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Partisan politics and stock market performance: The effect of expected government partisanship on stock returns in the 2002 German federal election

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Abstract Rational partisan theory suggests that firms perform better under right- than left-leaning governments. In the pre-election time, investors should anticipate these effects of government partisanship. This is the first study to investigate such anticipated partisan effects in Germany. Applying conditional volatility models we analyze the impact of expected government partisanship on stock market performance in the 2002 German federal election. Our results show that small-firm stock returns were positively (negatively) linked to the probability of a right- (left-) leaning coalition winning the election. Moreover, we find that volatility increased as the electoral prospects of right-leaning parties improved, while greater electoral uncertainty had a volatility-reducing effect.

Keywords Government partisanship · Stock market performance · Elections · GARCH modeling · Political information · Price formation

JEL Classification C12 · G12 · G38

1 Introduction

Political scientists and economists are increasingly interested in the interplay between politics and stock markets (Schneider and Tröger 2006; Jensen and Schmith 2005). One reason for the increased attention is the opportunity to test the explanatory power of established politico-economic models. If different parties strategically manipulate the economy to benefit their voter bases, their economic policies should produce distinct stock market reactions.

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Another reason comes from research into the effects of globalization on policy options (Boix and Adserà 2002; Garrett 1998). If economic integration induces party policies to converge, we should see national partisan effects on global financial markets begin to disappear. A final reason may be increased media and public scrutiny of stock market developments, for example, the rapid decline of the German stock market index following the Social Democratic Party's (SDP) defeat of the Christian Democratic Union (CDU) in 2002.

We examine the systematic distributive effects of expected government partisanship on the German stock market in the 2002 German federal election. We argue that the dominant theoretical model linking government partisanship and stock market performance via inflation does not apply to Germany because the European central bank is independent from the political process (Hays et al. 2000). We base our arguments on rational partisan theory (Alesina et al. 1997; Alesina 1987), and extant evidence from the analysis of party manifestos (Budge et al. 2001) with regard to economic policies. Analysis of party manifestos has shown that right-leaning parties tend to provide economic policies that are more favorable to firm profits than left-leaning parties.

Based on this assumption, and the semi-strong form of the efficient market hypothesis (Fama 1970), we assess how investors value parties holding office. Indeed, if markets process information efficiently, the near-term effects of different parties holding office should be anticipated and incorporated into today's prices. Changes in expected government partisanship should produce distinct stock market patterns, with prices reflecting the electoral prospects of the competing parties. For example, if public support for the left- (right-) leaning party coalition increases, stock market performance should decrease (increase). Thus, we attempt to determine how the German stock market expects party policies to affect firm performance.

The 2002 election is particularly interesting. First, there were major swings in public opinion during the run-up to Election Day.[1] Consequently, investor expectations about future government partisanship varied strongly, which facilitates the estimation of anticipated partisan effects. Second, the electoral race became extremely close, especially at the end, which provides an opportunity to evaluate the effect of electoral closeness on economic uncertainty. Third, both parties made explicit and credible statements about their coalition preferences, which allowed investors to form reasonable expectations about future economic policies.

To determine the effect of expected government partisanship in the 2002 German federal election, we use both GARCH(1, 1) and EGARCH(1, 1) volatility models. Empirical evidence shows that overall stock performance of small German firms was positively linked with the probability of a right-leaning coalition winning the election. Moreover, we find that increasing electoral prospects of a right-leaning coalition triggered volatility increases, while electoral uncertainty tended to reduce volatility. In contrast, our analysis shows no significant effects of expected government partisanship on mid- and large-sized enterprises.

The remainder of the paper is organized as follows. The next section provides a compact review of the literature on the effect of government partisanship on stock market performance. Section 3 develops the theoretical model, and derives hypotheses about the relation-

[1] This was due to two major events. Massive flooding in East Germany in August 2002 caused devastation all along the Elbe river. This opportunity was used by the federal government, which then consisted of a coalition between the Social Democrats and the Greens, for political purposes. It mobilized the armed forces to help with sandbagging and for clean-up and reconstruction work. Flood victims were also promised compensation payments. The second major event was Chancellor Schröder's (SDP) decision not to let German soldiers take part in the planned war on Iraq. The vast majority of German voters agreed with this decision. The Christian Democrats (CDU/CSU) did not completely oppose the possibility of Germany joining the war on Iraq.

ship between the stock market and expected government partisanship. To account for the characteristics of financial time series data, in Sect. 4 we use a GARCH framework to empirically evaluate our hypotheses for the 2002 election. The final section summarizes and proposes avenues for further research.

2 Government partisanship and the stock market

For more than two decades, there has been constant scholarly interest in the effects of government partisanship on U.S. stock markets. The body of literature has been strongly inspired by the partisan (business) cycle model, which traces economic performance back to the strategic behavior of political parties. Drawing on the Downsian view of democracy (Downs 1957), Hibbs (1977) relates economic policies to party ideology. Different ideologies imply different economic policies, benefiting some parts of the electorate at the expense of others. As Hibbs (1977: 1467) points out, "governments pursue macroeconomic policies broadly in accordance with the objective economic interests and subjective preferences of their class-defined core political constituencies." Thus, because parties are assumed to be ideologically motivated and to stick to their electoral platforms while holding office, left-leaning parties are expected to try to reduce unemployment in the pre-election period, because their voter base benefits more from low unemployment than from low inflation. Moreover, different parties will permanently pursue policy goals in accordance with their ideologies, with inflation being higher under left-leaning governments than under right-leaning ones.

The evidence largely supports the existence of partisan effects on the macro economy. For example, Alesina et al. (1997) find that inflation is higher during Democratic administrations. Caporale and Grier (1998) use the Federal funds rate as a measure of monetary policy. Their results support the hypothesis that Fed chairs appointed by Democratic presidents are associated with a significantly lower Fed funds rate than those appointed by Republican presidents (see also Grier and McGarrity 2002). Consequently, the literature argues as follows: Because left-leaning parties are more willing to accept higher inflation, their incumbency is associated with a short-run decline in investors' realized real rate of returns, making stock investments less attractive.

Many studies have tried to uncover the hypothesized effect of government partisanship on stock market performance (Foerster and Schmitz 1997; Gärtner and Wellershoff 1995; Huang 1985). However, the U.S. evidence is inconclusive at best. Using OLS regressions on data from twenty presidential elections after 1900, Riley and Luksetich (1980) find some support for the hypothesis that the stock market performs better during Republican administrations. In contrast, analyzing monthly data from 1927 to 1998, Santa-Clara and Valkanov (2003) find that stock market returns are higher during Democratic administrations (see also Huang 1985). Finally, Gärtner and Wellershoff (1995) report that the stock market performs better during the second half of a presidency, regardless of which party is holding office.

However, relatively little attention has been paid to the relationship between government partisanship and stock market performance in countries besides the U.S. Genmill (1992) scrutinizes the impact of expected government partisanship on the FTSE 100 in the 1987 British general election. Herron (2000) estimates that if the Labour Party had won the 1992 general election, the British stock market would have dropped 5%. In order to estimate the impact of different presidential candidates on macroeconomic performance, Jensen and Schmith (2005) use Brazilian stock market movements as proxies for future expectations of the Brazilian economy. They succeed in falsifying the hypothesis that the Brazilian presidential candidates had an effect on the mean of the stock market.

German studies are even rarer, and have thus far not addressed how partisan politics influence volatility. Pierdzioch and Döpke (2006) examine the connection between current government partisanship and stock returns. They apply the political business cycle model, originally developed with the U.S. system in mind, and analyze quarterly stock market data from 1960 through 2002. In order to assess the effect of government partisanship, they include a dummy variable in their regression equation indicating which party holds office. However, their results suggest that government partisanship is inconsequential for the German stock market. In this paper, we question these findings on both theoretical and empirical grounds.

Theoretically, linking government partisanship and stock market performance directly via inflation seems plausible only in majoritarian democracies where parties exert control over monetary policy. The existence of a largely independent central bank makes the theoretical relationship between inflation and government partisanship unconvincing.[2] Empirically, assessing the effect of current partisanship on stock market performance does not reflect the prospective trading behavior of rational investors trying to anticipate partisan effects on the economy. If markets are semi-strong form efficient (Fama 1970) expected negative effects on firms' profits should be incorporated in today's prices. Thus, to the extent that past research has failed to find a link between stock market performance and current government partisanship, these effects may have already been anticipated by the market. This argument also follows from the well-known Lucas (1976) critique. Moreover, the use of highly aggregated data may hinder capturing short-term reactions to changing electoral prospects. More precisely, the media reports polling results so frequently nowadays that the use of weekly, monthly or even quarterly data may prevent researchers from detecting potentially interesting and important short-term effects.

Finally, OLS regression techniques are ill-suited for analyzing leptokurtotic and volatility-clustered data (Pagan and Schwert 1990; Beck 1983). Using generalized autoregressive conditional heteroscedasticity (GARCH) models rather than ordinary (Bittlingmayer 1998; Gärtner and Wellershoff 1995) or non-linear least squares regressions (Herron 2000) would certainly improve the quality of the estimates. Furthermore, these models could also be used to assess the effect of politics on stock return volatility (see Beck 1983 for an early discussion).

We consequently deviate from past research on the interplay between partisanship and stock market performance in Germany. We focus on partisan differences in economic policy, as well as the behavior of financial investors trying to anticipate the effects of economic policies under different governments. But we follow past research in assuming that the economic policies of different parties differentially affect firms' profits which leads to distinct responses by the stock market.

Extensive qualitative and quantitative analysis of party manifestos suggests that left-leaning parties tend to focus more on demand-side policies aimed at lower-income constituents (Budge and Keman 1990). Left-leaning parties tend to care about the distribution of wealth more strongly and are more likely to redistribute income via higher taxation of firms and high income individuals (Budge et al. 2001; Garrett 1998). But clearly, in contrast to partisan differences in monetary policies, differences in taxing and spending policies are much more important in the context of independent central banks (Iversen and Soskice 2006; Imbeau et al. 2001). Our model thus links government partisanship with stock market

[2] Empirical evidence supports the assumption that partisanship does not impact inflation in consensus democracies (Hays et al. 2000). Moreover, with the introduction of a single European currency, national monetary policy is no longer controlled by national central banks.

performance via expected economic policies (Drazen 2002; Persson and Tabellini 2000; Alesina et al. 1997; Alesina 1987).

3 Analytical framework

3.1 Left- and right-leaning coalition governments in multi-party systems

Political systems that use proportional representation have multi-party systems (Duverger's Law) and coalition governments. But how can we distinguish between right- and left-leaning coalition governments, given that their policies reflect compromises and bargains? The answer is important, because it determines to what extent we can apply the rational partisan model, originally developed with a two-party system in mind, to the German multi-party system.

We argue that two conditions must be met in order to accurately discuss left- and right-leaning coalition governments: (1) the parties' policies must be heterogeneous, and (2) the coalition must be ideologically homogeneous. The first condition simply requires that different parties have different preferred economic policies. Interestingly, this condition is most likely to be met in multi-party systems, where convergence of parties to the median voter is not an equilibrium behavior as a Condorcet winning position does not exist (Adams and Merrill 2006). Therefore, heterogeneity of parties' policies seems especially plausible in Germany, which has a multi-party system. As a result, differences in parties' ideal policies should be even more pronounced, and changes in government partisanship cause stronger policy changes and deviations from the median voter's ideal point than in majoritarian democracies.[3]

Empirically, we observe strong differences among German parties' ideal policies, regardless of whether ideal point estimates are based on party manifestos (Debus 2007; Budge et al. 2001) or expert interviews (Benoit and Laver 2006). For election year 2002, Fig. 1 shows the policy positions of the four major German parties on the classical left-right dimension ranging from 0 (extreme left) to 20 (extreme right) together with a 95%-confidence interval. There is strong heterogeneity in preferred policies between left and right: The ideal policies of left parties like the Social Democratic Party (SPD) and the Greens are close together and clearly to the left of the Christian Democrats (CDU) and the Liberals (FDP).

The second condition refers to the ideological homogeneity of possible coalitions (Martin and Stevenson 2001; Schofield and Laver 1985). While a rigorous formalization of this condition is beyond the scope of this article, note that the zones of agreement of the two possible coalitions do not overlap. This means that all possible policies resulting from a bargaining process within a left-leaning coalition (SDP and Greens) are still clearly to the left of all policies that can reasonably be expected from a right-leaning coalition (FDP and CDU).[4]

Thus, given Fig. 1, we assume that if the formateur party (in this case either the SDP or the CDU) must form a coalition government, he would choose the smallest and ideologically closest party necessary to secure a majority. This assumption is even more plausible here. In

[3]For example, McGillivray (2003, 2004) finds that coalition governments in consensus democracies redistribute across sectors more strongly than governments in Westminster systems.

[4]An implicit assumption underlying this reasoning is that parties prefer to form ideologically homogeneous coalitions (Martin and Stevenson 2001; Schofield and Laver 1985).

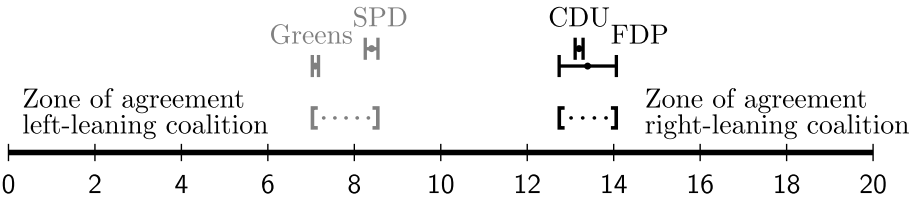

Fig. 1 German parties' ideal points on the economic (left-right) policy dimension in 2002. Ideal point estimates with 95% confidence intervals shown. Source: Benoit and Laver (2006: Appendix B)

2002, the SDP/Greens coalition government explicitly stated their intention to continue their coalition given the necessary majority, while the CDU and the Liberals announced their aim to form a right-leaning coalition if possible. Therefore, it is justified to speak about left- and right-leaning (coalition) governments.

3.2 Net present value and expected government partisanship

According to the discounted cash flow (or net present value) model, at time t, stock price S_t depends on its expected value $E_t[V_t]$, which equals the sum of all future dividends discounted to the present. Thus, even if investors are primarily interested in capital gains, because the source of the capital gains equals expected future dividends, the current market price of a stock is based on the expected flow of dividends throughout the life of a company. Given a continuous stream of cash flows, the expected value of the sum of discounted future dividends is:

$$E_t[V_t] = E_t\left(\int_t^{+\infty} e^{-\delta k} D_k \, \mathrm{d}k\right), \tag{1}$$

where D_k denotes the dividend payment at time k, and δ is a discount factor composed of a riskless interest rate r_F and a risk premium RP, which is appropriate given the risk of the stock under consideration.[5] As t approaches infinity, $E[V_t]$ resembles stock price S_t. To see how expected economic policy is connected with the discounted cash flow model, note that under standard economic theory the size of a dividend payment D_k of firm i equals i's profits π_i divided by the number of shares (Miller and Modigliani 1961; Williams 1938). In other words, on the micro level, $\pi_{i,k}$ determines the amount of capital available to be distributed as dividends $D_{i,k}$.

The incumbent policymaker p^j can be either right-leaning (in this case $j = R$), or left-leaning ($j = L$).[6] Consider a simple profit-before-tax function for a left-leaning coalition holding office (p^L):

$$\pi_{i,k} = P \cdot Y(p^L) - (L \cdot W(p^L) + K \cdot R(p^L)) \tag{2}$$

[5] In finance, the capital asset pricing model (CAPM) is used to determine the appropriate discount factor δ for a share of firm i: $\delta_i = r_F + \beta_i(r_M - r_F)$. In this equation, r_M is the rate of return on the market portfolio, β_i is the systematic or market risk of a security, and $\beta_i(r_M - r_F)$ is the risk premium.

[6] For the German case, we define a coalition between CDU, CSU (Christian Social Union), and the Liberals as right-leaning, and a coalition between SDP and Greens as left-leaning.

where

$$\frac{\partial \pi}{\partial Y} \cdot \frac{\partial Y}{\partial p^L} > 0, \qquad \frac{\partial \pi}{\partial W} \cdot \frac{\partial W}{\partial p^L} < 0, \quad \text{and} \quad \frac{\partial \pi}{\partial R} \cdot \frac{\partial R}{\partial p^L} < 0.$$

The first part of the difference equals the firm's revenues, i.e., the product of P, which is a vector of prices, and Y, a vector of output quantities.[7] The second part captures production costs, where W denotes labor prices and L is the quantities of labor used in the production process. The last source of costs arises from the amount of capital K needed for production, multiplied by the costs of capital R. All three parameters, Y, W, and R, are subject to policy decisions by the government p^j, which can choose between two broad classes of macroeconomic policy strategies.

Demand-side or left-leaning policies aim to manipulate the economy by increasing government spending and tax levels. This is supposed to stimulate the economy by increasing aggregate demand (for example, see Persson and Tabellini 2000). Thus, for policies of a left-leaning government p^L, the partial derivative of $\pi_{i,k}$ with respect to output Y will be positive, because of higher aggregate demand. However, while output increases, labor costs W also increase. This is because left-leaning parties are not only associated with higher non-wage labor costs, but also with strengthening the position of labor unions in wage bargaining (Calmfors et al. 1988; OECD 2004).

A standard result from the IS-LM model is that a nominal wage increase is only associated with an increase in demand if firms accept a profit decline. Moreover, price increases can cause the independent central bank to intervene by setting higher key interest rates. This triggers a rise in costs of capital and results in a negative effect on profits, i.e., the partial derivative $\frac{\partial \pi}{\partial R} \cdot \frac{\partial R}{\partial p^L}$ is smaller than 0. Generally, we assume these two adverse effects together will exceed the gains from increased demand, and cause firms to perform worse under left-leaning administrations.

In contrast, supply-side or right-leaning policies p^R focus on the incentive structure within the economy. Lowering taxes and welfare expenditures, combined with wage restraint, are assumed to create a more attractive investment climate and provide an increased incentive to work, thereby enhancing economic growth. We thus hypothesize that right-leaning governments will have a positive effect on firm profits.

However, before profits can be distributed, they must be taxed at rate τ. We define profits after tax $\pi^{\tau}_{i,t}$ as:

$$\pi^{\tau}_{i,k} = f(\pi_{i,k}|p^j, Z_i) \cdot (1 - \tau_k|p^j). \tag{3}$$

The first component is determined by factors conditional on a government's economic policy $(\pi_{i,k}|p^j)$, because the party or coalition holding office sets key macroeconomic parameters that tend to benefit their voter base (Alesina 1987; Hibbs 1977). Profits before tax are also influenced by factors Z specific to a firm, e.g., its product innovations, technological progress, or management quality, all of which are assumed to be independent of a government's economic policy, and k, respectively. Finally, profits of company i after tax depend on the corporate tax rate τ_k, which is directly set by the party or coalition holding office, with left parties preferring higher tax rates than right parties.

We can now easily assess how different parties' economic policies impact the stock market. As we have shown, right-leaning parties tend to enact more beneficial policies for firm profits. Thus there are two possible states after an election: With probability $\Pr^L_t \in [0, 1]$, a

[7] We assume competition is imperfect, because there would be no profits if marginal costs equaled marginal benefits.

left-leaning party or coalition wins; with probability $\Pr_t^R = (1 - \Pr_t^L)$, a right-leaning party or coalition wins. To see how the expected value of a stock varies with expected government partisanship, we extend equation 1 as follows:

$$E_t[V_t] = \Pr_t^R \left(\int_t^{+\infty} e^{-\delta k} D_k | p^R \, \mathrm{d}k \right) + (1 - \Pr_t^R) \left(\int_t^{+\infty} e^{-\delta k} D_k | p^L \, \mathrm{d}k \right). \tag{4}$$

Rational expectations lead investors to value future dividends as the sum of two expected values: The first part equals the net present value of future dividends under a right-leaning government, multiplied by the probability that the right-leaning party or coalition will win the upcoming election. The second part is the net present value of all future dividends under a left-leaning government, multiplied by the probability of a left-leaning coalition winning the election. After some simple algebraic transformation, we obtain:

$$E_t[V_t] = \left(\int_t^{+\infty} e^{-\delta k} D_k | p^L \, \mathrm{d}k \right) + \Pr_t^R \left(\int_t^{+\infty} e^{-\delta k} \left[D_k | p^R - D_k | p^L \right] \mathrm{d}k \right). \tag{5}$$

This equation has a very intuitive interpretation. There is a minimum net present value of a stock in a world in which a left-leaning coalition governs. This value is given by the first integral. However, this value rises with the probability of a right-leaning coalition winning the election, times the surplus in profits achieved under a right-leaning government. In contrast, the expected value is reduced if a victory becomes less likely.[8]

3.3 Volatility and price behavior

To link the expected value of shares with investor trading behavior and obtain predictions for the mean and volatility of stock prices, we rely on the work of Glosten and Milgrom (1985) as it has been modified by Leblang and Mukherjee (2005) in game-theoretic terms. However, instead of restating the full model, we use only a non-formal description of the relevant causal mechanisms. In the stylized world of the model, trade takes place in the form of a sequential game with two players. A risk-averse trader with homogeneous expectations takes prices as a given, and a risk-neutral market maker (specialist) quotes binding stock prices in order to ensure the liquidity and viability of the market. The designated dealer is able to transfer (buy) the demanded (offered) stock amount to (from) the trader at each time interval, which causes prices to adjust to changes in supply or demand, respectively.

Prior to the election, the trader acquires information and forms expectations about the probability of a certain party winning the election and thus future economic policies. The trader then chooses the optimal demand for stocks in accordance with these expectations. Subsequently, the market maker adjusts prices as follows:

$$\Delta_t = E_t[V_t] - P_t, \tag{6}$$

where Δ_t denotes the spread, which equals the difference between the expected value of a stock, $E[V_t]$, and the quoted price, P_t. With an increase in $E[V_t]$ as caused by an increase in the probability of a right-leaning coalition winning the election, Δ_t will rise. If the "true" expected value of the stock is different from the current quoted price (because of revised beliefs about the electoral prospects of the political parties), the market maker will adjust quotes and the market will converge to the new equilibrium.

[8] Using $\Pr_t^L$ instead of $\Pr_t^R$ shows that the stock price decreases as $\Pr_t^L$ increases.

When the trader rebalances his portfolio in response to a positive Δ_t, the number of shares traded increases. To equilibrate supply and demand, the market maker optimally adjusts prices and volatility. To abate demand, he sets prices higher and also increases volatility to reduce demand from risk-averse traders (Karpoff 1986; Andersen 1996). In other words, when demand for stocks increases, higher trading volume is associated with an increase in volatility. If Δ_t is negative, because a left-leaning government is expected to win the election, the expected value of stocks decreases. Because stock investing becomes less attractive, demand falls. Again, the market maker responds by optimizing price and volatility. To achieve the optimal balance between supply and demand, he lowers prices, which creates incentives for risk-averse traders to buy or at least hold stocks, and sets volatility to low levels.

This implies different reactions of trading volume to different types of new information (Liesenfeld 1998; Edington and Lee 1993). Good news, such as increased electoral prospects of a right-leaning coalition, have a positive effect on trading volume, which in turn increases volatility. But downward movements lower the number of shares traded, decreasing volatility. We thus expect to find the following relationship:

Hypothesis 1: *If the electoral probability of a right- (left-) leaning coalition increases, trading volume increases (decreases), causing the mean and volatility of the stock market to rise (fall).*

This hypothesis reflects that investors anticipate the effects of economic policies on future dividend payments. On the aggregate level, the expectation of economic policies that are more beneficial to firm profits should result in higher stock market prices and higher volatility. Note that hypothesis 1 implies an interaction effect between the electoral probability and trading volume. If a right-leaning coalition is expected, stocks become more attractive, which results in higher demand, i.e., trading volume increases. Higher trading volume leads to a higher mean and volatility of stock prices. In case a left-leaning coalition is expected to hold office after the upcoming election, trading volume falls and this reduces prices and their volatility.

However, a second source might also trigger higher volatility. As the election nears, it becomes increasingly difficult to predict the expected value of a stock. The market maker consequently tries to equilibrate supply and demand by rapid price changes. This causes stock prices to fluctuate strongly at times when election uncertainty is high (Leblang and Mukherjee 2005; see also Fowler 2006). Consequently, we expect that:

Hypothesis 2: *If electoral uncertainty increases (decreases), volatility increases (decreases).*

This second hypothesis captures an idea central to financial theory in which volatility is known as a measure of risk. For example, in the Black-Scholes formula, it is used to determine the price of an asset. Thus, it is all the more plausible that volatility should be correlated with (political) uncertainty.

4 Data and methodology

To test our hypotheses, we use a sample of daily stock prices and survey data for the nine months prior to the 2002 German federal election.[9] Our data come from Forsa, one of Ger-

[9]This choice is driven by theoretical and data availability considerations. First, we wanted an election that was clear in terms of expectations about party coalition preferences. Second, the electoral race needed to

many's leading polling institutes.[10] To assess the impact of expected government partisanship, we choose the SDAX (small-cap German stock market index) as our dependent variable (Fig. 1). There are several reasons to use the SDAX instead of the DAX (Deutscher Aktienindex), or the MDAX (medium-cap stock market index). First, the well-being of small enterprises is crucial to national economic performance: They account for 40% of net investment in Germany, 70% of all jobs, and 80% of all trainees (see Deutscher Bundestag 2002). Second, because the DAX (MDAX) reflects the performance of global (semi-global) firms, they generate most of their revenue outside Germany (75% (62%)). Thus we do not expect their stocks to respond significantly to national politics. Enterprises represented in the DAX, such as Daimler-Chrysler, Siemens, and BASF, enjoyed record profits for years, but paid few taxes in Germany. These companies are also not dependent on national economic policies: More than 50% (40%) of their employees are located in countries other than Germany, which means changes in labor and non-wage labor costs within Germany have very little impact. Finally, the higher amount of resources available to mid- and large-sized companies makes it easier for them to use exit options, i.e., evade adverse changes in national economic policy (Hirschman 1970; Kurzer 1993; Garrett 1998; Hymer 1979). Thus, if there are anticipated partisan effects in the stock market, we should find them in the SDAX data.[11]

Scholars have chosen different ways, in order to measure the probability of party or coalition j winning the upcoming election. Brander (1991) uses a party's vote share from the most recent survey to measure the probability of its victory. Similarly, Jensen and Schmith (2005) pool public opinion data from different pollsters and fill in missing values with the last polling result. A second alternative is the market model, where bookmakers' odds on elections are used to reflect "the acquisition of new information on the relative standing" of parties (Herron 2000: 331; see also Genmill 1992 and Roberts 1990). Third, we can calculate electoral probabilities from polling results that account for the time until the upcoming election and the variance in polled vote shares (the "electoral option model," see Alesina et al. 1997: 114–116).

We use the electoral option model, which is becoming increasingly popular in the literature (Hays et al. 2000). Electoral probability is the preferable measure because it reflects two important facts: (1) If polling results are volatile during the pre-election time, a winning margin does not contain as much information as if polling results are static, and (2) if there are only a few days until the election, the party leading in the polls is more likely to win.[12]

The electoral option model is also appropriate for our chosen time period, because in 2002 there were two opposing groups of parties that intended to form ideologically different coalition governments (the SDP and Greens, and the CDU and Liberals). We therefore had

have been close, because this adds variance to the electoral probabilities and facilitates efficient estimation of anticipated partisan effects. Third, we wanted to assess partisan effects on stocks of small, mid-, and large-sized enterprises. Since the small-cap stock index series starts at the end of 2001, we had only the 2002 or 2005 election to choose from. These restrictions made the 2002 election the unique rational choice.

[10] The raw polling data is accessible online at http://www.wahlrecht.de/umfragen/forsa/2002.htm; 18th March 2006. It is also available at the Central Archive for Empirical Social Research (ZA), University of Cologne.

[11] However, we re-estimated all models with DAX and MDAX as dependent variables. The models were jointly insignificant. The results are discussed further below.

[12] A third reason, which eliminates the second alternative, is that book market data were not available. Also note that political stock market data could provide a fourth potential measure. However, these data were also not available for the 2002 pre-election period.

a situation that could be considered comparable to a two-party race. Consequently, we can sum the polled vote shares of the respective parties to generate a measure of the probability of one group of potential coalition partners winning the votes necessary to form a coalition government. Our measure of the probability that a right-leaning coalition formed by the CDU and the Liberals (FDP) would receive the majority of votes at time t_e is:

$$\Pr_t^R = \Phi\left[\frac{Q_t^R + \mu m - 50}{\sigma\sqrt{m}}\right], \tag{7}$$

where Φ is the cumulative standard normal distribution, Q_t^R denotes the proportion of citizens who intend to vote for the right-leaning coalition relative to those who intend to vote for the left-leaning coalition at time t, and m is the number of days until the election. μ is the sample mean of changes in this proportion, and σ is the sample standard deviation of daily changes. This measure tells us how likely it is that a right-leaning coalition will come into power. We can thus use $\Pr_t^R$ as a proxy for investor expectations of a right-leaning government after the election. The probability of a left-leaning coalition winning office is calculated as $\Pr_t^L = 1 - \Pr_t^R$.[13]

To assess the effect of electoral uncertainty, we capitalize on the detailed polling data available to create a measure of electoral uncertainty, $e_t(\upsilon_t)$, where we incorporate the proportion of undecided voters. The number of undecided voters in the pre-election time measures the potential votes available to parties in order to make up the winning margin. To confirm that this operationalization is not a matter of taste, and that the results are not simply statistical artifacts, we re-estimated all models with an alternative measure of electoral risk based on the electoral probability:

$$e_t(\Pr_t^j) = 1 - 4(\Pr_t^j - 0.5)^2, \tag{8}$$

where e_t denotes entropy at time t, and $\Pr_t^j$ is the probability of coalition $j \in \{R, L\}$ winning the election. As can easily be verified, $e_t(\Pr_t^j)$ is an inverse U-shaped function that reaches its maximum 1 if $\Pr_t^j = 0.5$. Because $\Pr_t^j \in [0, 1]$, the function reaches its minima for $\Pr_t^j = 0$ and $\Pr_t^j = 1$. This reflects that uncertainty is minimal if the probability of a victory is very high ($\Pr_t^j \approx 1$) or very low ($\Pr_t^j \approx 0$). The intuition behind this measure is that the smaller the difference in the winning probabilities, the less certain are expectations of government partisanship.

As normality tests show, our dependent variable, SDAX returns, is not only strongly skewed ($m_3 = -0.991$), but also leptokurtotic ($m_4 = 7.419$). While excess kurtosis is surely present in the dependent variable, we still need to test for volatility clustering. The Lagrange multiplier test rejects the null of no volatility clustering (ARCH effects) at the 1% significance level; hence we must assume that squared residuals are correlated across time. Finally, we compute autocorrelation diagnostic tests. The Ljung-Box test of squared returns for five and twenty-five lags indicates volatility clustering. Unit root tests show that the SDAX return series is stationary.[14] We use a GARCH (generalized autoregressive conditional heteroscedasticity) framework to test the empirical implications of the model because it is es-

[13] If compared to the final election outcome, the ex-post accuracy of this measure as a predictor of the electoral result varies during the pre-election time. This reflects the very simple fact that expectations can be wrong. Nevertheless, electoral probabilities are based on the information publicly available to investors, and therefore appropriate, in order to model rational expectations of government partisanship.

[14] Note that our dependent variable is not fractionally integrated, since the return series is $I(0)$, fractional integration is not an issue.

pecially suitable for analyzing data with leptokurtosis and volatility clustering (Bollerslev 1986; Engle 1982, 2001).[15]

5 Empirical results

We estimated three alternative specifications for each electoral probability. We accounted for potential heteroscedasticity in the residuals by applying Bollerslev and Wooldridge's (1992) semi-robust standard errors. Table 1 gives the results for the mean equation of our GARCH specification. In models I, III, and IV, we can see that the interaction term of the logged differences in trading volume and electoral probability $\Pr^R$ is positive and significant.[16] This is in line with the predictions of our model: Demand for stocks is expected to rise in anticipation of a right-leaning government, because it is expected to lead to higher stock market returns.

Stock market volatility is modeled in the variance equation of the GARCH specification. The significant ARCH coefficient $\hat{\alpha}$ suggests that yesterday's deviations have a significant impact on the following day's changes. According to the hypotheses, the coefficient of the interaction term suggests that if the market expected a right-leaning coalition to win the 2002 election, trading volume would increase, resulting in higher stock market volatility. The estimates stay significant across different specifications and change only slightly in substance. They also remain unchanged once we account for the so-called Monday effect, a well-known market anomaly.[17]

The opposite picture emerges if we focus on how the electoral prospects of a left-leaning government influence stock market performance (II, IV, VI). The interaction term has a negative marginal effect on SDAX returns. With the market expecting a left-leaning government, volatility also decreased. For the electoral uncertainty measure, the coefficient is only significant in models II and III, where it is negative. This contradicts the theory as higher uncertainty should trigger higher volatility. However, because the coefficient is not robust, we refrain from drawing any inferences.

We further note that all $\hat{\alpha}$ coefficients are significant, meaning there are ARCH effects in the SDAX time series. Their magnitude shows the effect of an unexpected shock on the volatility of the following day. High values suggest unstable expected volatility, or a disproportionate response from market participants to past price innovations, ε^2_{t-1}. The values here range from 0.3 to 0.4, and are normally between 0.1 and 0.2. However, this finding is unrelated to the 2002 election. As the estimations of pure GARCH models clearly show, this is a specific feature of SDAX returns. The conditional variance at $t-1$ is of minor relevance in the parsimonious models (I and II), given the low $\hat{\beta}$ coefficients.

In contrast, the volatility persistence, calculated as the sum of ARCH and GARCH terms, increases from 0.769 in the baseline specification (I) to 0.915 (model VI) once we fully specify by adding inflation, the interest rate, and a Monday dummy. For the electoral prospects

[15] See Enders (2004) for an introduction to volatility models.

[16] Note that the estimates for the unconditional effect of the electoral probabilities and trading volume do not represent real-world relationships. They assume the other variable is zero, which is never the case in our sample (see, e.g., Braumoeller 2004).

[17] The impact of the Treasury bill rate on the volatility process of SDAX returns is significant only in GARCH models V and VI. The positive sign indicates that a high interest rate raises the cost of borrowing for companies, and hence increases the level of equity return volatility. This result fits nicely with Glosten et al.'s (1993) findings that the Treasury bill rate and stock return volatility are positively correlated.

Table 1 GARCH models for logged changes in SDAX returns ($N = 184$)

Parameters	I	II	III	IV	V	VI
Mean equation						
$\Delta(\mathrm{Pr}^R)$	0.027^{**}		0.028^{***}		0.032^{***}	
	(0.012)		(0.007)		(0.009)	
$\Delta(\mathrm{Pr}^L)$		-0.027^{**}		-0.027^{*}		-0.028^{***}
		(0.012)		(0.015)		(0.009)
Δ Log(Volume)	-0.010^{*}	0.006^{**}	-0.007^{*}	0.007^{**}	-0.010^{*}	0.008^{***}
	(0.005)	(0.003)	(0.005)	(0.003)	(0.005)	(0.002)
Δ Log(Volume) $\times$ Pr^R	$\mathbf{0.016}^{**}$		$\mathbf{0.013}^{*}$		$\mathbf{0.017}^{**}$	
	(0.008)		**(0.007)**		**(0.007)**	
Δ Log(Volume) $\times$ Pr^L		$\mathbf{-0.016}^{**}$		$\mathbf{-0.018}^{**}$		$\mathbf{-0.019}^{**}$
		(0.008)		**(0.008)**		**(0.007)**
Δ Log(Volume)$_{\mathrm{Combined}}$	0.006^{**}	-0.010^{*}	0.005^{**}	-0.011^{**}	0.049^{***}	-0.047^{***}
	(0.003)	(0.005)	(0.002)	(0.005)	(0.013)	(0.013)
Δ Log(Dow Jones$_{t-1}$)	0.138^{***}	0.138^{***}	0.151^{***}	0.144^{***}	0.144^{***}	0.150^{***}
	(0.026)	(0.026)	(0.023)	(0.040)	(0.021)	(0.022)
Δ(Inflation)			0.786	0.824	0.401	0.532^{*}
			(0.542)	(0.843)	(0.276)	(0.288)
D_{Monday}					0.151^{*}	0.178^{**}
					(0.083)	(0.081)
Constant	-0.041	-0.041	-0.037	-0.043	-0.060^{*}	-0.062^{*}
	(0.032)	(0.032)	(0.030)	(0.030)	(0.034)	(0.033)
Variance equation						
$\hat{\alpha}$	0.387^{**}	0.387^{**}	0.387^{***}	0.308^{***}	0.328^{***}	0.323^{***}
	(0.158)	(0.158)	(0.135)	(0.119)	(0.116)	(0.110)
$\hat{\beta}$	0.382^{***}	0.383^{***}	0.408^{***}	0.551^{***}	0.550^{***}	0.592^{***}
	(0.107)	(0.107)	(0.107)	(0.115)	(0.099)	(0.095)
$\Delta(\mathrm{Pr}^R)$	-0.909^{*}		-0.593		-0.510^{*}	
	(0.554)		(0.390)		(0.305)	
$\Delta(\mathrm{Pr}^L)$		0.909^{*}		0.464		0.436
		(0.553)		(0.742)		(0.287)
Δ Log(Volume)	-0.926^{*}	0.623^{***}	-0.931	0.613	-0.724^{**}	0.542^{***}
	(0.550)	(0.192)	(0.609)	(0.470)	(0.352)	(0.125)
Δ Log(Volume) $\times$ Pr^R	$\mathbf{1.547}^{**}$		$\mathbf{1.559}^{**}$		$\mathbf{1.313}^{***}$	
	(0.726)		**(0.799)**		**(0.476)**	
Δ Log(Volume) $\times$ Pr^L		$\mathbf{-1.553}^{**}$		**−1.297**		$\mathbf{-1.137}^{***}$
		(0.728)		**(1.907)**		**(0.362)**
Δ Log(Volume)$_{\mathrm{Combined}}$	0.621^{***}	-0.929^{*}	0.616^{***}	-0.684	0.589^{***}	-0.595^{**}
	(0.192)	(0.551)	(0.183)	(1.440)	(0.138)	(0.252)
$e_t(\upsilon_t)$	-2.556	-2.557^{*}	-3.336^{**}	-3.013	-1.556	-1.364
	(1.447)	(1.446)	(1.446)	(2.877)	(0.991)	(0.920)
Δ(InterestRate)			0.298	0.322	0.332^{*}	0.345^{**}
			(0.319)	(0.475)	(0.186)	(0.144)
Constant	0.480^{**}	0.480^{**}	0.582^{**}	0.520	0.288^{*}	0.250^{*}
	(0.229)	(0.229)	(0.237)	(0.462)	(0.162)	(0.150)

Table 1 (*Continued*)

Parameters	I	II	III	IV	V	VI
AIC	1.683	1.683	1.666	1.725	1.636	1.618
SIC	1.892	1.892	1.911	1.970	1.898	1.880
LogL	−142.790	−142.787	−139.306	−144.709	−135.524	−133.872
J.B. test	9.589***	9.583***	6.101**	40.483***	5.027*	4.500
ARCH LM(1) test	0.964	0.964	0.856	0.003	0.514	0.373
$Q(5)$	13.404**	13.403**	11.385**	10.283*	10.094*	10.347*
$Q(25)$	29.191	29.193	27.490	27.520	21.006	21.388
$Q^2(5)$	4.295	4.296	2.511	1.205	3.182	3.020
$Q^2(25)$	20.453	20.444	17.200	11.731	16.496	16.621

Coefficients shown with Bollerslev and Wooldridge semi-robust standard errors in parentheses. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels, respectively. $\Delta\,\text{Log(Volume)}_{\text{Combined}}$ is the combined effect of trading volume, with the corresponding standard error calculated on the basis of the variance-covariance matrix of coefficient estimates in parentheses

of the left-leaning coalition (II, IV, VI), persistence is nearly 10% higher than in models I, III, and V. Since the sum of the GARCH terms is substantially smaller than 1, all models show mean reversion.[18]

The ARCH-LM test for each of the six specifications fails to reject the null of no clustering in the residuals, which means that we successfully model the volatility dynamics of our SDAX returns. We also computed autocorrelation diagnostic tests, as the bottom row of Table 1 shows. The Ljung-Box Q(5) statistic for each model indicates that serial correlation in the mean exists, although this is not the case once we account for twenty-five lags. The standardized squared residuals in the GARCH models are uncorrelated, suggesting that the GARCH models have adequately captured the persistence in the variance of returns. Finally, the Jarque-Bera statistic suggests that deviations from normality in the standardized residuals, caused mainly by excess kurtosis, could be reduced substantially. For a second step, we re-estimated all specifications using an EGARCH model to test the robustness of the estimators, after accounting for the asymmetric effects of past volatility deviations. Table 2 gives the results. None of the estimators we are interested in deviates substantially from those of the GARCH results. Once we fully specify the model, $\hat{\gamma}$, the effect of negative changes on volatility, is significantly smaller than 0, which shows there is a leverage effect in the SDAX returns.

The information criteria reported at the bottom of Table 2 confirm that the EGARCH model fits slightly better to the data. Moreover, the diagnostic tests show that our standardized residuals do not suffer from ARCH effects, and are normally distributed. The Ljung-Box statistics lead us to accept the null hypothesis of no serial correlation in the standardized residuals in the mean and in the squared standardized residuals. All of these diagnostic tools emphasize the reliability of our results. Furthermore, the GARCH and EGARCH specifications are estimated assuming normally distributed residuals. So we tested whether our results remain robust against the assumption of Student-t and generalized error distributions (GED). Our conclusions remained essentially unchanged.

[18] We re-estimated several models with various sample lengths. The results did not change.

Table 2 EGARCH models for logged changes in SDAX returns ($N = 184$)

Parameters	I	II	III	IV	V	VI
Mean equation						
$\Delta(\mathrm{Pr}^R)$	0.027^{***}		0.027^{***}		0.029^{***}	
	(0.010)		(0.009)		(0.009)	
$\Delta(\mathrm{Pr}^L)$		-0.027^{***}		-0.027^{***}		-0.029^{***}
		(0.010)		(0.009)		(0.009)
Δ Log(Volume)	-0.009^{*}	0.007^{**}	-0.010^{*}	0.007^{**}	-0.007	0.007^{***}
	(0.005)	(0.003)	(0.005)	(0.003)	(0.005)	(0.002)
Δ Log(Volume) $\times$ Pr^R	**0.016****		**0.017****		**0.014****	
	(0.008)		**(0.008)**		**(0.007)**	
Δ Log(Volume) $\times$ Pr^L		**−0.016****		**−0.016****		**−0.014****
		(0.008)		**(0.008)**		**(0.007)**
Δ Log(Volume)$_{\mathrm{Combined}}$	0.007^{**}	-0.009^{*}	0.007^{**}	-0.009^{*}	0.043^{***}	-0.043^{***}
	(0.003)	(0.005)	(0.003)	(0.005)	(0.012)	(0.012)
Δ Log(Dow Jones$_{t-1}$)	0.145^{***}	0.145^{***}	0.149^{***}	0.150^{***}	0.149^{***}	0.149^{***}
	(0.022)	(0.022)	(0.021)	(0.021)	(0.022)	(0.022)
Δ(Inflation)			0.209	0.200	0.370	0.370
			(0.386)	(0.383)	(0.320)	(0.320)
D_{Monday}					0.214^{***}	0.214^{***}
					(0.078)	(0.078)
Constant	-0.069^{**}	-0.069^{**}	-0.067^{**}	-0.067^{**}	-0.109^{***}	-0.109^{***}
	(0.031)	(0.031)	(0.032)	(0.032)	(0.036)	(0.036)
Variance equation						
$\hat{\alpha}$	0.298^{**}	0.298^{**}	0.339^{**}	0.347^{**}	0.374^{***}	0.374^{***}
	(0.128)	(0.128)	(0.144)	(0.143)	(0.143)	(0.143)
$\hat{\gamma}$	-0.135	-0.135	-0.158^{*}	-0.158^{*}	-0.204^{**}	-0.204^{**}
	(0.092)	(0.092)	(0.098)	(0.097)	(0.100)	(0.100)
$\hat{\beta}$	0.843^{***}	0.843^{***}	0.824^{***}	0.822^{***}	0.827^{***}	0.827^{***}
	(0.093)	(0.093)	(0.106)	(0.108)	(0.085)	(0.085)
$\Delta(\mathrm{Pr}^R)$	-0.019		-0.024		-0.026	
	(0.023)		(0.026)		(0.023)	
$\Delta(\mathrm{Pr}^L)$		0.019		0.025		0.026
		(0.023)		(0.026)		(0.023)
Δ Log(Volume)	-0.006	0.024^{**}	-0.012	0.027^{**}	-0.014	0.029^{***}
	(0.014)	(0.010)	(0.026)	(0.011)	(0.014)	(0.009)
Δ Log(Volume) $\times$ Pr^R	**0.031**		**0.039***		**0.043***	
	(0.023)		**(0.023)**		**(0.022)**	
Δ Log(Volume) $\times$ Pr^L		**−0.031**		**−0.039***		**−0.043***
		(0.023)		**(0.023)**		**(0.022)**
Δ Log(Volume)$_{\mathrm{Combined}}$	0.024^{**}	-0.006	0.027^{**}	-0.012	0.029^{***}	-0.014
	(0.010)	(0.014)	(0.011)	(0.014)	(0.009)	(0.014)
$e_t(\upsilon_t)$	-0.003^{***}	-0.003^{***}	-0.002^{***}	-0.003^{***}	-0.003^{***}	-0.003^{***}
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Δ(Interest Rate)			0.014	0.014	0.010	0.010
			(0.028)	(0.028)	(0.024)	(0.024)
Constant	-0.451^{**}	-0.451^{**}	-0.507^{**}	-0.517	-0.543^{***}	-0.543^{***}
	(0.001)	(0.176)	(0.201)	(0.203)	(0.171)	(0.171)

Table 2 (*Continued*)

Parameters	I	II	III	IV	V	VI
AIC	1.589	1.589	1.600	1.600	1.566	1.566
SIC	1.816	1.816	1.862	1.862	1.845	1.845
LogL	−133.170	−133.170	−132.161	−132.168	−128.060	−128.060
J.B. test	4.172	4.172	4.419	4.449	1.972	1.972
ARCH LM(1) test	0.000	0.000	0.043*	0.126	0.213	0.214
$Q(5)$	9.502*	9.503*	9.721*	9.739*	8.718	8.716
$Q(25)$	26.460	26.461	25.762	25.680	19.612	19.607
$Q^2(5)$	1.185	1.185	0.987	0.975	2.086	2.085
$Q^2(25)$	21.518	21.518	21.444	21.733	18.928	18.931

Coefficients shown with Bollerslev and Wooldridge semi-robust standard errors in parentheses. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels, respectively. $\Delta\,\text{Log(Volume)}_{\text{Combined}}$ is the combined effect of trading volume with the corresponding standard error, calculated on the basis of the variance-covariance matrix of the coefficient estimates in parentheses

Table 3 Results for the alternative uncertainty measure ($e_t(\text{Pr}_t^R)$)

	I	II	III	IV	V	VI
GARCH	−0.051	−0.053	−0.100*	−0.089*	−0.006	−0.006
	(0.053)	(0.054)	(0.055)	(0.054)	(0.042)	(0.042)
EGARCH	−0.023**	−0.023**	−0.023**	−0.022**	−0.021**	−0.021**
	(0.009)	(0.009)	(0.010)	(0.010)	(0.009)	(0.009)

Coefficients shown with Bollerslev and Wooldridge semi-robust standard errors in parentheses. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels, respectively

As we discussed earlier, the electoral uncertainty variable did not have a robust effect on volatility in the 2002 election. To test whether this result is attributable to our operationalization, we re-estimated both GARCH and EGARCH models with the six specifications, using our electoral uncertainty measure based on electoral probabilities, $e_t(\text{Pr}_t^j)$. This measure reflects that uncertainty is minimal if the probability of an electoral victory is very high ($\text{Pr}_t^j \approx 1$) or very low ($\text{Pr}_t^j \approx 0$).

Table 3 reports the coefficients for electoral risk only, in order to economize on space. The estimators of the GARCH model indicate no significant impact of electoral uncertainty on changes in stock market returns. The EGARCH estimates, however, do suggest that volatility decreases if electoral uncertainty increases. Thus, increased closeness of the electoral race had a volatility-reducing effect in the 2002 election. This is surprising, but not new to the literature (see the results of Leblang and Mukherjee (2004: 312–313) for the 2000 U.S. presidential election).

Our finding that electoral uncertainty has a volatility-reducing effect stock return volatility could be attributable to the institutional characteristics of Germany's political system. In systems where proportional representation fosters coalition governments, significant policy changes become less likely with increasing closeness of the electoral race, because ideologically different parties may be forced to form a grand coalition. Thus, higher electoral

uncertainty could signal relative future economic policy stability, which would imply less risk and lower volatility.

Finally, we must examine the argument we made above, that stocks of global enterprises are not expected to react to changes in electoral prospects of national political parties. We re-estimated all models for the DAX and MDAX series, and we discuss both sets of results together.[19] The estimates of the interaction term were insignificant in almost all specifications. But, more importantly, even the null hypothesis of the variables having no joint effect on the index returns could not be rejected. This supports the conjecture that national politics has no systematic impact on mid- and large-sized enterprises (anymore).

But how do these findings compare with previous results? Pierdzioch and Döpke (2006) examined the relationship between current government partisanship and stock market returns in Germany. Their results show no robust effect of government partisanship on stock market performance. Our results demonstrate that the stock market is far from being immune to partisan politics, but it seems to incorporate these expected effects into current prices. This shows that parties matter, and also lends support to the semi-strong form of the efficient market hypothesis.

Our results contain another message if viewed against the finding that output growth tends to be higher under left- than right-leaning governments (Alesina et al. 1997). Our estimations show that stock returns of small firms are higher if a right-leaning government is more likely. This supports our assumption that left-leaning governments stimulate growth, but also trigger a disproportionate increase in production costs, which in the end leads investors to expect lower profits.

6 Conclusion

Prior studies on the effect of government partisanship on stock market performance have failed to consider the prospective trading behavior of rational investors. This paper examines the systematic distributive effects of expected government partisanship on the stock market during the 2002 German federal election. Our argument is based on rational partisan theory (Alesina 1987; Alesina et al. 1997), and extant evidence from the analysis of party manifestos (Budge et al. 2001) regarding party preferences for economic policies.

We assume that different parties will manipulate demand, labor costs, costs of capital, and the corporate tax rate, which are all central to firm profits, differently. Investors will anticipate the impact of changes in future economic policy on expected dividend payments. If a left-leaning coalition wins the election, traders will expect minimal dividends; if a right-leaning coalition wins, stock investing is expected to be more attractive. In the stylized world of our market microstructure, these changes in expected value of an asset cause shifts in the mean and volatility of stock prices. Higher (lower) net present values increase (decrease) trading volume, resulting in a higher (lower) mean and volatility of stock prices. Additionally, an increase in electoral uncertainty should lead to higher stock market volatility.

Results from GARCH(1, 1) and EGARCH(1, 1) volatility models support the rational partisan hypotheses. However, empirical evidence shows that in the 2002 German federal election only overall stock performance of small German firms was positively linked with the probability of a right-leaning coalition winning the election. Mid- and large-sized firms were not systematically affected by expected government partisanship. We believe that these

[19] Results are available upon request.

larger companies had already diversified their political risk, and were no longer vulnerable to national government changes. For small firms, we found that increasing electoral prospects of a right-leaning coalition caused volatility increases. This suggests that partisan politics still matter and that future political developments are incorporated into today's prices, which supports the semi-strong form of market efficiency (Fama 1970). Moreover, this could explain why past research failed to find significant influences of current government partisanship on German stock market behavior (Pierdzioch and Döpke 2006). Surprisingly, higher electoral uncertainty caused a decrease in volatility. This is clearly at odds with theory, although past research has reported similar results for the 2000 U.S. Presidential election (Leblang and Mukherjee 2004).

This paper provides possibilities for future research in three directions. First, a natural next step would be to determine whether the sensitivity of the German stock market varies across industrial sectors. Second, the analysis of cross-country data would offer the opportunity to assess the moderating effect of political institutions on stock market reactions to expected government partisanship. A third direction concerns the puzzling uncertainty-volatility nexus. As we noted, electoral closeness may indicate that a grand coalition is likely to result. In multi-party systems, higher electoral uncertainty would then be a signal of relative future economic stability, and thus leads to lower volatility. This suggests that the impact of electoral uncertainty on stock market volatility might be conditional on the political system. However, more work is necessary in order to understand the interplay between electoral uncertainty, political institutions and stock market performance.

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