprise as explanatory variable. The earnings estimation error, $EPSERR_{iy}$, is measured as $(EPS_{iy} - ESTEPS_{iy})/P_{iy}$, where EPS_{iy} covers diluted (adjusted) earnings per share for stock i announced for year y and $ESTEPS_{iy}$ is the estimated earnings per share based on the last I/B/E/S consensus estimates prior to the announcement. We set $EPSERR_{iy}$ equal to zero if the earnings and dividend announcements dates do not coincide. We expect a positive relationship between earnings surprises that accompany dividend surprises and the market response, $\alpha_3 > 0$.

To control for possible time variations due to time-related factors such as market sentiment, the model includes time dummy variables: $YEAR_{yi}$ equals one if firm i's announcement is made in year y and zero otherwise. IND_{mi} is an industry dummy variable following the classification of Deutsche Börse AG. All control variables are measured before the event and hence are known to investors by the time of the announcement.

Table 4: Cumulative Abnormal Returns and Market Expectations

	Unexpected Dividends			Dividend Changes		
	(1-1)	(1-2)	(1-3)	(1-1)	(1-2)	(1-3)
DIVERR	1.1069	-	1.0953	1.1569	-	0.9872
	(5.10)***		(3.56)***	(5.07)***	***	(2.95)***
CDIVY	-	0.4694	0.0095	-	0.5133	0.1426
		(2.38)***	(0.05)		(2.96)***	(0.68)
EPSERR	0.0337	0.0346	0.0333	0.0125	-0.0074	0.0050
	(1.04)	(1.01)	(1.02)	(0.68)	(-0.33)	(0.25)
Constant	-0.0033	-0.0040	-0.0160	0.0005	0.0004	0.0005
	(-0.51)	(-0.50)	(-1.63)	(0.07)	(0.05)	(0.06)
Year Dummies	YES	YES	YES	YES	YES	YES
Industry Dummies	YES	YES	YES	YES	YES	YES
N. of obs	678	678	678	630	630	630
R^2	0.0874	0.0678	0.0874	0.0819	0.0654	0.0828

This table presents the results of equation 1 on the determinants of cumulative abnormal returns (random effects GLS-regressions) for unexpected dividends, i.e. good news and bad news announcements and dividend change, i.e. dividend increase and decrease announcements. CAR is estimated over the event window [-1;+1] estimated by the market model. The market index return is the return realized by the CDAX value-weighted index and the coefficients $\widehat{\alpha_i}$ and $\widehat{\beta_i}$ are OLS estimates obtained from regressions of firm i's daily returns on the market return over the estimation window [-121;-2] relative to the announcement day). The dividend estimation error $DIVERR$ is calculated as the difference of the total adjusted dividend per share and the estimated dividend using the last I/B/E/S consensus mean estimates before the dividend announcement, standardized by the adjusted share price 14 days before the dividend announcement. $CDIVY$, is the change in adjusted dividends standardized by share price. $EPSERR$ is the deviation of diluted (adjusted) earnings per share from the estimated earnings per share using the last I/B/E/S consensus estimates before the announcement standardized by share price. $EPSERR$ is set to zero if the earnings and dividend announcements dates do not coincide. The models include year and industry dummy variables corresponding to the classification of Deutsche Börse AG. T-statistics from robust standard errors appear in parentheses. Asterisks denote statistical significance at the 0.01(***), 0.05(**) and 0.10(*)-level.

We estimate three panel models based on equation 1 for the classifications of all unexpected dividends, i.e. good news and bad news, and of all dividend changes, i.e. dividend increases and decreases. We use the random effects estimator which is favored over the fixed effects estimator

based on a Hausman test.

The results presented in table 4 strongly confirm that market expectations have a significant explanatory power for dividend announcement returns. The coefficients of the dividend error variable are positive and highly significant while the coefficients of the change in dividend yield are insignificant when both variables are included (specification 1-3 for unexpected dividends and dividend changes). This suggests that dividend surprises and not dividend changes drive the cumulative abnormal returns.

Our results also show that dividend surprises better explain abnormal returns than unexpected earnings announcements that are made on the same day. The coefficients of $EPSERR$ are insignificant for all model specifications in both classifications. This result is contrary to findings in the literature (Leftwich and Zmijewski, 1994; Conroy, Eades and Harris, 2000) but supports the findings of Cheng, Fung and Leung who also document that dividend surprises exert a stronger pricing effect than simultaneous earnings announcements.

The results presented in this section show that the naïve dividend announcement model seems to be misspecified in the German institutional framework where regular dividends are paid annually. Treating all dividend changes as surprises does not account for the ability of market participants to incorporate information in stock prices when it first becomes available. Our results support the findings of Andres et al. (2011) and strongly suggest the use of dividend surprises rather than dividend changes. Henceforth, we therefore use $DIVERR_{iy}$ as a measure for dividend surprises and test our hypotheses for the classification of good news announcements.[17]

4.2 Evidence of tax effects

A positive market response to positive dividend surprises is predicted by both, the signaling and the agency cost theories. To the extent that the tax rate on dividends is historically lower than that on capital gains under the full imputation system, we expect this tax differential to strengthen this positive market response to dividend surprises. While we do not attempt to isolate the effects of the signaling and agency cost theories, it is necessary to control for possible time-variations in the effects of signaling and agency cost related factors. For example a decrease in the market response to dividend surprises over the 2001TR might also be the result of a generally declining information content due to generally reduced information asymmetries in the stock market[18] or due to reduced agency problems. Therefore, we include control variables for information asymmetries, the rent extraction hypothesis and the free cash flow hypothesis in the following analysis.

We use a multiplicative interaction model with random-effects GLS-regressions[19] to test for

[17] In line with other studies (Bernheim and Wantz, 1995; Amihud and Li, 2006), we do not consider bad news announcements. Bernheim and Wantz argue that market reactions to negative dividend surprises are likely to be driven by fundamentally different processes than those to positive reactions. While the $CAAR_{-1,+1}$ for good news announcements are significantly positive, irrespective of whether a dividend has been increased or continued (there are too few observations of good news for decreased dividends to report reliable results) we find a negative valuation effect of bad news only for dividend decreases, but not for the sample of all bad news announcements. These results indicate a different valuation process of negative dividend surprises.

[18] Amihud and Li observe a decline in the information content of U.S. dividend announcements over time which they claim to be attributable to reduced information asymmetries due to the increased stock holdings by more sophisticated institutional investors.

[19] Based on Hausman tests, the efficient random-effects estimator is used in all panel regressions.

tax effects. We estimate the following model for our sample of good news announcements

$$CAR_{iy} = \beta_0 + DIVERR_{iy} \cdot [\beta_1 + \beta_2 \Theta_y + Z_{iy}\gamma_1] + \Theta_y + Z_{iy}\gamma_2 + \sum_{m=1}^{16} \beta_{3n} IND_{mi} + e_{iy} \quad (2)$$

where Z_{iy} is a vector of control variables $VR1D_{iy}$, $VR2D_{iy}$, $CFVR_{iy}$, $TQ1_{iy}$, $EPSERR_{iy}$, $DIVY_{iy}$, $CDAX_{iy}$, COV_{iy}, $LTVOL_{iy}$, and LEV_{iy}.

In order to proxy for the rent extraction hypothesis, we use a dummy variable for the existence of a controlling shareholder, $VR1D_{iy}$, that equals one if the voting rights of the largest shareholder exceed 25% and a dummy variable, $VR2D_{iy}$, that equals one if there is a second shareholder holding more than 5%. Data on ownership structures is collected from Hoppenstedt yearbooks and Commerzbank's "wer gehoert zu wem?" guides on an annual basis.[20] As dividends are paid on a pro-rata basis to all shareholders, they are a device for limiting rent extraction of minority shareholders by large controlling owners (Gugler and Yurtoglu, 2003). Dividend surprises provide new information about this conflict. In the presence of a controlling shareholder, a positive dividend surprise should be regarded as a positive signal since it reduces the amount of cash under the control of the dominant shareholder and therefore reduces the likelihood of minority shareholder expropriation. Thus, we expect positive coefficients for $VR1D_{iy}$. In contrast, the risk of expropriation should be lower in firms with a second large shareholder, who has the power and the incentive to control the dominant shareholder. We therefore expect the coefficient on $VR2D_{iy}$ to be negative. Since dividends are paid on a pro-rata basis, a divergence of cash flow rights and voting rights increases the incentives for the controlling shareholder to extract funds through other channels than dividends. The cash flow to voting rights ratio, $CFVR_{iy}$, is calculated for the ultimate controlling shareholder through various tiers of possible pyramid ownership structure.[21] As higher voting than cash flow rights increases the incentives to extract private benefits, we expect a negative relationship between announcement returns and $CFVR_{iy}$.

In order to control for the effects predicted by the free cash flow theory, we include $TQ1_{iy}$, which is a dummy variable that equals one if Tobin's Q is below unity. Tobin's Q is defined as the market value of the firm's equity plus total assets minus book value of equity, all divided by total assets. According to Jensen, managers in firms with high free cash flows are tempted to consume perks. This conflict is expected to be more severe in firms which have no valuable growth opportunities as indicated by Tobin's Q below unity. Therefore, we expect the coefficient on $TQ1_{iy}$ to be positive.

The dividend yield, $DIVY_{iy}$, calculated as $DIVY_{iy-1}/P_{iy}$ captures the effects of factors that affect the level of the firm's dividend yield and controls for clientele effects. Bajaj and Vijh argue that the stock price reaction following an unexpected dividend change should be more pronounced in firms with high dividend yields if the investors in those firms have a preference for stocks with a high yield. Thus, we expect the coefficients on DIVY to be positive.

The cash flow signaling hypothesis predicts that signaling information via dividend announce-

[20] During our sample period, shareholdings of more than 5% had to be registered with the German Financial Supervisory Authority (BaFin). Shareholdings of less than 5% - even when reported in Hoppenstedt - were excluded for reasons of data consistency.

[21] The calculation follows da Silva, Goergen and Renneboog. See Andres et al. (2011) for a more detailed description of the calculation method.

ments is of greater importance the greater the information asymmetries between managers and shareholders. We use COV_{iy}, the number of analysts following a stock, as a proxy for information asymmetry. For firms that receive more attention by analysts and investors information asymmetry is reduced and hence is the information content of dividend surprises. Therefore, we expect a mitigating effect of coverage.[22] Long-term volatility, $LTVOL_{iy}$, defined in line with Amihud and Li as stock i's standard deviation of monthly returns in the 24 months before the months of the dividend announcement, is used as a further proxy for information asymmetry between managers and shareholders. If dividend surprises are more informative in firms with larger information asymmetry, one should expect a positive relation between long-term volatility and dividend surprises.

Year dummy variables are excluded from the model because of the multicollinearity induced by the yearly frequency of Θ_y. However, to control for non-tax time-related investor sentiment factors, we include $CDAX_{iy}$, the level of the CDAX market index on the announcement day. As the general market movements over the sample period do not coincide with the decline in Θ_y,[23] a multicollinearity problem does not arises by the combined inclusion of Θ_y and $CDAX_{iy}$. The firm i's leverage, LEV_{iy}, is defined as the sum of total current liabilities and long-term debt divided by book value of equity. Debt can be regarded as a substitutive corporate governance instrument to dividends to reduce agency problems. We expect the market reaction of dividend announcements to be negatively related to the firm's leverage.

For our first specification (2-1), we impose the restriction $\gamma_1 = 0$. Thus, only the tax discrimination variable is allowed to affect the response to dividend surprises. The second specification (2-2) imposes no restriction on the parameters and permits the dividend response coefficient to vary with all explanatory variables. The effect of taxes on dividend responses can be determined by examining β_2. If $\beta_2 > 0$, lower dividend taxation increases the market response to dividend surprises, as predicted by hypothesis 2.

The results are presented in table 5. The coefficients on $\Theta_y \cdot DIVERR$ are positive and significant for the reduced interaction model ($\beta_2 = 5.5072$, $t = 2.49$) and the full interaction model ($\beta_2 = 5.4330$, $t = 2.21$), supporting Hypothesis 2. Lower taxes on dividends increase the market response to dividend surprises. The coefficient on $CFVR$ is significantly negative in both specifications, implying that the market reaction is stronger in cases in which the controlling shareholder is willing to increase (pro-rata) dividend payments despite strong incentives to expropriate minority shareholders. The negative coefficient for the dummy, capturing the existence of a controlling shareholder, however, is inconsistent with the rent extraction hypothesis. In line with previous studies (Amihud and Li, 2006), the magnitude of the announcement returns is negatively related to analysts' coverage.[24] Cumulative abnormal returns are positively related to simultaneous earnings surprises. Results from specification (2-1) also suggest that the market response is smaller the higher a firm is leveraged and when there is a boom in the stock

[22] We also use the market capitalization (in logarithm) of firm i's total stock 14 days before the announcement. Large firms usually receive more attention by analysts. This variable is highly correlated with the number of analysts and its use as a proxy for information asymmetries is in line with previous studies such as Amihud and Li.

[23] Our 11-year sample period covers an economic boom period until 2000, followed by an economic recession, and a second boom period starting in 2003.

[24] The results using the firm size as proxy for information asymmetry between managers and shareholders are qualitatively similar and therefore not reported.

Table 5: Cumulative Abnormal Returns and Dividend Taxation

	(2-1)	(2-2)	(3-1)	(3-2)
$DIVERR$	-4.2222	-0.7875	0.9710	4.6512
	(-1.67)	(-0.15)	(1.32)	(0.82)
Θ_y	-0.0076	-0.0064		
	(-0.75)	(-0.6)		
$\Theta_y \cdot DIVERR$	5.5072	5.4330		
	(2.49)**	(2.21)**		
FI			-0.0044	-0.0043
			(-0.70)	(-0.65)
$FI \cdot DIVERR$			2.7351	2.8810
			(2.29)**	(2.10)**
$VR1D$	-0.0133	-0.0208	-0.0133	-0.0206
	(-2.44)**	(-3.00)***	(-2.42)**	(-2.96)***
$VR2D$	0.0011	0.0117	0.0011	0.0117
	(0.25)	(1.99)**	(0.24)	(1.98)**
$CFVR$	-0.0289	-0.0301	-0.0293	-0.0298
	(-2.42)**	(-1.73)*	(-2.45)**	(-1.71)*
$TQ1$	-0.0072	-0.0014	-0.0073	-0.0018
	(-0.85)	(-0.11)	(-0.85)	(-0.15)
$EPSERR$	0.2090	0.0871	0.2053	0.0898
	(3.42)***	(0.70)	(3.40)***	(0.72)
$DIVY$	0.1324	0.3253	0.1260	0.3218
	(0.97)	(1.75)*	(0.92)	(1.73)*
$CDAX$	-0.0139	-0.0104	-0.0139	-0.0103
	(-3.01)***	(-1.62)	(-3.00)***	(-1.60)
COV	-0.0006	-0.0007	-0.0006	-0.0007
	(-2.37)**	(-2.14)**	(-2.28)**	(-2.14)**
$LTVOL$	0.0606	0.0911	0.0616	0.0918
	(1.01)	(1.15)	(1.01)	(1.15)
LEV	-0.0013	-0.0012	-0.0013	-0.0012
	(-1.90)*	(-1.22)	(-1.92)*	(-1.22)
$VR1D \cdot DIVERR$		2.1904		2.1525
		(1.52)		(1.47)
$VR2D \cdot DIVERR$		-3.0915		-3.0965
		(-2.79)***		(-2.77)***
$CFVR \cdot DIVERR$		0.6228		0.4031
		(-1.02)		(-1.00)
$TQ1 \cdot DIVERR$		-1.9377		-1.9359
		(-1.02)		(-1.00)
$EPSERR \cdot DIVERR$		19.3143		18.6148
		(1.65)*		(1.59)
$DIVY \cdot DIVERR$		-56.2980		-57.6353
		(-1.44)		(-1.44)
$CDAX \cdot DIVERR$		-0.9508		-1.0320
		(-0.74)		(-0.79)
$COV \cdot DIVERR$		0.0607		0.0678
		(0.87)		(0.98)
$LTVOL \cdot DIVERR$		-7.1667		-7.3377
		(-0.38)		(-0.39)
$LEV \cdot DIVERR$		-0.0717		-0.0848
		(-0.33)		(-0.39)
$Constant$	0.0747	0.0604	0.0684	0.0547
	(3.38)***	(2.22)**	(3.53)***	(2.04)**
Year dummies	NO	NO	NO	NO
Industry dummies	YES	YES	YES	YES
N. of obs	349	349	349	349
R^2	0.1989	0.2358	0.1945	0.2327

This table presents the results of equations 2 and 3 on the determinants of cumulative abnormal returns (random effects GLS-regressions). Cumulative abnormal returns are estimated over the event window [-1;+1] estimated by the market model. The dividend estimation error, $DIVERR$ is calculated as the difference of the total adjusted dividend per share and the estimated dividend using the last I/B/E/S consensus mean estimates before the dividend announcement, standardized by the adjusted share price 14 days before the dividend announcement. Θ_y measures the relative taxation of dividends and capital gains using economy wide ownership weights. FI is a dummy variable that is equal to one if the full imputation system applies to the announced dividend and zero otherwise. The dummy for the largest shareholder, $VR1D$ takes a value of one if the voting rights of the largest shareholder in the respective firm before the announcement is larger than 25% and zero otherwise. $VR2D$ takes a value of one if the voting rights of the second-largest shareholder in the respective firm before the announcement are larger than 5% and zero otherwise. The cash-flow-to-voting rights ratio, $CFVR$, is calculated for the ultimate controlling shareholder. Tobin's q is defined as the market value of the firm's equity plus total assets minus book value of equity, all divided by total assets. $TQ1$ is a dummy variable that equals one if Tobin's Q is below unity. The earnings estimation error, $EPSERR$, is measured as the difference of diluted (adjusted) earnings per share and the estimated earnings per share using the last I/B/E/S consensus estimates before the announcement standardized by share price. $EPSERR$ is set to zero if the earnings and dividend announcements dates do not coincide. $DIVY$, is the adjusted dividend in the preceding year relative to the adjusted share price 14 days before the dividend announcement. $CDAX$ is the level of the CDAX market index on the announcement day. COV is the total number of analysts covering the respective firm in the last I/B/E/S file available before the announcement. $LTVOL$ is the standard deviation of monthly returns in the 24 months before the months of the dividend announcement. The firm's leverage, LEV, is defined as the sum of total current liabilities and long-term debt divided by book value of equity. The models include industry dummy variables corresponding to the classification of Deutsche Börse AG. T-statistics from robust standard errors appear in parentheses. Asterisks denote statistical significance at the 0.01(***), 0.05(**) and 0.10(*)-level.

market.

One possible criticism to our analysis is that Θ_y may not be an appropriate measure of the relative taxation of dividends and capital gains. Θ_y is constructed imposing assumptions on the holding period of private investors and applying nominal tax rates on capital gains. Effective tax rates, while inherently difficult to measure however can be significantly lower. Moreover, Θ_y is calculated using economy wide ownership weights to account for the differences in taxation of different investor classes. These weights will be inappropriate if a particular investor class accounts for a disproportionate share of trading activity around the dividend announcement. To address this objection, we reestimate specifications (2-1) and (2-2) replacing Θ_y by FI, which is a dummy variable that is equal to one if the full imputation system applies to the announced dividend and zero otherwise:

$$CAR_{iy} = \beta_0 + DIVERR_{iy} \cdot [\beta_1 + \beta_2 FI + Z_{iy}\gamma_1] + FI + Z_{iy}\gamma_2 + e_{iy}. \tag{3}$$

The estimation results of specifications (3-1) and (3-2) presented in table 5 show that the market response to positive dividend surprises is more pronounced under the full imputation system than under the half-income system. The coefficients on $FI \cdot DIVERR$ are positive and significant for the reduced interaction model and the full interaction model.

Our results suggest that the relative taxation of dividends to capital gains influences the valuation implication of dividends. Nonetheless, since Θ_y tends to decline over the sample period, another potential objection to this analysis is that our effort to measure tax effects potentially only captures some spurious declining trend in the dividend response coefficient (Amihud and Li, 2006). In order to address this objection we use a testing procedure proposed by Bernheim and Wantz and analyze whether changes in the market reaction are synchronized with the 2001TR. If time series variations of the dividend response coefficient are attributable to changes in dividend taxation, we should observe a major shift in the market response to dividend surprises around the 2001TR. However, within each tax regime the market response should have been relatively stable.

We subdivide each tax regime into two subregimes: $FI1$ covers the 1996-1998 period and $FI2$ the 1999-2001 period of the full imputation system, $HI1$ covers the 2001-2003 period, and $HI2$ the 2004-2006 period of the half-income system. We reestimate the non-interactive specification and the full interactive specification of equation 2 for each regime and subregime, in each specification omitting Θ, interactions involving Θ and year and industry dummies. The dividend response coefficients for each regime and subregime are then computed using these estimates. For the non-interactive specification, the dividend response coefficients are the coefficients on $DIVERR$. Differences between regimes and subregimes are statistically evaluated using dummy variables in the respective OLS-regressions. For the full interactive models, estimates for the dividend response coefficients are evaluated at the mean values of the independent variables for each regime and subregime. The significance of the differences between the mean dividend response coefficients of different regimes and subregimes is measured using two-tailed t-tests.

Table 6 presents dividend response coefficients for different tax regimes and subregimes and tests for differences across regimes and pairs of subregimes. The market response to dividend

Table 6: Analysis of Structural Change

Dividend Response Coefficients for Different Time Periods					
Tax Regime	Obs.	Non-Interactive Model		Full Interactive Model	
FI	165	3.56	(3.41)	5.73	(19.56)
FI1	91	4.95	(2.26)	4.41	(6.29)
FI2	74	3.06	(2.48)	6.04	(7.25)
HI	184	1.43	(2.28)	1.19	(5.66)
HI1	81	0.97	(0.73)	1.42	(3.10)
HI2	103	1.47	(1.99)	1.80	(3.05)

Difference in the Dividend Response Coefficients				
Tax Regimes	Test Statistic	P > t	Test Statistic	P > t
FI, HI	t = 2.28	0.0230	t = 12.78	0.0000
FI1, FI2	t = 1.73	0.0850	t = 1.49	0.1365
FI2, HI1	t = 1.49	0.1400	t = 4.87	0.0000
HI1, HI2	t = 1.09	0.2790	t = 0.51	0.6101

This table presents the dividend response coefficients, i.e. the derivate of CAR with respect to the dividend estimation error for different tax regimes and subregimes and the tests for differences across regimes and subregimes. Tax regimes are the full imputation system (FI) until 2001 and the half-income system (HI) from 2001 depending on whether financial year coincides with calendar year. Each regime is divided in two subregimes: FI1 covers the 1996-1998 period, FI2 the 1999-2001 period, and HI1 covers the 2001-2003 period, and HI2 the 2004-2006 period. The dividend response coefficients are calculated using the estimates of the non-interactive and the full interactive model of equation 2, respectively, each omitting Θ, interaction terms involving Θ and industry dummies. For the non-interactive specification, the dividend response coefficients are the coefficients on $DIVERR$. Differences between regimes and subregimes are statistically evaluated using dummy variables in the respective OLS-regressions. For the full interactive models, estimates for the dividend response coefficients are evaluated at the mean values of the independent variables for each regime and subregime. T-statistics are presented in parentheses. The significance of the differences between the mean dividend response coefficients of different regimes and subregimes is measured using two-tailed t-tests.

surprises is positive and significantly higher under the full imputation system than under the half-income system, as predicted by hypothesis 2. This result holds irrespective of whether the non-interactive or full interactive model specifications are considered. The results for the full interactive model suggest that changes in the market response to a given magnitude of dividend surprises were synchronized with the 2001 tax reform. While the dividend response coefficients are not significantly different within each tax regime (i.e. between the $FI1$ and $FI2$ or $HI1$ and $HI2$), the dividend response coefficient is significantly higher in subregime $FI2$ than in the first years of the half-income system, $HI1$. Hence, the decline of the market response to dividend surprises over both tax regimes seems to be attributable to 2001TR.[25] However, we find no significant difference in the dividend response coefficient between the periods $FI2$ and $HI1$, when the coefficients are estimated with the non-interactive model. This result emphasizes the importance of including non-tax related factors in our analysis of tax effects on announcement returns.

4.3 Holding-clientele based measure of marginal investor

One might object that in the preceding analysis the variation in tax rates is only present across years and not across firms. In firms where the marginal investor's dividend income is relatively less tax-disadvantaged as compared to other investors, one would expect this tax effect to reinforce the signaling and agency cost effects. In contrast, the announcement returns for

[25] As a robustness check, we also exclude dividends announced in close proximity to the reform (i.e. dividends paid out of income earned in 2000 and 2001) to account for possible one-time effects. We obtain qualitatively similar results.

stocks that are traded by relatively dividend tax-disadvantaged investors might be expected to be mitigated by a negative tax effect. In this section we address our third hypothesis and examine whether there are tax-related valuation effects due to cross-sectional variations between investors' taxation.

We use a holding clientele-based measure of marginal investors that relies on firm-specific equity ownership by different investor classes to account for the tax attributes of the marginal investor. Support for the use of the ownership structure as a proxy for the identity of the marginal investor comes from Sias and Starks. They show that the likelihood of any particular investor type being the marginal investor is positively related to the firm's ownership structure. We consider the tax status of shareholders at the first tier. We compute the firm specific tax discrimination variable, Θ_{iy}, by weighting the investor class specific Θ_{yj} with the firm-level specific ownership structure of the share class observed, where w_{iyj} is investor class j's equity ownership weight in firm i in year y: $\Theta_{iy} = \sum_j^k w_{iyj} \cdot \Theta_{yj}$.

We differentiate between three types of shareholder classes in our analysis of ownership structure: Individuals with non-substantial interest, individuals with substantial interest and domestic corporate investors. Due to insufficient information of the individual tax status, shareholdings of foreign investors are not considered. Information regarding the ownership structure is given by Hoppenstedt yearbooks. A firm's free-float is split up according to the aggregate ownership weights w_{yj} used in section 3 between non-substantial individuals and corporate investors. The ownership weights assigned to non-substantial individual investors are the aggregate ownership weight of this class times the firm-specific free-float. The ownership weights assigned to individuals with substantial interest are their respective shareholdings in a firm. The ownership weights of domestic corporate investors are this class' respective shareholdings in a firm plus this class' aggregate ownership weight multiplied by the firm's free-float.

The tax discrimination variables for each investor class, Θ_{yj}, are calculated under the following assumptions: Individual shareholders are assumed to be in the highest tax bracket, as we argue that predominantly the more wealthy individuals invest in stocks. Investors with non-substantial interest are treated as long-term investors, i.e. capital gains are tax exempt, while capital gains of individual investors with substantial interest are fully taxable with the personal income tax rate. For corporate investors we assume that capital gains are taxed as corporate income so that the relative tax burden for corporations is equal to that of individuals with taxable capital gains.

Replacing Θ_y in equation 2 by our firm-specific tax discrimination variable, Θ_{iy}, we run the following regressions in a reduced, $\gamma_1 = 0$, and a full interaction model, $\gamma_1 = 1$, for the full sample over both tax regimes, for the full imputation system only, and the half-income system only:

$$CAR_{iy} = \beta_0 + DIVERR_{iy} \cdot [\beta_1 + \beta_2 \Theta_{iy} + Z_{iy}\gamma_1] + \Theta_{iy} + Z_{iy}\gamma_2 + e_{iy} \tag{4}$$

The results (not reported) show that for the full sample of good news announcements over both tax systems, the coefficients on $\Theta_{iy} \cdot DIVERR$ are positive and significant for the reduced interaction specification ($\beta_2 = 4.5540$, $t = 2.33$) and the full interaction model ($\beta_2 = 4.4936$, $t = 2.16$), again supporting Hypothesis 2. However, if we run equation 4 separately for the full imputation subsample and the half-income subsample, we do not find any significant effect

of Θ_{iy}. Varying the assumptions underlying the construction of Θ_{iy}, we tried several different definitions of Θ_{iy} without improving our results.

Hence, using a holding-clientele-based measure of individual stocks' marginal investor, we do not find tax-related valuation effects attributable to cross-sectional variations in investors' taxation. The results suggest, that either our holding-clientele-based measure of the tax properties of the marginal investor is misspecified or that our results of tax effects on dividend surprises are primarily driven by time-series fluctuations in the tax differential of dividends and capital gains.

5 Conclusions

We investigate the impact of the 2001 tax reform in Germany on dividend announcement returns. With this major tax reform, the full imputation system is replaced by the half-income system, which has a significant impact on the relative taxation of dividends and capital gains for most investor classes. Under the full-imputation system, dividend income is preferred by German investors that actively trade or have substantial stockholdings, by German individuals in lower tax brackets and by domestic corporations. Long-term individual investors in higher tax brackets and foreign investors prefer capital gains over dividend income. With the 2001TR, there is a dramatic decline in the relative advantage of after-tax dividend income over capital gains for most domestic shareholders.

In an event study framework we separate the tax effect of dividends from their positive signaling and agency cost effects. We examine the evolution of the market response to dividend surprises over the two tax systems and, in particular, how the market response to given magnitude of dividend surprise is related to the differential taxation of dividend and capital income. Our sample is based on the 150 largest exchange-listed German firms over the period from 1996-2006. Controlling for signaling and agency cost effects of dividends we find that the market response to positive dividend surprises is more pronounced under the full imputation system than under the half-income system. Our results suggest that the observed decline in the dividend response coefficient is synchronized with the 2001 tax reform and hence attributable to the 2001 tax reform. Moreover, we find that the market reaction is related to the information content of dividend announcements, with higher announcement returns in cases in which prior market expectations were less optimistic.

Using a holding-clientele-based measure of individual stocks' marginal investor, we do not find tax-related valuation effects attributable to cross-sectional variations in investors' taxation. Separating the tax effect of dividends from their positive signaling and agency cost effects, however, our study provides a more comprehensive picture of the valuation implications of dividends in Germany.

References

Aharony, J. and Swary, I. (1980). Quarterly dividend and earnings announcements and stockholders' returns: An empirical analysis. The Journal of Finance 35 No. 1, pp. 1–12.

Amihud, Y. and Li, K. (2006). The Declining Information Content of Dividend Announcements and the Effects of Institutional Holdings. Journal of Financial and Quantitative Analysis 41 No. 3, pp. 637–660.

Amihud, Y. and Murgia, M. (1997). Dividends, taxes, and signaling: Evidence from Germany. The Journal of Finance 52 No. 1, pp. 397–408.

Andres, C. (2008). Large Shareholders and Firm Performance: An Empirical Examination of Founding-Family Ownership. The Journal of Corporate Finance 14, pp. 431–445.

Andres, C., Betzer, A., Bongard, I. Van den, Haesner, C. and Theissen, E. (2011). Dividend Announcements Reconsidered: Dividend Changes versus Dividend Surprises. SSRN elibrary.

Andres, C., Betzer, A., Goergen, M. and Renneboog, L. (2009). Dividend Policy of German Firms: A Panel Data Analysis of Partial Adjustment Models. The Journal of Empirical Finance 16 No. 2, pp. 175–187.

Bajaj, M. and Vijh, A. M. (1990). Dividend Clienteles and the Information Content of Dividend Changes. Journal of Financial Economics 26, pp. 193–219.

Bay, W. (1990). Dividenden, Steuern und Steurerreformen. Wiesbaden: Deutscher Universitaets-Verlag.

Becht, M. and Boehmer, E. (2001). Ownership and voting power in Germany. in: The Control of Corporate Europe, Oxford: Oxford University Press, pp. 128–153.

Behm, U. and Zimmermann, H. (1993). The Empirical Relationship between Dividends and Earnings in Germany. Zeitschrift fur Wirtschafts- und Sozialwissenschaften 113 No. 2, pp. 225–254.

Bernheim, B. and Wantz, A. (1995). A tax-based test of the dividend signaling hypothesis. The American Economic Review 85, pp. 532–551.

Bhattacharya, S. (1979). Imperfect information, dividend policy, and" the bird in the hand" fallacy. The Bell Journal of Economics 10, pp. 259–270.

Black, F. and Scholes, M. (1974). The effects of dividend yield and dividend policy on common stock prices and returns. Journal of Financial Economics 1, pp. 1–22.

Boehmer, E., Musumeci, J. and Poulsen, A. B. (1991). Event-Study Methodology under Conditions of Event-Induced Variance. Journal of Financial Economics 30 No. 2, pp. 253–272.

Brandi, E. (1977). Informationswirkungen der Jahresabschlussveröffentlichung auf Entscheidungen am Aktienmarkt. Ph. D thesis, University of Augsburg.

Brennan, M. (1970). Taxes, market valuation and corporate financial policy. National Tax Journal 23, pp. 417–427.

Brown, S. J. and Warner, J. B. (1985). Using Daily Stock Returns: The Case of Event Studies. The Journal of Financial Economics, 14, pp. 3–31.

Cheng, L., Fung, H.-G. and Leung, T. (2007). Information effects of dividends: Evidence from the Hong Kong market. Review of Quantitative Finance and Accounting 28 No. 1, pp. 23–54.

Conroy, R. M., Eades, K. M. and Harris, R. S. (2000). A test of the relative pricing effects of dividends and earnings: Evidence from simultaneous announcements in Japan. The Journal of Finance 55, pp. 1199–1227.

Corrado, C. J. (1989). A Nonparametric Test for Abnormal Security-Price Performance in Event Studies. Journal of Financial Economics 23 No. 2, pp. 385–395.

Deutsche Bundesbank (2008). Ergebnisse der gesamtwitschaftlichen Finanzierungsrechnung für Deutschland 1991 bis 2007. in: Statistische Sonderveröffentlichung 4.

Dhaliwal, D., Krull, L., Li, O., Moser, W. and Hall, M. (2005). Dividend taxes and implied cost of equity capital. Journal of Accounting Research 43, pp. 675–708.

Dhaliwal, D., Zhen Li, O. and Trezevant, R. (2003). Is a dividend tax penalty incorporated into the return on a firm's common stock? Journal of Accounting and Economics 35, pp. 155–178.

Elton, E. J. and Gruber, M. J. (1970). Marginal stockholder tax rates and the clientele effect. Review of Economics and Statistics 52, pp. 68–74.

Elton, E. J., Gruber, M. J. and Blake, C. R. (2005). Marginal stockholder tax effects and ex-dividend-day price behavior: evidence from taxable versus nontaxable closed-end funds. The Review of Economics and Statistics 87 No. August, pp. 579–586.

Faccio, M. and Lang, L. (2002). The ultimate ownership of Western European corporations. Journal of Financial Economics 65, pp. 365–395.

Fama, E. and French, K. (1998). Taxes, financing decisions, and firm value. The Journal of Finance 53, pp. 819–843.

Fama, E. F. (1991). Efficient Capital Markets: II. Journal of Finance 46 No. 5, pp. 1575–1617.

Ferreira, M. A., Massa, M. and Matos, P. (2010). Dividend Clienteles Around the World: Evidence from Institutional Holdings. Working Paper.

Franks, J. and Mayer, C. (2001). Ownership and control of German corporations. Review of Financial Studies 14, pp. 171–195.

Gerke, W., Oerke, M. and Sentner, A. (1997). Der Informationsgehalt von Dividendenänderungen auf dem deutschen Aktienmarkt. Die Betriebswirtschaft 57, pp. 810–822.

Goergen, M., Renneboog, L. and Silva, L. da (2005). When do german firms change their dividends? Journal of Corporate Finance 11, pp. 375–399.

Gugler, K. and Yurtoglu, B. B. (2003). Corporate governance and dividend pay-out policy in Germany. European Economic Review 47, pp. 731–758.

Heiden, S. (2002). Kursreaktionen auf Dividendenankündigungen: Ereignisstudie am deutschen Kapitalmarkt. Deutscher Universitäts-Verlag.

Jensen, M. (1986). Agency costs of free cash flow, corporate finance, and takeovers. The American Economic Review 76, pp. 323–329.

John, K. and Williams, J. (1985). Dividends, dilution, and taxes: A signalling equilibrium. The Journal of Finance 40, pp. 1053–1070.

König, R. (1990). Ausschüttungsverhalten von Aktiengesellschaften, Besteuerung und Kapitalmarktgleichgewicht. Hamburg: Steuer- und Wirtschaftsverlag.

La Porta, R., Silanes, F. Lopez-de, Shleifer, A. and Vishny, R. (2000). Agency problems and dividend policies around the world. The Journal of Finance 55, pp. 1–33.

Lang, L. H. P. and Litzenberger, R. H. (1989). Dividend Announcements. The Journal of Financial Economics 24, pp. 181–191.

Lasfer, M. (2008). Taxes and Ex-day Returns: Evidence from Germany and the U.K. National Tax Journal 61, pp. 721–742.

Leftwich, R. and Zmijewski, M. E. (1994). Contemporaneous Announcements of Dividends and Earnings. Journal of Accounting, Auditing and Finance 9, pp. 725–762.

Li, O. (2007). Taxes and valuation: evidence from dividend change announcements. The Journal of the American Taxation Association 29, pp. 1–23.

Litzenberger, R. H. and Ramaswamy, K. (1979). The effect of personal taxes and dividends on capital asset prices. Journal of Financial Economics 7, pp. 163–195.

Litzenberger, R. and Ramaswamy, K. (1982). The Effects of Dividends on Common Stock Prices Tax Effects or Information Effects? The Journal of Finance 37, pp. 429–443.

Mayer, C. (2008). Trust in Financial Markets. European Financial Management 14, pp. 617–632, ISSN 13547798.

McDonald, R. J. (2001). Cross-Border Investing with Tax Arbitrage: The Case of German Dividend Tax Credits. Review of Financial Studies 14, pp. 617–657.

Miller, M. and Modigliani, F. (1961). Dividend policy, growth, and the valuation of shares. Journal of Business 34, pp. 411–433.

Miller, M. and Rock, K. (1985). Dividend policy under asymmetric information. The Journal of Finance 40, pp. 1031–1051.

Murphy, A. and Schlag, C. (1999). An empirical examination of the effect of dividend taxation on asset pricing and returns in Germany. Global Finance Journal 10 No. 1, pp. 35–52.

Poterba, J. (2004). Taxation and corporate payout policy. American Economic Review 94 No. 2, pp. 171–175.

Poterba, J. M. and Summers, L. H. (1985). The economic effects of dividend taxation. in: Altman, E. and Subrahmanyam, M., editors, Recent advances in corporate finance. Homewood, Illinois.

Sahling, C. (1981). Die Reaktion des Aktienmarktes auf wesentliche Ausschüttungsänderungen. Schwarzenbek: Martienß.

Savov, S. (2006). Dividend Changes, Signaling, and Stock Price Performance. Mannheim Finance Working Paper 2006-03.

Schulz, A. (2006). Der Einfluss von Dividenden auf Aktienrenditen. Deutscher Universitaets-Verlag.

Shleifer, A. and Vishny, R. (1997). A survey of corporate governance. The Journal of Finance 52, pp. 737–783.

Sias, R. W. and Starks, L. T. (1997). Return autocorrelation and institutional investors. Journal of Financial Economics 46, pp. 103–131.

Siddiqi, M. (1997). Using ex-day returns to separate the tax and information effects of dividend changes. Journal of Economics and Finance 21, pp. 83–92.

Silva, L. da, Goergen, M. and Renneboog, L. (2004). Dividend Policy and Corporate Governance. Oxford, England: Oxford University Press.

Whitworth, J. and Rao, R. P. (2010). Do Tax Law Changes Influence Ex-Dividend Stock Price Behavior? Evidence from 1926 to 2005. Financial Management 39 No. 1, pp. 419–445.

Yoon, P. S. and Starks, L. T. (1995). Signaling, investment opportunities, and dividend announcements. Review of Financial Studies 8, pp. 995–1018.

Bislang erschienene **arqus** Diskussionsbeiträge zur Quantitativen Steuerlehre

arqus Diskussionsbeitrag Nr. 1
Rainer Niemann / Corinna Treisch: Grenzüberschreitende Investitionen nach der Steuerreform 2005 – Stärkt die Gruppenbesteuerung den Holdingstandort Österreich?
März 2005

arqus Diskussionsbeitrag Nr. 2
Caren Sureth / Armin Voß: Investitionsbereitschaft und zeitliche Indifferenz bei Realinvestitionen unter Unsicherheit und Steuern
März 2005

arqus Diskussionsbeitrag Nr. 3
Caren Sureth / Ralf Maiterth: Wealth Tax as Alternative Minimum Tax ? The Impact of a Wealth Tax on Business Structure and Strategy
April 2005

arqus Diskussionsbeitrag Nr. 4
Rainer Niemann: Entscheidungswirkungen der Abschnittsbesteuerung in der internationalen Steuerplanung – Vermeidung der Doppelbesteuerung, Repatriierungspolitik, Tarifprogression –
Mai 2005

arqus Diskussionsbeitrag Nr. 5
Deborah Knirsch: Reform der steuerlichen Gewinnermittlung durch Übergang zur Einnahmen-Überschuss-Rechnung – Wer gewinnt, wer verliert? –
August 2005

arqus Diskussionsbeitrag Nr. 6
Caren Sureth / Dirk Langeleh: Capital Gains Taxation under Different Tax Regimes
September 2005

arqus Diskussionsbeitrag Nr. 7
Ralf Maiterth: Familienpolitik und deutsches Einkommensteuerrecht – Empirische Ergebnisse und familienpolitische Schlussfolgerungen –
September 2005

arqus Diskussionsbeitrag Nr. 8
Deborah Knirsch: Lohnt sich eine detaillierte Steuerplanung für Unternehmen? – Zur Ressourcenallokation bei der Investitionsplanung –
September 2005

arqus Diskussionsbeitrag Nr. 9
Michael Thaut: Die Umstellung der Anlage der Heubeck-Richttafeln von Perioden- auf Generationentafeln – Wirkungen auf den Steuervorteil, auf Prognoserechnungen und auf die Kosten des Arbeitgebers einer Pensionszusage
September 2005

arqus Diskussionsbeitrag Nr. 10
Ralf Maiterth / Heiko Müller: Beurteilung der Verteilungswirkungen der "rot-grünen" Einkommensteuerpolitik – Eine Frage des Maßstabs –
Oktober 2005

arqus Diskussionsbeitrag Nr. 11
Deborah Knirsch / Rainer Niemann: Die Abschaffung der österreichischen Gewerbesteuer als Vorbild für eine Reform der kommunalen Steuern in Deutschland?
November 2005

arqus Diskussionsbeitrag Nr. 12
Heiko Müller: Eine ökonomische Analyse der Besteuerung von Beteiligungen nach dem Kirchhof'schen EStGB
Dezember 2005

arqus Diskussionsbeitrag Nr. 13
Dirk Kiesewetter: Gewinnausweispolitik internationaler Konzerne bei Besteuerung nach dem Trennungs- und nach dem Einheitsprinzip
Dezember 2005

arqus Diskussionsbeitrag Nr. 14
Kay Blaufus / Sebastian Eichfelder: Steuerliche Optimierung der betrieblichen Altersvorsorge: Zuwendungsstrategien für pauschaldotierte Unterstützungskassen
Januar 2006

arqus Diskussionsbeitrag Nr. 15
Ralf Maiterth / Caren Sureth: Unternehmensfinanzierung, Unternehmensrechtsform und Besteuerung
Januar 2006

arqus Diskussionsbeitrag Nr. 16
André Bauer / Deborah Knirsch / Sebastian Schanz: Besteuerung von Kapitaleinkünften – Zur relativen Vorteilhaftigkeit der Standorte Österreich, Deutschland und Schweiz –
März 2006

arqus Diskussionsbeitrag Nr. 17
Heiko Müller: Ausmaß der steuerlichen Verlustverrechnung - Eine empirische Analyse der Aufkommens- und Verteilungswirkungen
März 2006

arqus Diskussionsbeitrag Nr. 18
Caren Sureth / Alexander Halberstadt: Steuerliche und finanzwirtschaftliche Aspekte bei der Gestaltung von Genussrechten und stillen Beteiligungen als Mitarbeiterkapitalbeteiligungen
Juni 2006

arqus Diskussionsbeitrag Nr. 19
André Bauer / Deborah Knirsch / Sebastian Schanz: Zur Vorteilhaftigkeit der schweizerischen Besteuerung nach dem Aufwand bei Wegzug aus Deutschland
August 2006

arqus Diskussionsbeitrag Nr. 20
Sebastian Schanz: Interpolationsverfahren am Beispiel der Interpolation der deutschen Einkommensteuertariffunktion 2006
September 2006

arqus Diskussionsbeitrag Nr. 21
Rainer Niemann: The Impact of Tax Uncertainty on Irreversible Investment
Oktober 2006

arqus Diskussionsbeitrag Nr. 22
Jochen Hundsdoerfer / Lutz Kruschwitz / Daniela Lorenz: Investitionsbewertung bei steuerlicher Optimierung der Unterlassensalternative und der Finanzierung
Januar 2007, überarbeitet November 2007

arqus Diskussionsbeitrag Nr. 23
Sebastian Schanz: Optimale Repatriierungspolitik. Auswirkungen von Tarifänderungen auf Repatriierungsentscheidungen bei Direktinvestitionen in Deutschland und Österreich
Januar 2007

arqus Diskussionsbeitrag Nr. 24
Heiko Müller / Caren Sureth: Group Simulation and Income Tax Statistics - How Big is the Error?
Januar 2007

arqus Diskussionsbeitrag Nr. 25
Jens Müller: Die Fehlbewertung durch das Stuttgarter Verfahren – eine Sensitivitätsanalyse der Werttreiber von Steuer- und Marktwerten
Februar 2007

arqus Diskussionsbeitrag Nr. 26
Thomas Gries / Ulrich Prior / Caren Sureth: Taxation of Risky Investment and Paradoxical Investor Behavior
April 2007, überarbeitet Dezember 2007

arqus Diskussionsbeitrag Nr. 27
Jan Thomas Martini / Rainer Niemann / Dirk Simons: Transfer pricing or formula apportionment? Taxinduced distortions of multinationals' investment and production decisions
April 2007

arqus Diskussionsbeitrag Nr. 28
Rainer Niemann: Risikoübernahme, Arbeitsanreiz und differenzierende Besteuerung
April 2007

arqus Diskussionsbeitrag Nr. 29
Maik Dietrich: Investitionsentscheidungen unter Berücksichtigung der Finanzierungsbeziehungen bei Besteuerung einer multinationalen Unternehmung nach dem Einheitsprinzip
Mai 2007

arqus Diskussionsbeitrag Nr. 30
Wiebke Broekelschen / Ralf Maiterth: Zur Forderung einer am Verkehrswert orientierten Grundstücksbewertung –Eine empirische Analyse
Mai 2007

arqus Diskussionsbeitrag Nr. 31
Martin Weiss: How Well Does a Cash-Flow Tax on Wages Approximate an Economic Income Tax on Labor Income?
Juli 2007

arqus Diskussionsbeitrag Nr. 32
Sebastian Schanz: Repatriierungspolitik unter Unsicherheit. Lohnt sich die Optimierung?
Oktober 2007

arqus Diskussionsbeitrag Nr. 33
Dominik Rumpf / Dirk Kiesewetter / Maik Dietrich: Investitionsentscheidungen und die Begünstigung nicht entnommener Gewinne nach § 34a EStG
November 2007, überarbeitet März 2008

arqus Diskussionsbeitrag Nr. 34
Deborah Knirsch / Rainer Niemann: Allowance for Shareholder Equity – Implementing a Neutral Corporate Income Tax in the European Union
Dezember 2007

arqus Diskussionsbeitrag Nr. 35
Ralf Maiterth/ Heiko Müller / Wiebke Broekelschen: Anmerkungen zum typisierten Ertragsteuersatz des IDW in der objektivierten Unternehmensbewertung
Dezember 2007

arqus Diskussionsbeitrag Nr. 36
Timm Bönke / Sebastian Eichfelder: Horizontale Gleichheit im Abgaben-Transfersystem: Eine Analyse äquivalenter Einkommen von Arbeitnehmern in Deutschland
Januar 2008

arqus Diskussionsbeitrag Nr. 37
Deborah Knirsch / Sebastian Schanz: Steuerreformen durch Tarif- oder Zeiteffekte? Eine Analyse am Beispiel der Thesaurierungsbegünstigung für Personengesellschaften
Januar 2008

arqus Diskussionsbeitrag Nr. 38
Frank Hechtner / Jochen Hundsdoerfer: Die missverständliche Änderung der Gewerbesteueranrechnung nach § 35 EStG durch das Jahressteuergesetz 2008 – Auswirkungen für die Steuerpflichtigen und für das Steueraufkommen
Februar 2008

arqus Diskussionsbeitrag Nr. 39
Alexandra Maßbaum / Caren Sureth: The Impact of Thin Capitalization Rules on Shareholder Financing
Februar 2008

arqus Diskussionsbeitrag Nr. 40
Rainer Niemann / Christoph Kastner: Wie streitanfällig ist das österreichische Steuerrecht? Eine empirische Untersuchung der Urteile des österreichischen Verwaltungsgerichtshofs nach Bemessungsgrundlagen-, Zeit- und Tarifeffekten
Februar 2008

arqus Diskussionsbeitrag Nr. 41
Robert Kainz / Deborah Knirsch / Sebastian Schanz: Schafft die deutsche oder österreichische Begünstigung für thesaurierte Gewinne höhere Investitionsanreize?
März 2008

arqus Diskussionsbeitrag Nr. 42
Henriette Houben / Ralf Maiterth: Zur Diskussion der Thesaurierungsbegünstigung nach § 34a EStG
März 2008

arqus Diskussionsbeitrag Nr. 43
Maik Dietrich / Kristin Schönemann: Steueroptimierte Vermögensbildung mit Riester-Rente und Zwischenentnahmemodell unter Berücksichtigung der Steuerreform 2008/2009
März 2008

arqus Diskussionsbeitrag Nr. 44
Nadja Dwenger: Tax loss offset restrictions – Last resort for the treasury? An empirical evaluation of tax loss offset restrictions based on micro data.
Mai 2008

arqus Diskussionsbeitrag Nr. 45
Kristin Schönemann / Maik Dietrich: Eigenheimrentenmodell oder Zwischenentnahmemodell – Welche Rechtslage integriert die eigengenutzte Immobilie besser in die Altersvorsorge?
Juni 2008

arqus Diskussionsbeitrag Nr. 46
Christoph Sommer: Theorie der Besteuerung nach Formula Apportionment – Untersuchung auftretender ökonomischer Effekte anhand eines Allgemeinen Gleichgewichtsmodells
Juli 2008

arqus Diskussionsbeitrag Nr. 47
André Bauer / Deborah Knirsch / Rainer Niemann / Sebastian Schanz: Auswirkungen der deutschen Unternehmensteuerreform 2008 und der österreichischen Gruppenbesteuerung auf den grenzüberschreitenden Unternehmenserwerb
Juli 2008

arqus Diskussionsbeitrag Nr. 48
Dominik Rumpf: Zinsbereinigung des Eigenkapitals im internationalen Steuerwettbewerb – Eine kostengünstige Alternative zu „Thin Capitalization Rules"?
August 2008

arqus Diskussionsbeitrag Nr. 49
Martin Jacob: Welche privaten Veräußerungsgewinne sollten besteuert werden?
August 2008

arqus Diskussionsbeitrag Nr. 50
Rebekka Kager/ Deborah Knirsch/ Rainer Niemann: Steuerliche Wertansätze als zusätzliche Information für unternehmerische Entscheidungen? – Eine Auswertung von IFRS-Abschlüssen der deutschen DAX-30- und der österreichischen ATX-Unternehmen – *August 2008*

arqus Diskussionsbeitrag Nr. 51
Rainer Niemann / Caren Sureth: Steuern und Risiko als substitutionale oder komplementäre Determinanten unternehmerischer Investitionspolitik? – Are taxes and risk substitutional or complementary determinants of entrepreneurial investment policy?
August 2008

arqus Diskussionsbeitrag Nr. 52
Frank Hechtner / Jochen Hundsdoerfer: Steuerbelastung privater Kapitaleinkünfte nach Einführung der Abgeltungsteuer unter besonderer Berücksichtigung der Günstigerprüfung: Unsystematische Grenzbelastungen und neue Gestaltungsmöglichkeiten
August 2008

arqus Diskussionsbeitrag Nr. 53
Tobias Pick / Deborah Knirsch / Rainer Niemann: Substitutions- oder Komplementenhypothese im Rahmen der Ausschüttungspolitik schweizerischer Kapitalgesellschaften – eine empirische Studie
August 2008

arqus Diskussionsbeitrag Nr. 54
Caren Sureth / Michaela Üffing: Proposals for a European Corporate Taxation and their Influence on Multinationals' Tax Planning
September 2008

arqus Diskussionsbeitrag Nr. 55
Claudia Dahle / Caren Sureth: Income-related minimum taxation concepts and their impact on corporate investment decisions
Oktober 2008

arqus Diskussionsbeitrag Nr. 56
Dennis Bischoff / Alexander Halberstadt / Caren Sureth: Internationalisierung, Unternehmensgröße und Konzernsteuerquote
Oktober 2008

arqus Diskussionsbeitrag Nr. 57
Nadja Dwenger / Viktor Steiner: Effective profit taxation and the elasticity of the corporate income tax base – Evidence from German corporate tax return data
November 2008

arqus Diskussionsbeitrag Nr. 58
Martin Jacob / Rainer Niemann / Martin Weiß: The Rich Demystified – A Reply to Bach, Corneo, and Steiner (2008)
November 2008

arqus Diskussionsbeitrag Nr. 59
Martin Fochmann / Dominik Rumpf: – Modellierung von Aktienanlagen bei laufenden Umschichtungen und einer Besteuerung von Veräußerungsgewinnen
Dezember 2008

arqus Diskussionsbeitrag Nr. 60
Corinna Treisch / Silvia Jordan: Eine Frage der Perspektive? – Die Wahrnehmung von Steuern bei Anlageentscheidungen zur privaten Altersvorsorge
Dezember 2008

arqus Diskussionsbeitrag Nr. 61
Nadja Dwenger / Viktor Steiner: Financial leverage and corporate taxation Evidence from German corporate tax return data
Februar 2009

arqus Diskussionsbeitrag Nr. 62
Ute Beckmann / Sebastian Schanz: Investitions- und Finanzierungsentscheidungen in Personenunternehmen nach der Unternehmensteuerreform 2008
Februar 2009

arqus Diskussionsbeitrag Nr. 63
Sebastian Schanz/ Deborah Schanz: Die erbschaftsteuerliche Behandlung wiederkehrender Nutzungen und Leistungen – Zur Vorteilhaftigkeit des § 23 ErbStG
März 2009

arqus Diskussionsbeitrag Nr. 64
Maik Dietrich: Wie beeinflussen Steuern und Kosten die Entscheidungen zwischen direkter Aktienanlage und Aktienfondsinvestment?
März 2009

arqus Diskussionsbeitrag Nr. 65
Maik Dietrich / Kristin Schönemann: Unternehmensnachfolgeplanung innerhalb der Familie: Schenkung oder Kauf eines Einzelunternehmens nach der Erbschaftsteuerreform?
März 2009

arqus Diskussionsbeitrag Nr. 66
Claudia Dahle / Michaela Bäumer: Cross-Border Group-Taxation and Loss-Offset in the EU - An Analysis for CCCTB (Common Consolidated Corporate Tax Base) and ETAS (European Tax Allocation System) -
April 2009

arqus Diskussionsbeitrag Nr. 67
Kay Blaufus / Jochen Hundsdoerfer / Renate Ortlieb: Non scholae, sed fisco discimus? Ein Experiment zum Einfluss der Steuervereinfachung auf die Nachfrage nach Steuerberatung
Mai 2009

arqus Diskussionsbeitrag Nr. 68
Hans Dirrigl: Unternehmensbewertung für Zwecke der Steuerbemessung im Spannungsfeld von Individualisierung und Kapitalmarkttheorie – Ein aktuelles Problem vor dem Hintergrund der Erbschaftsteuerreform
Mai 2009

arqus Diskussionsbeitrag Nr. 69
Henriette Houben / Ralf Maiterth: Zurück zum Zehnten: Modelle für die nächste Erbschaftsteuerreform
Mai 2009

arqus Diskussionsbeitrag Nr. 70
Christoph Kaserer / Leonhard Knoll: Objektivierte Unternehmensbewertung und Anteilseignersteuern
Mai 2009

arqus Diskussionsbeitrag Nr. 71
Dirk Kiesewetter / Dominik Rumpf: Was kostet eine finanzierungsneutrale Besteuerung von Kapitalgesellschaften?
Mai 2009

arqus Diskussionsbeitrag Nr. 72
Rolf König: Eine mikroökonomische Analyse der Effizienzwirkungen der Pendlerpauschale
Mai 2009

arqus Diskussionsbeitrag Nr. 73
Lutz Kruschwitz / Andreas Löffler: Do Taxes Matter in the CAPM?
Mai 2009

arqus Diskussionsbeitrag Nr. 74
Hans-Ulrich Küpper: Hochschulen im Umbruch
Mai 2009

arqus Diskussionsbeitrag Nr. 75
Branka Lončarević / Rainer Niemann / Peter Schmidt: Die kroatische Mehrwertsteuer – ursprüngliche Intention, legislative und administrative Fehlentwicklungen
Mai 2009

arqus Diskussionsbeitrag Nr. 76
Heiko Müller / Sebastian Wiese: Ökonomische Wirkungen der Missbrauchsbesteuerung bei Anteilsveräußerung nach Sacheinlage in eine Kapitalgesellschaft
Mai 2009

arqus Diskussionsbeitrag Nr. 77
Rainer Niemann / Caren Sureth: Investment effects of capital gains taxation under simultaneous investment and abandonment flexibility
Mai 2009

arqus Diskussionsbeitrag Nr. 78
Deborah Schanz / Sebastian Schanz: Zur Unmaßgeblichkeit der Maßgeblichkeit – Divergieren oder konvergieren Handels- und Steuerbilanz?
Mai 2009

arqus Diskussionsbeitrag Nr. 79
Jochen Sigloch: Ertragsteuerparadoxa – Ursachen und Erklärungsansätze
Mai 2009

arqus Diskussionsbeitrag Nr. 80
Hannes Streim / Marcus Bieker: Verschärfte Anforderungen für eine Aktivierung von Kaufpreisdifferenzen – Vorschlag zur Weiterentwicklung der Rechnungslegung vor dem Hintergrund jüngerer Erkenntnisse der normativen und empirischen Accounting-Forschung
Mai 2009

arqus Diskussionsbeitrag Nr. 81
Ekkehard Wenger: Muss der Finanzsektor stärker reguliert werden?
Mai 2009

arqus Diskussionsbeitrag Nr. 82
Magdalene Gruber / Nicole Höhenberger / Silke Höserle / Rainer Niemann: Familienbesteuerung in Österreich und Deutschland – Eine vergleichende Analyse unter Berücksichtigung aktueller Steuerreformen
Juni 2009

arqus Diskussionsbeitrag Nr. 83
Andreas Pasedag: Paradoxe Wirkungen der Zinsschranke
Juli 2009

arqus Diskussionsbeitrag Nr. 84
Sebastian Eichfelder: Bürokratiekosten der Besteuerung: Eine Auswertung der empirischen Literatur
Juli 2009

arqus Diskussionsbeitrag Nr. 85
Wiebke Broekelschen / Ralf Maiterth: Gleichmäßige Bewertung von Mietwohngrundstücken durch das neue steuerliche Ertragswertverfahren? Eine empirische Analyse
September 2009

arqus Diskussionsbeitrag Nr. 86
Ute Beckmann / Sebastian Schanz: Optimale Komplexität von Entscheidungsmodellen unter Berücksichtigung der Besteuerung – Eine Analyse im Fall der Betriebsveräußerung
September 2009

arqus Diskussionsbeitrag Nr. 87
Wiebke Breokelschen/ Ralf Maiterth: Verfassungskonforme Bewertung von Ein- und Zweifamilienhäusern nach der Erbschaftsteuerreform 2009?– Eine empirische Analyse
September 2009

arqus Diskussionsbeitrag Nr. 88
Martin Weiss: How Do Germans React to the Commuting Allowance?
October 2009

arqus Diskussionsbeitrag Nr. 89
Tobias Pick / Deborah Schanz / Rainer Niemann: Stock Price Reactions to Share Repurchase Announcements in Germany – Evidence from a Tax Perspective
October 2009

arqus Diskussionsbeitrag Nr. 90
Wiekbe Broeckelschen: Welche Faktoren beeinflussen die Gleichmäßigkeit der Bewertung von Mietwohngrundstücken?
November 2009

arqus Diskussionsbeitrag Nr. 91
Caren Sureth / Pia Vollert: Verschärfung der Verlustabzugsbeschränkung durch § 8c KStG und deren Einfluss auf den Erwerb von Anteilen an Kapitalgesellschaften
November 2009

arqus Diskussionsbeitrag Nr. 92
Martin Fochmann / Dirk Kiesewetter / Abdolkarim Sadrieh: The Perception of Income Taxation on Risky Investments – an experimental analysis of different methods of loss Compensation –
November 2009

arqus Diskussionsbeitrag Nr. 93
Nadja Dwenger: Corporate taxation and investment: Explaining investment dynamics with form-level panel data
Dezember 2009

arqus Diskussionsbeitrag Nr. 94
Kristin Schönemann: Finanzierungsstrategien und ihre Auswirkungen auf den Unternehmenswert deutscher Immobilien-Kapitalgesellschaften
Dezember 2009

arqus Diskussionsbeitrag Nr. 95
Henriette Houben / Ralf Maiterth: Inheritance tax-exempt transfer of German businesses: Imperative or unjustified subsidy? – An empirical analysis
Dezember 2009

arqus Diskussionsbeitrag Nr. 96
Markus Diller / Andreas Löffler: Erbschaftsteuer und Unternehmensbewertung
Februar 2010

arqus Diskussionsbeitrag Nr. 97
Georg Schneider / Caren Sureth: The Impact of Profit Taxation on Capitalized Investment with Options to Delay and Divest
Februar 2010

arqus Diskussionsbeitrag Nr. 98
Andreas Löffler / Lutz Kruschwitz: Ist Steuerminimierung irrational?
Februar 2010

arqus Diskussionsbeitrag Nr. 99
Martin Fochmann / Dirk Kiesewetter / Kay Blaufus / Jochen Hundsdoerfer / Joachim Weimann: Tax Perception – an empirical survey
März 2010

arqus Diskussionsbeitrag Nr. 100
Tasja Klotzkowski / Alexandra Maßbaum / Caren Sureth: Zinsabzugsbeschränkung durch die Zinsschranke, Fremdkapitalsteuerschild und unternehmerische Kapitalstrukturentscheidungen
April 2010

arqus Diskussionsbeitrag Nr. 101
Frank Hechtner / Jochen Hundsdoerfer / Christian Sielaff: Zur Bedeutung von Progressionseffekten für die Steuerplanung – Eine Analyse am Beispiel der Thesaurierungsbegünstigung
April 2010

arqus Diskussionsbeitrag Nr. 102
Henriette Houben / Ralf Maiterth: ErbSiHM 0.1
April 2010

arqus Diskussionsbeitrag Nr. 103
Ralf Ewert / Rainer Niemann: Haftungsbeschränkungen, asymmetrische Besteuerung und die Bereitschaft zur Risikoübernahme – Weshalb eine rechtsformneutrale Besteuerung allokativ schädlich ist
Mai 2010

arqus Diskussionsbeitrag Nr. 104
Frank Hechtner: Zur Bedeutung von Grenzsteuersätzen bei der Beurteilung von Tarifverwerfungen – Eine theoretische und empirische Analyse am Beispiel von § 32b EStG und § 34 EStG
Mai 2010

arqus Diskussionsbeitrag Nr. 105
Henriette Houben / Ralf Maiterth / Heiko Müller: Aufkommens- und Verteilungsfolgen des Ersatzes des deutschen einkommensteuerlichen Formeltarifs durch einen Stufentarif
Juni 2010

arqus Diskussionsbeitrag Nr. 106
Kay Blaufus / Jonathan Bob / Jochen Hundsdoefer / Dirk Kiesewetter / Joachim Weimann: It's All About Tax Rates – An Empirical Study of Tax Perception
November 2009

arqus Diskussionsbeitrag Nr. 107
Lutz Kruschwitz / Andreas Löffler / Waldemar von Lehna: Was tun?
Juli 2010

arqus Diskussionsbeitrag Nr. 108
Jens Müller / Caren Sureth: Empirische Analyse der Unternehmensbewertung für die Erbschaftsteuer mit dem vereinfachten Ertragswertverfahren
Juli 2010

arqus Diskussionsbeitrag Nr. 109
Magdalena Haring / Rainer Niemann: Corporate Financial Policy and Investor Taxation in Austria – an Empirical Investigation –
Oktober 2010

arqus Diskussionsbeitrag Nr. 110
Rainer Niemann: Zum Einfluß asymmetrischer Besteuerung auf die Vorteilhaftigkeit erfolgsabhängiger Entlohnungsverträge
Dezember 2010

arqus Diskussionsbeitrag Nr. 111
Martina Corsten / Dirk Simons / Dennis Voeller: Ökonomische Anreize zur Nutzung erbschaftsteuerlicher Verschonungsregeln für das Betriebsvermögen
Dezember 2010

arqus Diskussionsbeitrag Nr. 112
Thi Phuong Hoa Nguyen / Sebastian Schanz: Zur Vorteilhaftigkeit von Photovoltaikanlagen unter Berücksichtigung der Besteuerung
Dezember 2010

arqus Diskussionsbeitrag Nr. 113
Sven Arnold / Alexander Lahmann / Berhard Schwetzler: Tax Shield, Insolvenz und Zinsschranke
Januar 2011

arqus Diskussionsbeitrag Nr. 114
Silke Rünger: The Effect of Germany's Tax Reform Act 2001 on Corporate Ownership – Insights from Disposals of Minority Blocks
Januar 2011

arqus Diskussionsbeitrag Nr. 115
Deborah Schanz / Holger Theßeling: The influence of tax regimes on distribution policy of corporations – evidence from German tax reforms
März 2011

arqus Diskussionsbeitrag Nr. 116
Sven Arnold / Alexander Lahmann / Bernd Schwetzler: The Zinsschranke, Unternehmensbewertung und APV Ansatz – eine Anmerkung zum Beitrag von Förster/Stöckl/Brenken (ZfB 2009, S. 985 ff.)
April 2011

arqus Diskussionsbeitrag Nr. 117
Christian Haesner / Deborah Schanz: Taxes and the Valuation of Dividends: A Study of Dividend Announcements in Germany
April 2011

Impressum:
Arbeitskreis Quantitative Steuerlehre, arqus, e.V.
Vorstand: Prof. Dr. Jochen Hundsdoerfer,
Prof. Dr. Dirk Kiesewetter, Prof. Dr. Ralf Maiterth
Sitz des Vereins: Berlin

Herausgeber: Kay Blaufus, Jochen Hundsdoerfer, Dirk Kiesewetter, Rolf J. König, Lutz Kruschwitz, Andreas Löffler, Ralf Maiterth, Heiko Müller, Rainer Niemann, Deborah Schanz, Caren Sureth, Corinna Treisch

Kontaktadresse:
Prof. Dr. Caren Sureth, Universität Paderborn, Fakultät für Wirtschaftswissenschaften,
Warburger Str. 100, 33098 Paderborn,
www.arqus.info, Email: info@arqus.info

ISSN 1861-8944