

Influence of Political Climate on Portfolio Composition: Evidence from Regional Banks

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Abstract

In this paper we investigate the relation between regional heterogeneity in portfolio composition of German investors and the political climate at district level. We find that right-wing supporters are more likely to participate in financial markets and keep larger share of their wealth in securities portfolios. Consistent with the theory of political conservatism, in the regions with high support for right-wing parties individuals invest more in safe securities and less in risky assets. Together with political surprise and uncertainty, political climate has an impact on home bias of individual investors. The results support the idea that political values play a role in shaping financial decisions of households.

JEL-Classification: D14, D72, G11

Keywords: household finance, political climate, regional analysis, product classes, home bias.

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1 Introduction

Individual investors' portfolio choice has been the subject of many research projects. They provide evidence of a significant heterogeneity in the investment behavior of individuals (McInish and Srivastava (1984), Barber and Odean (2001)). One source of this heterogeneity stems from the fact that individuals hold different expectations about the stock market. Fama and French (2007) show that tastes for financial assets can play a significant role in shaping investors' expectations and explaining the different phenomena of individual behavior studied in empirical papers, such as holding familiar assets (Seasholes and Zhu (2010)), employer's stocks (Poterba (2003)), or growth companies (Daniel and Titman (1997)).

Personal characteristics and values are fundamental for one's behavior and have an impact on life choices of individuals, including investments. Some examples include home bias (preferences for national securities), socially-responsible investing (avoidance of "bad" companies, such as tobacco or alcohol) or overweighting employer's stocks¹. Jost et al. (2003a), Alford et al. (2005), and Block and Block (2006), among others, provide evidence from psychological perspective that political preferences partly origin in personal values and personality traits. Certain personal characteristics that are observable already in the early childhood are related to the political preferences of a grown up person. Neurocognitive science confirms the results that there are differences in perceiving information and coping with uncertainty between conservative and liberal individuals (see Amodio et al. (2007) or Kanai et al. (2011), for example). These finding suggest that political values and preferences start to form early in life, much earlier than individual is faced with investment problems. As a results, they are partly exogenous and not only environment-related. In this paper we look at political preferences of investors to extrapolate their expectations towards financial markets and shed light on the determinants of their portfolio decisions.

Political preferences have been used as one of the proxies for investor's preferences in recent research. However, the evidence on the portfolio composition is still scarce. Most of the interest have been assigned to the topic of political preferences of large market players – fund managers and analysts. Hong and Kostovetsky (2012), DeVault and Sias

¹See, for example, Morse and Shive (2011), Grinblatt and Keloharju (2001), or Bhattacharya and Groznik (2008)

(2014) and Jiang et al. (2016) elaborate on the differences in behavior of fund managers and analysts based on their affiliation towards Republican or Democratic party. There exists some evidence of the influence of political preferences on portfolios of individual investors. Kaustia and Torstila (2011) show that right-wing voters are more likely to invest in stocks by inferring people's political identities from regional political climate. Bonaparte et al. (2012) examine both political climate and political identity to construct a measure of optimism that helps infer individuals' expectations about the economy.

Political values and political climate are closely related, although they represent two different concepts. We assume, as it has been proposed in the literature, that it is possible to extrapolate the preferences of individuals using the existing climate, since it represents the affiliation of majority in the region. Another way to look at it that even if the personal values are not in line with the ruling environment, the expectations are built based on the political climate in the region, thus, a person adopts his behavior based on what he expects from party policies.

Political climate has become an increasingly relevant topic in the recent years in Europe. The rise of popularity of extreme right parties, the Brexit and the tense situation in the South are a few examples of the political risks that are facing Europe today. Understanding how households react to the changing political environment can be useful for a vast audience, including governments, banks, politicians, and financial advisors.

Current research enhances this literature by providing a comprehensive overview of portfolio composition of individual investors from the perspective of differences in regional political climate. We use political orientation as a channel through which individuals express their personal values and reveal personality traits. Taken together, these political values of a group of individuals form the political climate at the regional level, which can be either left- or right-wing dominated. Right-wing German parties, such as FDP or CDU/CSU, promote economic liberalism, free markets and private ownership, and so their supporters are expected to exhibit the same beliefs about financial markets. Therefore, we first hypothesize that in the regions where right-wing parties dominate, investors are more likely to participate in financial markets and tend to invest more of their wealth in securities relative to deposits. However, right-wing ideology is also related to higher level of conservatism, and for this reason we expect investors to be more precautionary in their investment within securities portfolios. Second, given that the parliament is dominated

by a right-wing party for the whole time frame under consideration, we expect the levels of home bias to be higher in the regions where the majority of voters support right-wing parties. The second hypothesis is consistent with the line of thought of Morse and Shive (2011) who find that (political) optimism leads to higher shares of domestic investments.

We use a unique dataset from Deutsche Bundesbank that provides detailed information on portfolio holdings for all German households for the time frame of 2006 to 2015. Since the interest lies in investigating the regional differences, we restrict our sample to regional banks, which in the German banking system are represented by savings and cooperative banks (Hackethal and Schmidt (2005)). The data on political climate come from two sources. First, we use election results on district level provided by the Regional Database Germany, including state elections, as well as German and European Parliament elections. Second, we are able to assess people's attitudes towards political parties using the results of opinion poll conducted by Infratest Dimap². Combined together, these two datasets provide a source of exogenous variation in people's beliefs and attitudes towards financial markets.

Our main results suggest that in the right-wing-tilted regions individuals participate more in financial markets and hold higher share of their wealth in securities portfolios relative to deposits. Regarding portfolio compositions, investors hold higher shares of their investment in bonds and funds, and lower shares in derivatives. Whereas the first results is in line with Kaustia and Torstila (2011), the second contrasts their findings of no impact of political climate on the share invested in stocks in Finnish data, which can, however, be due by methodological and sample differences. In addition to that we find that in the regions with right-wing environment, the levels of home bias are higher for bonds and somewhat lower for funds. These results are partially in line with Puri and Robinson (2007) who find that optimistic investors invest more in national securities. In addition to that, the elements of elections surprise and uncertainty have an impact on the levels of home shares.

Several alternatives hypotheses are discussed that may explain the results: wealth effects, investment culture, social capital, sophistication and district type. We find that although these theories can explain some of the variation, the impact of political climate

²The survey is called "The positioning of political parties on the left-right continuum" ("Die Positionierung der politischen Parteien im Links-Rechts-Kontinuum") and measuring the party's position on the left-right dimension from voters' perspective.

is not altered.

The paper proceeds as following: Section 2 provides an overview of existing research on the topic illustrating the interdependence of three concepts: personal values and personality traits, political preferences and ideology, and investment decisions of individuals. Section 3 describes the data, variables composition and methodological issues. Results as well as additional robustness checks are presented in Section 4, and Section 5 concludes.

2 Related Literature and Hypotheses

Current research rests on three strands of literature: psychology, political science, and finance. From one perspective, psychological traits are revealed in political preferences. From the second, personal values have an impact on consumer behavior (including investment decisions). Finally, from the third side, political preferences influence financial markets as well as investment behavior of both big market players and households.

2.1 Psychological Roots of Political Preferences

Psychological literature provides evidence that certain personality traits are linked to the political affiliation of individuals. Adorno et al. (1950) were one of the first researchers to underline the importance of this link by developing a set of psychological traits that could characterize a person as more (or less) politically conservative. This work was, however, highly criticized as a non-representative and lacking diversification and justification for some concepts. From 1960s on, the importance and existence of left-right ideology was questioned and lost its popularity for almost 40 years. In this vein, Campbell et al. (1960) claim that parental environment and social milieu are responsible for formation of a psychological attachment to a particular party which stays rather stable throughout the time. Only a minority of voters displays anything resembling an ideology, whereas the majority inertially follows their inherited partisanship and does not care about the issues and policies of the parties. By analyzing open-ended interviews, Converse (1964) concludes that people do not have strong belief systems and do not interpret politics through an ideological prism.

In the late 1990s developments in psychology, together with neuroscience and political science, provided new evidence on the forgotten theses. Jost et al. (2003a,b) provide a

comprehensive overview of existing studies that link particular personality traits to political right-wing affiliation. These attributes are studied in their relation towards two main conservatism traits: resistance to change and justification of inequality. Such personal characteristics as death anxiety, threat of system instability, dogmatism, needs for order and structure, fear of loss have shown to be positively related to political conservatism, while openness to experience, uncertainty tolerance, integrative complexity – negatively. Most of these attributes emerge from attitudes towards managing uncertainty and fear, which underlie the difference between liberalism and conservatism in political thought.

Block and Block (2006) observe a group of people at the preschool age and 20 years later. By doing so, they provide evidence that political values of grown-up individuals are related to several personal characteristics that are formed early in life. Those children who could develop close relations, were energetic, somewhat dominating and resilient turn out to be relatively liberal. Such characteristics as indecisiveness, fearfulness, rigidity, and vulnerability were closely related to conservatism, which confirms the results of Jost et al. (2003a,b). The described evidence is further confirmed by neuroscientific research: Amodio et al. (2007) and Kanai et al. (2011) monitor brain activity and relate neurocognitive functioning to the political affiliation. Results of the tests confirmed that liberals are more responsive to information ambiguity and complexity.

Alford et al. (2005) assume further that political attributes are not only influenced by parental raising up, but rather genetically transmitted. Based on the fact that social attributes have shown to be affected not just environmentally, but also inherited, they propose that political attitudes follow the same pattern. Using a large sample of twins data, the authors compare the results of the survey on political issues between monozygotic (identical) and dizygotic (fraternal) twins and show that correlations among the first group are significantly higher. In this way, the researchers conclude that genes play at least the same role as the parental environment.

2.2 Personal Values and Financial Decisions

The impact of personal traits on financial decisions has been a focus of a bunch of research papers. These characteristics form one of the main sources of investor heterogeneity but are, unfortunately, difficult to measure directly. In this review, we concentrate only on those traits that are related to political preferences, as discussed in section 2.1.

Attitudes towards risk prevent individuals from investing in the stock market and, conditional on participation, to invest sufficient amount in stocks (Guiso et al. (2008), Brunnermeier and Nagel (2008)). Social interactions may increase the propensity to invest in stocks (Hong et al. (2004, 2005)). Loyalty, which stems partially from ambiguity aversion, may push individuals to overweighting one's employee's stocks (see Poterba (2003) or Cohen (2009), for example). Ambiguity aversion is one of the roots of familiarity bias Chew et al. (2012). Furthermore, Loss aversion or stability preferences are responsible for sympathy towards "strong" (growth) stocks that are believed to suffer less from systematic risk (Daniel and Titman (1997)). Finally, patriotic feelings induce individuals to hold securities of national issuers (Morse and Shive (2011))³.

Fama and French (2007) have proposed a generalized model which theoretically explains how all the described above empirical facts can be justified assuming that investors have different tastes for assets as consumption goods. These studies focus on individual investors as the non-sophisticated group of investors. Despite some evidence that the impact of psychological factors diminished with investor sophistication (Feng and Seasholes (2005), Seru et al. (2009), among others), the other group of authors suggest that even such agents as mutual fund managers are prone to biases caused by personal traits.

The important of personal values can be traced in the increased popularity of socially responsible investment. For example, since mid-1990s companies and investors had woken up to climate change, which led to an increased popularity of investing in companies that promote environmental sustainability and alternative energy (see Kolk et al. (2008), among others). Another side of the strategy includes integrating ethical concerns by seeking out companies engaged in social justice (Sandberg et al. (2009)).

2.3 Political Climate and Financial Markets

Given that personal values are related to political preferences, from the one side, and to financial decisions, on the other, we expect political preferences (and therefore, climate) and investment behavior to be related.

The first studies to investigate the relation between political climate and financial

³Other personal characteristics that may influence investment decisions but are aside from the scope of current research include: cultural background (Grinblatt and Keloharju (2001)), investor sophistication (Feng and Seasholes (2005)), sentiment and overreaction to news (Baker and Wurgler (2006), Tetlock (2007)), trust (Guiso et al. (2008)), or optimism (Strong and Xu (2003), Puri and Robinson (2007)).

markets look at the market returns during the periods of different leaderships. The literature on this topic is rather mixed and sometimes controversial: based on US data, Niederhoffer et al. (1970) find that the market experiences higher returns in the short run under Republican government, but in the long run – under Democratic, while Caporalea and Caporale (2008) show that right-wing administration is associated with higher returns and, at the same time, Santa-Clara and Valkanov (2003) provide evidence that the market performs better under left-wing government. On the other hand, Jones and Banning (2009) find no statistical difference between the right-wing and left-wing presidencies. Evidence from German markets confirms the latter result, as no statistical difference was found by Döpke and Pierdzioch (2006), for example. Finally, a cross-country analysis of Bohl and Gottschalk (2006) shows that positive effect on the market during left-wing administration is not world-wide: out of 15 countries, only 3 exhibit the pattern (Germany, US and Denmark). Mixed results provided by macro-level analyses can be explained by the differences in methods and models applied, as well as the differences in time periods under consideration.

Attempts to identify the impact of political preferences and climate on investors' trading choices have been made, for example, by Hong and Kostovetsky (2012) and DeVault and Sias (2014). These researchers look at the net contributions of US hedge fund managers to either Republican or Democratic party and compare their corresponding investment decisions. The authors of the first paper show that fund managers supporting the left-wing party are less likely to invest in so-called “sin” stocks, which include gaming, alcohol or tobacco companies. They claim that investor's utility increases in avoiding companies that are in conflict with their values that are approximated by their political affiliation. DeVault and Sias (2014), on the other hand, try to link political preferences of fund managers with apolitical portfolio decisions by looking at the stock's characteristics independently of their industry. The results suggest that liberal managers are eager to invest in small and volatile stocks and enter new positions while getting completely rid of the old ones, that is, make larger adjustments in their portfolios. The first result which reflects ambiguity aversion and uncertainty intolerance, while the second – resistance to change, both being typical for conservationists, psychologically and politically. In their recent paper, Jiang et al. (2016) use the same technique to proxy for conservatism of equity analysts and discuss their forecasting behavior. The results have confirmed that

analysts contributing to the right-wing party adopt a more conservative forecasting style in that their revisions do not deviate much from other analysts and their recommendations contain modest grade changes.

Finally, what is of most interest to us as the closest to our research question, is the influence of political climate on individual investors. There are not many research papers in this relatively new field, since it is difficult to measure political affiliation of every household. In this case, the voting data are used to indirectly infer people's political affiliations on a regional level (usually defined on ZIP code areas). Kaustia and Torstila (2011) construct an indicator of right- or left-wing preferences based on these results and find that adherence to right-wing parties significantly increases the probability to be invested in the stock market and lowers savings rates, and that this result is not driven by either risk aversion or regional differences in economic conditions. Based on the US data, Bonaparte et al. (2012) assume that investors in Republican dominated areas are more likely to be right-wing themselves. Consistent with Hong and Kostovetsky (2012), they find that also individual investors follow the same investing pattern: liberal individuals are likely to underweight politically sensitive stocks. In addition to that, the authors study the impact of political optimism, which is defined as condition when the ruling party coincides with investor's preferred ideology, and analyzing in this manner the joint influence of political climate and preferences. The findings suggest that optimists increase market exposures by investing in higher beta and small-cap stocks. These results support the literature on optimism which has shown to increase people's expectations about the market.

2.4 Research Question and Hypotheses

We enrich the literature described above by examining the regional differences of investors' portfolios borne by the differences in political climate. We aim at exploring the influence of political climate on portfolio characteristics of individual investors. The detailed data on regional level allow conducting comparative analysis of the portfolio holdings across German districts from the perspective of local political climate. Following Kaustia and Torstila (2011) and Bonaparte et al. (2012), we use the results of the state elections on a district level to indirectly infer political attitudes of households. Our key premise is that political climate combined with party evaluation by individuals reflect unobservable

personal traits, beliefs and expectations on a regional level.

The parties are placed on the liberal-conservative dimension according to people's assessment, which reveals the changing evaluation of policies. The importance of these terms (also known as left-right ideology) cannot be underestimated, as it is seen as the central ideological component in the voters brains. Several studies provide evidence that ideological considerations have an impact on people's vote decisions. As argued by Neundorff (2011), this single term can influence the party policies, voter's affection towards it as well as voting behavior. Party identification as left or right is seen as a kind of heuristics that eases the voters orientation in the political environment. Huber and Inglehart (1995) have shown that a single right-left factor helps communicate to the electorate main focus of party opinions on different economic issues.

We construct a variable that captures both people's preferences towards political parties and their assessment of the parties on the left-right dimension similar to Kaustia and Torstila (2011). Using the procedure describe in section 3.4 we get a numerical estimation of the political climate for each district, where lower (higher) values stand for left-wing (right-wing) preferences.

Free Democratic Party (FDP) and Christian Democratic (Social) Union of Germany (CDU/CSU) promote economic liberalism, free markets and private ownership (Bucher-Koenen and Lusardi (2011)). On a left-right scale, they have higher-than-average scores (center-right). Their supporter are expected to share the same beliefs about financial markets. Left-wing parties (die Linke) are known for their antipathy towards financial markets. Therefore, their supporters are less likely to participate in financial market, which can lead to selection bias in the data since we only observe individuals with securities accounts. However, this attitude is not driven by risk aversion. On the contrary, psychological literature suggests that right-wing ideology supporters are more likely to be risk averse. Based on these premises, our first hypothesis reads:

Hypothesis 1: in the districts where political climate is more right-oriented, investors are more likely to participate in financial markets, invest more in securities portfolios and allocate larger part of their wealth to safer product classes.

Given the fact that German Parliament is dominated by right-wing parties since 2005, we expect the households in the regions dominated by right-wing parties to be more optimistic about the economy in general and, therefore, in accordance with Strong and

Xu (2003) and Morse and Shive (2011), our second hypothesis is:

Hypothesis 2: in the districts where majority of voters support right-wing parties, investors are likely to exhibit higher levels of home bias.

3 Data and Methodology

3.1 Electoral System and Political Climate in Germany

The main government body in Germany is the Parliament, which consists of two parts: Bundestag, elected every five years on the federal level, and Bundesrat, representing the states at the national level and consisting of the representatives of the state parliaments (Landtag). These government bodies have significant power over the states, because they have authority to legislate in non-federal matters. Therefore, the importance of the state parliaments cannot be underestimated.

Current research aims at discovering regional differences among German regions. For this reason, we focus on election results to the state parliaments. The state elections are usually held every five years and mostly follow the same electoral system as the elections to German Parliament (Bundestag). They are formed by the system of majority votes. In most of the states, individuals have two votes – the first goes for a individual candidate, and the second – for a specific party, which then is counted for distribution of the places in the body.

There are five main political parties in Germany: the major parties are CDU/CSU and SPD, and minor ones – die Linke, Grüne and FDP. Coalition governing is a widespread phenomena, since it rarely happens that one party wins the majority of votes. In order to have the ruling power, strong parties usually cooperate with the smaller ones. Two usual examples include CDU/CSU and FDP (black-yellow coalition) or SPD and die Linke (red-green coalition). Another particular example is the so-called Grand Coalition (CDU/CSU and SPD), which was a case in the years 2006 to 2009 and from 2013 onwards. There exist a number of smaller parties, which usually operate on a state level. Such parties can be represented in the state or federal parliament, but in the time period of 2006 to 2015 they have not comprised a part of the ruling coalition on any level. Therefore in this paper we concentrate on the five main parties.

The administrative unit of research is the district. Each of the three city states –

Berlin, Hamburg and Bremen – form one district. The other 13 states of Germany are split further into 399 rural and urban districts. In total there are 402 districts, which constitute that main entity of our research.

The first dataset on the political climate includes the results of state elections on the district level for the time period from Q1 2006 to Q1 2015. In total there were 33 regional state elections held during this time period (approx. two per state). In addition, the results of the federal (Bundestag) and the European Parliament elections are included in the analysis since they represent the regional preferences in the times between the state elections. Figure 1 illustrates the distribution of elections over time. Sometimes the elections in different states are concentrated at particular quarters, with five in Q3 2009 and four in Q1 2011. In order to cancel out the possible bias, we use time fixed effects in the analysis. Additionally, if the German-wide or European Parliament elections are held in the same quarter, we take the results of state elections as the more comprehensive on the regional level. The choice of parties at the state elections is wider than on the national since there exist a variety of local political cooperations that only operate on the regional level. In addition to that, local authorities have significant power over the state of affairs on the state level, which makes the regional elections of high importance for residents. Thus, the distribution of votes on a regional scale more accurately represents political preferences.

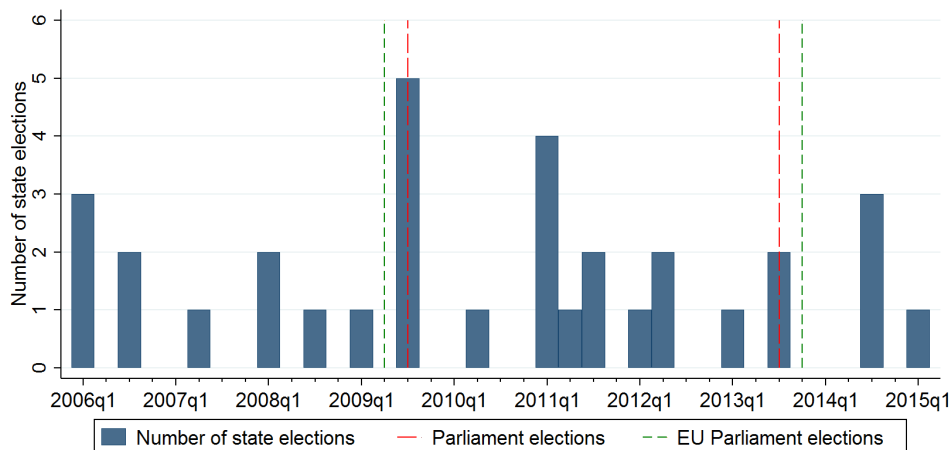


Figure 1: Distribution of Elections over Time

This figure depicts the distribution of elections held in Germany for the time period of 2006 to 2015. The blue bars represent the number of state elections (on y-axis) held at a particular quarter (on x-axis). The vertical dashed lines represent the country-wide elections: the red one for the Parliament (Bundestag) elections and the green one – for European Parliament elections.

The two important aspects should be mentioned here: first, on a district level, the distribution of votes might differ from the state average, and these differences form the building blocks of our analysis. Second, in order to correctly assess the political climate, one has to account not only for the ruling party or coalition, but for all parties represented in the government body.

The second part of the data on political climate capture people's attitudes towards the parties. Left-right dimension is one of the vital concepts in politics. One can think of it as a simplified unified measure that helps individuals evaluate parties and their attitudes towards them based on their own affiliation. It also help parties communicate their ideas to the wide masses of citizen. Even in the case when the ruling government does not change over a period of at least four to five years, their policies and values vary which shifts them along the left-right dimension.

In order to capture these changes, we use the results of the opinion poll conducted by Infratest Dimap⁴ within the framework of the surveys called ARD-DeutschlandTREND. The aim of the series of surveys conducted on a regular basis is to evaluate the political opinion in the country. In the survey "Positioning of political parties on the Left-Right-Dimension" individuals are asked to assign to each of the main political parties a number from 1 (left) to 11 (right) based on their personal assessment or feeling about the party. Additionally, they are asked to evaluate themselves in the same manner⁵. Figure 2 illustrates the results of the survey. The scores of the center-right parties (CDU/CSU and FDP) has shifted to the left over time whereas assessment of the center-left parties (SPD and Grüne) stayed to the large extent unchanged. Die Linke has experienced a sharp switch to the left and seems to stay on this position afterwards. Interestingly, the point-wise order of the parties from more left to more right has stayed the same. Throughout the paper, we would refer to the results of this survey as to "ARD scores".

⁴Infratest Dimap is an institute providing electoral and political research throughout Germany on a regular basis. It provides research data on local, state and federal elections, as well as vote intension and other opinion polls.

⁵See appendix A.2 for the details on survey construction.

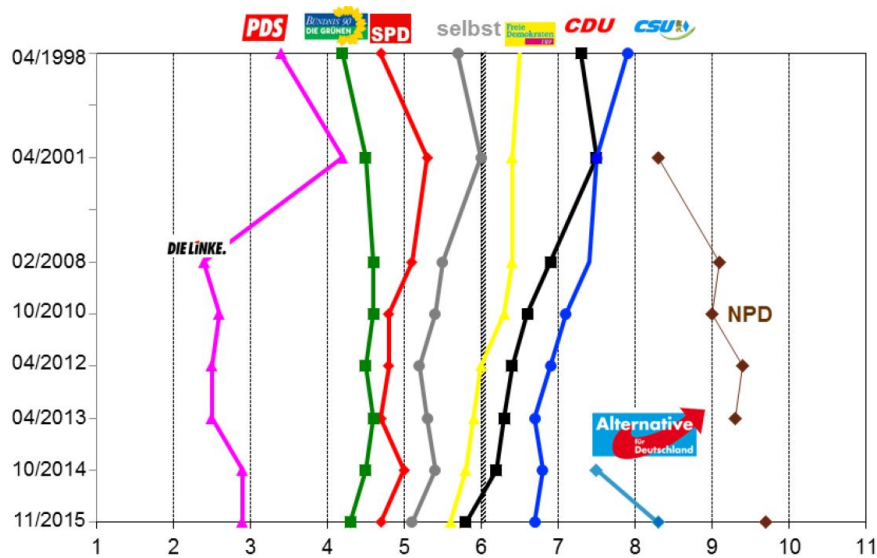


Figure 2: Positioning of Parties on the Left-Right Continuum

This figure depicts the results of opinion poll of evaluating political parties as left or right, with one standing for “extreme left” and eleven – “extreme right” assessment. The dates on the y-axis represent the dates when opinion poll was conducted.

Source: AfD rückt nach rechts, CDU nach links. Die Positionierung der politischen Parteien im Links-Rechts-Kontinuum. *Infratest Dimap*, November 2015.

Information from these two sources allows to quantitatively estimate political climate on a district level that is used the main descriptive variable in statistical tests. In an alternative specification, we use the share of votes for the left party (die Linke) as a robustness check for our model.

3.2 Deutsche Bundesbank’s Statistics on Investments

The data on the investments are obtained from the Deutsche Bundesbank’s Securities Holding Statistics. It provides micro data on banks clients’ holdings on a single security basis. This is by far the most comprehensive database since it collects the data from all financial institutions of Germany. Since the interest of the analysis lies in the regional differences, we restrict the whole universe of banks to those which that operate on a regional basis. Thus, the German-wide banks, as well as state banks, are excluded, and the banks under consideration are cooperative and savings. Regional banks play a significant role in German financial system. Slightly more than 80% of all the domestic households’ deposits are held at such banks (50% at savings and 30% at credit cooperatives⁶). Thus, one can assume that individuals use their regional as the main provider of financial services. Additionally, only those banks that existed throughout the sample period (Q1 2006

⁶The data on household deposits are taken from Deutsche Bundesbank (2016a)

to Q1 2015) are included in the analysis, adjusted for mergers and acquisitions. The final sample is based on portfolio data of 1,421 banks from 386 administrative districts which accounts for around 85% of all German banks.

The structure of the reported to the Bundesbank data is the following: the data provided on a quarterly basis (monthly since 2013) are broken down by the customer's country of residence and economic sector⁷. For the purposes of current research, the data on households which residents of Germany are included in the analysis. Information on security holdings at the bank level includes the following fields: International Securities Identification Number (ISIN), instrument class, number or nominal value, issuer country, price and value (in Euros).

Figure 3 provides an overview of the universe of investment products in households' portfolios. Comparison of panels on number and volume shows that stocks and funds, although account for a small percentage in total number of securities (4.3% and 2.5%, respectively), play a significant role in portfolio composition (on average 29.3% and 25.1% of total portfolio volume).

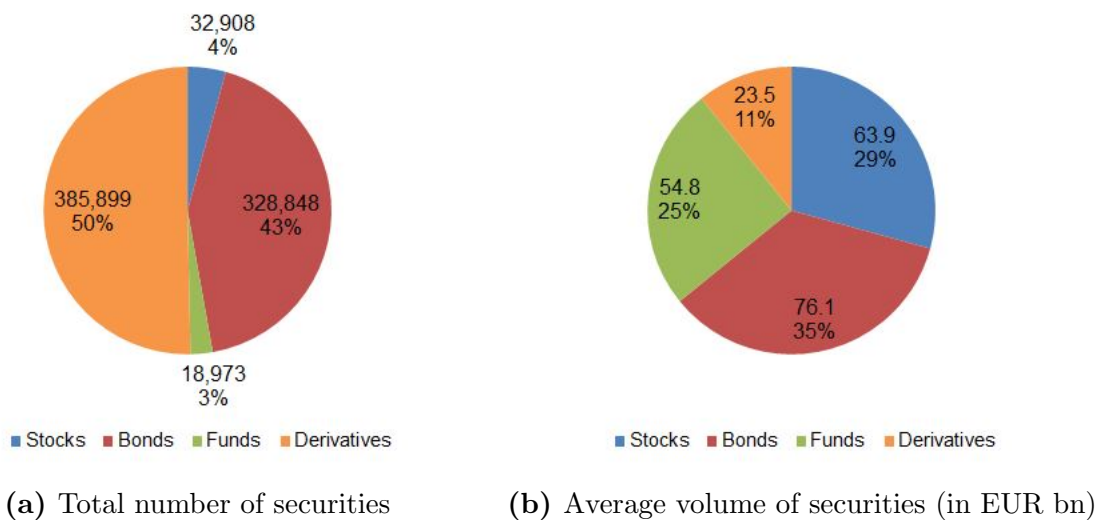


Figure 3: Universe of Securities in the Sample

This figure depicts the universe of securities in the sample split by the product type. Panel 3a shows the total number of unique securities and their share, panel 3b – average end-of-quarter volume and respective shares of securities held at all banks. The sample covers regional banks for the time span of 2006 to 2015.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, Securities Holdings Statistics (SHS-Base), 2006-2015, own calculations.

⁷Economic sector differentiates depositors in the following groups: non-financial corporations, financial corporations, general government, households, and non-profit institutions serving households. For detailed information on economic sector classification of Bundesbank, see securities holdings statistics reporting scheme in Amann et al. (2012).

Aside from Securities Holdings Statistics, Bundesbank also provide the balance sheet data as well as master data on banks. Balance sheet statistics are used to infer the total customer deposits volume and to construct control variables on a bank level. Master data on banks include bank group (cooperative or savings), geographical location (ZIP code), number of securities accounts and information on mergers throughout the sample period.

3.3 Supportive Datasets

In addition to the described datasets, several other sources are used in this paper. First, demographic characteristics are obtained from Society for Consumer Research (Gesellschaft für Konsumforschung, GfK). Financial Market Panel⁸ provides a wide set of personal characteristics of households based on their location. We get detailed information on the clients of both cooperative and savings bank on a district level, including age, gender, income, education level, property ownership and town size. Table 1 illustrates the differences between the clients invested in financial market for the both types of banks⁹. There are no striking differences between clients of the two types of banks. Users of cooperative banks have, however, higher rate of property ownership and slightly higher income.

Table 1: GfK Demographic Characteristics of Investors

This table presents average statistics of selected personal characteristics of individuals invested in financial markets based on the type of their primary bank. The average values are calculated across 402 districts of Germany as of 2010. Town size is a categorical variable that takes values from 1 (less than 10.000 inhabitants) to 5 (more than 100.000 inhabitants); education is a categorical variables that takes values from 1 (secondary school) to 4 (university of applied sciences).

	Savings banks	Cooperative banks	Difference
Income	2,576.8	2,630.3	-53.5
Household size	2.3	2.3	-0.0
Property Ownership (in %)	68.8	74.3	-5.4**
East Germany (probability in %)	21.4	17.5	3.9
Male (probability in %)	74.3	74.3	0.0
Age	58	58	0
Town size	10K–20K	10K–20K	
Education	High school	High school	

⁸GfK Financial Market Panel (Finanzmarktpanel) is a German-wide panel survey of 20.000 households that investigates the trends in usage of financial services by individuals. For the purpose of this study, the subsample of individuals whose use the services of savings and / or cooperative banks is used.

⁹The survey is conducted every year, however, only the data until 2011 are available. For this reason, we use the data from 2010 as it represents the middle of our time span.

Second, in order to account for systematic regional differences, we use the data from Regional Database Germany¹⁰. Such variables as unemployment level, population density and area are included in the analysis. These data are available on a district level, but only on a yearly basis.

Finally, Thompson Reuters Datastream and Lipper are used to enhance the data on securities characteristics. These two datasets allow us to split the products' universe into four groups (stocks, bonds, funds, and derivatives) and to get additional information on fund characteristics in order to be able to calculate home bias in funds (underlying asset class and geographical focus).

3.4 Variables Definition

We construct the main dependent variable of interest based on the two datasets on political climate. Assuming that ARD scores are stable between the survey, we approximate political climate by the so-called “political score” variable which equals to the weighted average of the ARD scores of the main political parties, and use election results as weights. More formally, the score is calculated as following:

$$PoliticalScore_{kt} = \sum_{i=1}^n \omega_{ikt} \times score_{it} , \quad \text{with } \omega_{ikt} = \frac{votes_{ikt}}{\sum_{i=1}^n votes_{ikt}} \quad (1)$$

where n stands for the number of parties taking part in the elections¹¹, $score_{it}$ – ARD score of party i in quarter t , and $votes_{ikt}$ is the percentage of votes for the particular party in district k . Figure 4 reveals the summary statistics of political score across the German states. The red dashed line at 6 indicates the center of evaluation scale; states with the averages above this line (greater than six) are thought to be more right-wing, whereas the point below this line point at more left-wing preferences. In total, average (median) political score equals to 5.2 (5.24), revealing the center-left preferences of individuals.

¹⁰Regional Database Germany (Regionalstatistik Deutschland) is a provider of detailed statistical data for various official statistics on regional level

¹¹Since the distribution of votes in the elections is only given for the five major German parties, $n=5$ in our case.

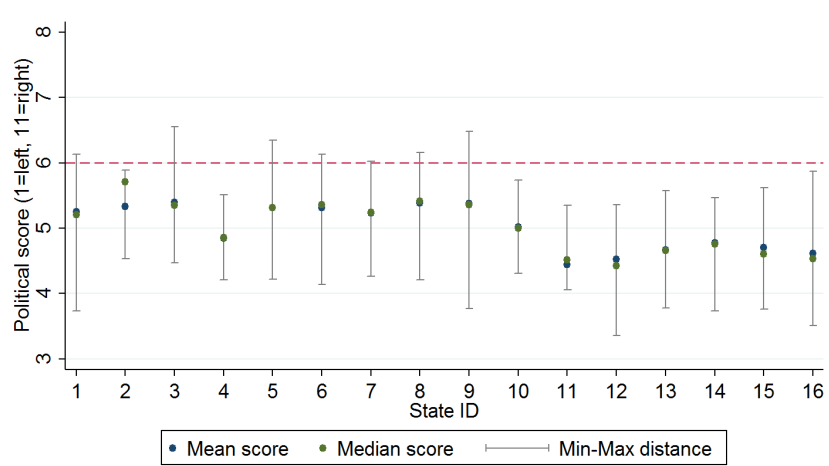


Figure 4: Summary Statistics of Political Score per State

This figure depicts the average (mean and median) as well as extreme (minimum and maximum) values of political score for each state of Germany calculated according to Equation 1. States: 1 Schleswig-Holstein, 2 Hamburg, 3 Niedersachsen, 4 Bremen, 5 Nordrhein-Westfalen, 6 Hessen, 7 Rheinland-Pfalz, 8 Baden-Württemberg, 9 Bayern, 10 Saarland, 11 Berlin, 12 Brandenburg, 13 Mecklenburg-Vorpommern, 14 Sachsen, 15 Sachsen-Anhalt, 16 Thüringen.

The first group of variables of interest covers primary portfolio decisions: participation in the market, share of total wealth invested in securities as well as split into product classes. Since the data on the number of clients who hold deposits at bank are not available, we construct a proxy for participation by using the ratio of bank clients invested in stock market to the total population of the district. Given the fact that regional banks play a significant role in banking system of Germany, we expect this ratio to be a valid measure for our purposes¹². The variables of total risky share (volume invested in securities portfolios relative to total portfolio) and product class shares are straightforward to calculate. Figure 5 illustrates the development of the first group of variables over time in bank-level portfolios.

¹²However, by construction this measure is somewhat underestimating the real level of participation.

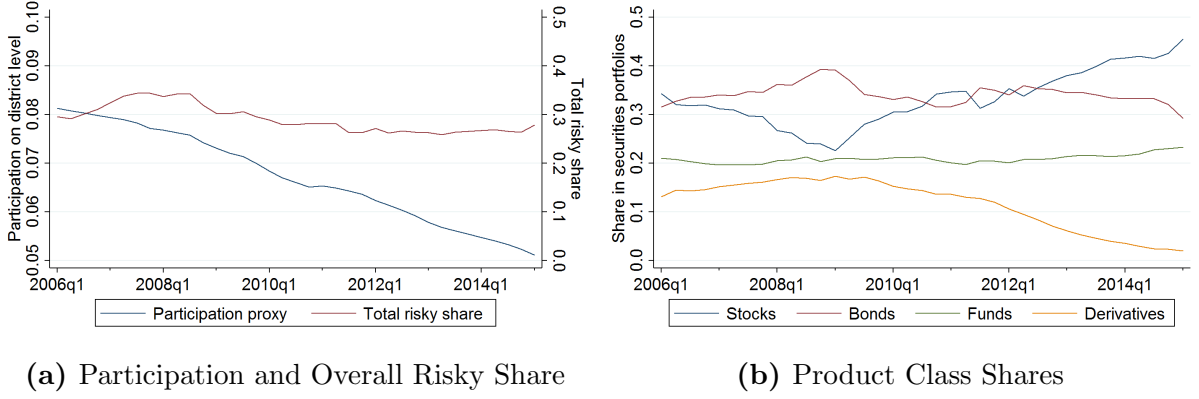


Figure 5: Characteristics of Investors' Portfolios over Time

This graph depicts the evolution of the first group of variables of portfolio composition over time from 2006 to 2015 on a bank level. Panel 5a includes participation proxy (on the first y-axis) and total risky share (fraction of securities portfolios over total customer portfolios, second y-axis). Panel 5b shows the changes for the product class shares.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, Securities Holdings Statistics (SHS-Base), 2006-2015, own calculations.

Second group of vars covers includes home bias variables, which are calculated as the value-weighted share invested in securities with German issuer. Home share in product class i for bank j in quarter t for the case of stocks and bonds thus reads:

$$HB_{ijt} = \frac{MV_{ijt}^{Germany}}{MV_{ijt}^{total}} \quad (2)$$

Home share in funds holdings consists of three components: funds with geographical focus on Germany, a part from funds with European focus and a part from funds with global focus. For equity mutual funds the German share is approximated by the global (European) stock market share, for fixed income funds – by global (European) share of long-term bonds outstanding, and for money-market funds – by global (European) share of short-term bonds outstanding¹³:

$$HB_{funds} = \frac{MV_{funds}^{Germany} + \sum_{p=1}^P \omega_p^{Europe} \times MV_{funds}^{Europe,p} + \sum_{p=1}^P \omega_p^{World} \times MV_{funds}^{World,p}}{MV_{funds}^{total}} \quad (3)$$

with p defining the fund focus, which is either equity, fixed income, money market or other. Finally, the overall home bias of the portfolio is then calculated as share of all home-based securities over the total portfolio holdings in the respective product classes sat

¹³The data for stock market capitalization are taken from the monthly statistics of World Federation of Exchanges (available at <http://www.world-exchanges.org>). Values of bonds outstanding come from debt securities statistics of Bank for International Settlements (available at <http://www.bis.org>)

the bank level. Levels of home shares (as seen on Figure 6) are relatively high for stocks and bonds, and much lower for funds, which means that investors use this particular class for the advantage of international diversification.

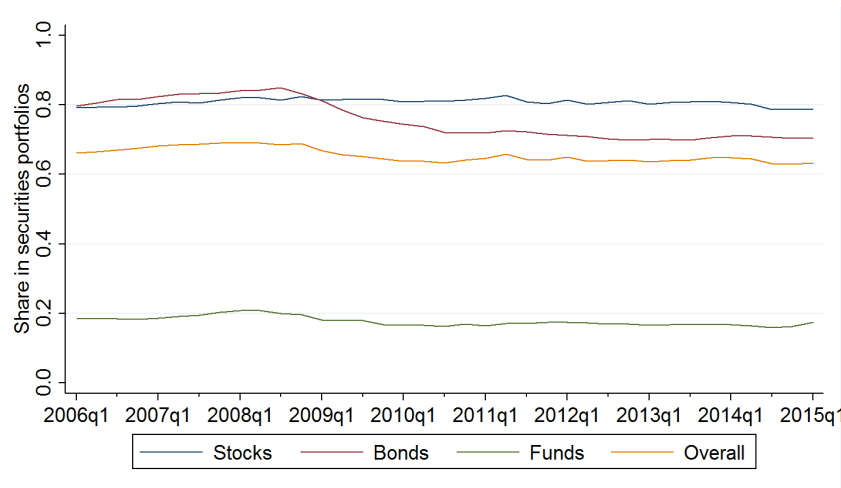


Figure 6: Home Shares over Time

This graph depicts the evolution of the home shares in households portfolios at the bank level for the four main product categories over time from 2006 to 2015. Home shares are calculated according to Equation 2 for stocks and bonds and Equation 3 for funds.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, Securities Holdings Statistics (SHS-Base), 2006-2015, own calculations.

Table 2 provide descriptive statistics of the dependent variables. Regional banks are relatively small, which indicates low levels of deposits and securities portfolios. Majority of regional banks are cooperative, with savings amounting to approx. 25% of the banks under consideration. The fact that savings banks are larger than cooperative explains the high variation of bank statistics.

Table 2: Descriptive Statistics

This table presents summary statistics on banking and portfolio variables. The time span covers quarterly observations from Q1 2006 to Q1 2015. The banks included in the analysis are savings and cooperative banks (adjusted for mergers) that existed throughout this period.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, Securities Holdings Statistics (SHS-Base), 2006-2015, own calculations.

	Mean	Standard Deviation	5 th Percentile	Median	95 th Percentile
Panel A: Bank coverage					
Number of banks (total = 1421)					
per state	88.8	111.6	2.0	30.5	354.0
per district	3.7	2.4	1.0	3.0	9.0
Panel B: Statistics per bank					
Customer deposits (in EUR mn)	306.3	525.1	16.0	129.2	1,153.3
Securities portfolios (in EUR mn)	153.6	417.8	3.4	56.2	554.9
Number of securities accounts	3,550	7,581	162	1,632	12,800
Number of branches	17.1	21.1	0	10.5	54.7
Panel C: Portfolio characteristics on a bank level					
Participation (on a district level)	0.07	0.06	0.01	0.05	0.19
Overall risky share	0.29	0.14	0.10	0.28	0.54
Product class shares					
Stocks	0.33	0.14	0.14	0.31	0.61
Bonds	0.34	0.14	0.12	0.34	0.58
Funds	0.21	0.11	0.06	0.19	0.41
Derivatives	0.12	0.08	0.02	0.10	0.26
Home share					
Stocks	0.81	0.07	0.70	0.82	0.90
Bonds	0.76	0.15	0.49	0.78	0.95
Funds	0.18	0.05	0.12	0.17	0.27
Overall	0.66	0.11	0.47	0.66	0.84

In comparison to an average values across Germany, the share of stocks is higher (33% versus 25%). The shares of bonds and funds are the same (34% and 21% versus 34% and 23%), and the average derivatives share is somewhat lower (12% versus 18%)¹⁴. Levels of home shares are in line with country-wide average values (see Rochow (2013b)). On average, portfolio characteristics at regional banks are close to the averages across Germany, which supports the idea that the selected sample is representative and suits good the purposes of the research.

3.5 Model Description

In order to construct the final dataset, we first link the ZIP codes from the master data on banks to the respective district codes used throughout the analysis. In order to do

¹⁴The average values for Germany are calculated based on the results of the Panel on Household Finances (Deutsche Bundesbank (2013, 2016b))

so, we use the matching table provided by the Regional Database Germany. There are several ZIP codes that have multiple matches, that is, one ZIP code belongs to two different districts. However, this problem is irrelevant for the dataset at hand since all the banks under consideration lie outside those ZIP codes. Second, we account for district code changes that occurred throughout the period under consideration. This includes the reform of 2007 in Sachsen-Anhalt, 2008 in Sachsen, 2009 in Nordrhein-Westfalen (city of Aachen and Simmerath) and 2011 in Mecklenburg-Vorpommern.

In the analysis we exploit the panel structure of the dataset in order to test the outlined hypotheses. To assess the impact of political climate on the variables described in previous section, the panel ordinary least squares model with robust standard errors clustered by bank is applied:

$$p_{kt} = \alpha_1 + \beta_1 \times PS_{kt} + \boldsymbol{\gamma}'_1 \times \mathbf{E}_{kt} + \boldsymbol{\delta}'_1 \times \mathbf{X}_{kt} + \boldsymbol{\theta}'_1 \times \mathbf{Z}_{kt} + \zeta_1 \times DAX_{t-1} + \varepsilon_{kt} \quad (4)$$

$$y_{jt} = \alpha_2 + \beta_2 \times PS_{kt} + \boldsymbol{\gamma}'_2 \times \mathbf{E}_{kt} + \boldsymbol{\delta}'_2 \times \mathbf{X}_{jt} + \boldsymbol{\theta}'_2 \times \mathbf{Z}_{kt} + \zeta_2 \times DAX_{t-1} + \epsilon_{jt} \quad (5)$$

Equation 4 is used to estimate participation proxy p in district k in quarter t , whereas model 5 is used for the portfolio characteristics y for bank j in quarter t . Thus, the first regression is run on the regional level, and the rest – on bank level. PS_{kt} is the main variable of interest, the political score in region k in quarter t . Vector \mathbf{E}_{kt} includes additional variables on political climate: dummy if elections took place this quarter, quintile of voter participation in the state elections, and four dummies for changes in political climate (to the right and to the left, corresponding to the state- and country-level elections).

We include a wide set of controls on both bank and regional level. \mathbf{X} is a vector of bank variables constructed using the balance sheet statistics. It includes log number of branches and quintile of share of savings banks (to account for the supply-side effects), quintile of share of retail to total deposits, quintile of share of equity to total assets, and average securities portfolio volume. In equation 4 these variables are taken as average across the district, while in equation 5 they are used on a bank level. In addition to that, in bank-level regressions, the dummy of bank group is added which is constant over time (equals one for saving banks, zero for cooperatives).

To ensure that the results are not driven by differences in economic conditions

among districts, various regional characteristics are used, as well as state dummies. Vector \mathbf{Z}_{kt} includes, first, general and economic district characteristics from Regional Database Germany (unemployment level, population and area). Second, it captures the differences in households characteristics on a regional level using the GfK Financial Market Panel (age, gender, income, education, property ownership, household size, and Internet usage).

Finally, we control for the business cycle development by using lagged DAX return. In the baseline model, year and quarter as well as state fixed effects are included to account for seasonality and for systematic differences across states.

4 Results and Discussions

Following the empirical methodology described in the previous section, this chapter presents the empirical results of outlined tests and discusses the findings. First, we assess the impact of political climate on portfolio composition variables, and second, the influence on home bias is discussed.

4.1 Political Climate and Portfolio Composition

First, we look at the relation between political climate and predisposition to invest in financial markets as well as portfolio composition. Table 3 present the results of the first regression. More right-wing political environment has a positive influence on participation rate at the district level, which is consistent with Kaustia and Torstila (2011). An increase of 1 in political score which translates in to the movement from average left to average right on the scale from 1 to 11 increases the participation on a district level by around 0.7 percentage points, which is a significant increase of 10.3% given that the average participation rate equals to 7%. Moreover, there is evidence that supporting right-wing parties also induce individuals to hold more of their wealth in securities relative to deposits. Increase of 1 to the right in political score increases the average overall risky share by 0.8 percentage points (2.7% in percentage equivalent, on average). The null hypothesis that the change in participation and total risky share equals zero can be rejected at the at 1% level. This confirms the hypothesis that right-wing climate transmits the liberal attitudes towards financial markets to the individual investors which forces them to invest relatively more in securities.

Table 3: Investor Portfolio Composition at Regional Banks

Table 3 presents the results of panel OLS regressions, where the dependent variable is participation on the district level, share of securities portfolios to deposits (overall risky share) or share of a particular product class in the portfolio. Political climate is measured by political score; additional variables of elections include elections dummy (equals 1 if elections took place this quarter), dummy for changes of political climate (to the right and to the left) and quintile of voter participation in state elections on the district level. Bank group is a dummy variable that equals 1 for savings banks. All regressions include state and time (year and quarter) fixed effects. The sample consists of bank-quarter observations (district-quarter for specification (1)) between Q1 2006 and Q1 2015 and includes 1,421 unique banks in 386 administrative districts. Robust standard errors, clustered by bank, are reported in parentheses, and ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, Securities Holdings Statistics (SHS-Base), 2006-2015, own calculations.

	Participation (1)	Overall risky share (2)	Stocks share (3)	Bonds share (4)	Funds share (5)	Derivatives share (6)
Political score	0.0072*** (0.0006)	0.0079*** (0.0019)	-0.0044 (0.0027)	0.0085** (0.0041)	0.0058** (0.0023)	-0.0095*** (0.0029)
Elections dummy	0.0015*** (0.0004)	0.0005 (0.0005)	0.0044*** (0.0007)	-0.0044*** (0.0009)	-0.0004 (0.0006)	0.0005 (0.0007)
Voter participation quintile						
2nd quintile	0.0029** (0.0012)	-0.0012 (0.0017)	0.0017 (0.0022)	-0.0032 (0.0035)	-0.0027 (0.0018)	0.0043* (0.0024)
3rd quintile	0.0019** (0.0009)	-0.0012 (0.0019)	0.0063** (0.0026)	-0.0116*** (0.0037)	-0.0053*** (0.0019)	0.0106*** (0.0026)
4th quintile	-0.0010 (0.0011)	-0.0071*** (0.0023)	0.0078*** (0.003)	-0.0133*** (0.0043)	-0.0026 (0.0022)	0.0081*** (0.0027)
5th quintile	0.0011 (0.0013)	-0.0040 (0.0027)	0.0112*** (0.0035)	-0.0163*** (0.0051)	-0.0079*** (0.0027)	0.0131*** (0.0032)
Bank group		-0.0894*** (0.0078)	0.0278*** (0.0099)	-0.0161 (0.0102)	-0.0190** (0.0084)	0.0071 (0.0060)
Number of branches (log)	0.0006 (0.0062)	0.0037 (0.0052)	-0.0063 (0.0058)	-0.0062 (0.0059)	0.0076 (0.0048)	0.0072*** (0.0033)
Average portfolio volume (log)	-0.0100** (0.0046)	0.2088*** (0.0109)	-0.1238*** (0.0138)	0.1402*** (0.0141)	-0.0335*** (0.0067)	0.0119 (0.0076)
Income (log)	0.0553** (0.0255)	0.0330 (0.0241)	0.0446* (0.0271)	-0.0157 (0.0309)	-0.0060 (0.0286)	-0.0381* (0.0196)
Property ownership	-0.0875*** (0.0187)	-0.0928*** (0.0229)	0.0707*** (0.0259)	-0.0153 (0.0292)	-0.0368 (0.0279)	0.0168 (0.0181)
DAX return (lagged)	0.0006 (0.0022)	-0.0269*** (0.0017)	0.0801*** (0.0021)	-0.0813*** (0.0025)	-0.0016 (0.0013)	0.0035** (0.0017)
Observations	14,282	52,577	52,577	52,577	52,577	52,577
Demographic Characteristics	YES	YES	YES	YES	YES	YES
Bank balance sheet controls	YES	YES	YES	YES	YES	YES
District-level controls	YES	YES	YES	YES	YES	YES
Year and quarter FE	YES	YES	YES	YES	YES	YES
State FE	YES	YES	YES	YES	YES	YES
Adjusted R^2	0.472	0.578	0.432	0.224	0.112	0.300

Conditional on participation, households in right-wing tilted districts are less likely to invest in riskier products such as derivatives, and more likely to hold safe assets (bonds and funds). The impact on stocks share is negative, although statistically insignificant. An increase of one in political climate in the right direction causes a decrease of 1.0

percentage points in derivatives share (which translates in 7.9%) and an increase of 0.9 and 0.6 percentage points in bonds and funds shares (2.5% and 2.8%, respectively). These results are partially in line with conservatism of right-wing supporters. For example, structured products are riskier, imply more uncertainty and form a relatively new class, and therefore, do not fit the psychological characteristics of (politically) conservative individuals. The results for the three product class shares are significant at either 5% or 1% level and are supportive for the Hypothesis 1.

The described results are in line with the discussion about the differences in investment culture between East and West Germany. Left-wing parties are more supported in Eastern states, where individuals have lower participation rate and lower overall risky share (see, for example, Rochow (2013a)). However, the fixed effects for states are included in the regression, which means that the effect is coming from political climate and not the unobserved characteristics in investment culture.

Another concern in the interpretation of the results is that political values might as well be influenced by economic conditions, both regional and personal. For example, the supporters of FDP are considered to be wealthier and with higher probability to be self-employed, while die Linke is more popular in the districts with higher levels of unemployment (Bucher-Koenen and Lusardi (2011)). We ensure that the results are not driven by economic differences among individuals or districts by controlling for district unemployment and average income of individuals.

Finally, one can argue that social capital may be the driver of results. In order to control for this, we use two common proxies of social capital – home ownership rate and voter activity. In the regions with higher voter participation individuals tend to invest more in stocks and derivatives and less in bonds and funds. Property ownership significantly decreases the probability to participate in the market and lowers the overall risky share, which is consistent with the literature on background risks. Although these variables are statistically and economically significant, the coefficients of political score remains significant as well.

4.2 Political Climate and Home Bias

In this section we investigate the impact of political climate on the home share of German individual investors. According to Hypothesis 2, we expect positive loading of home shares

on political climate. Table 4 present the result of the second group of regressions.

Consistent with the hypothesis, in more right-wing environment the home share of bonds increases by 1.6 percentage points, which translates into 2.1% given the average value of 76%. Interestingly, there is no impact on the home share of stocks and the influence on funds' home share is significant and negative (-0.3 percentage points, or -1.9%). Although there exist some marginal effect of political climate on home shares, we cannot fully reject the null hypothesis.

These finding suggest that political climate can have an impact on the overall attitude towards financial markets, however, it does not help overcome or explain such investment mistake as high level of home bias. This measure is thus linked to such personal characteristics as attitudes towards risk, conservatism or liberalism, but does not relate to financial sophistication or literacy, which are usually known to be responsible for the investment mistakes.

One explanation of home bias that comes from behavioral finance is that people tend to be more optimistic towards home markets than towards international markets (French and Poterba (1991), Strong and Xu (2003)). We expect people to be more optimistic towards home economy if their political affiliation is in line with the ruling party or coalition. However, our results suggest that optimism in this case is not definitely defined as political optimism.

Consistent with existing literature (see Vissing-Jorgensen (2003), for example), higher income individuals exhibit less home bias in directly held stocks. The coefficients of dummies for the change of the ruling party or coalition provide an interesting result: changes to the right in the local political climate increase the levels of stocks and funds home bias relative to no-changes, whereas changes to the left decreases the levels of stocks home shares and increases bonds local holdings. On a country-wide level, any kind of changes (mostly) increases the levels of home shares for all product classes relative to the portfolios in politically unchanged regions. These results suggest that election surprise and (or) political uncertainty can influence such behavioral bias and overweighting domestic securities. However, discussion of the these issues is out of the scope of this paper, but could become a valid point for the further research.

Table 4: Home Shares of Investor Portfolios at Regional Banks

Table 4 presents the results of panel OLS regressions, where the dependent variable is home bias in a particular product class in investor portfolio at the bank level. Political climate is measured by political score; additional variables of elections include elections dummy (equals 1 if elections took place this quarter), dummy for changes of political climate (to the right and to the left) and quintile of voter participation in state elections on the district level. Bank group is a dummy variable that equals 1 for savings banks. All regressions include state and time (year and quarter) fixed effects. The sample consists of bank-quarter observations (district-quarter for specification (1)) between Q1 2006 and Q1 2015 and includes 1,421 unique banks in 386 administrative districts. Robust standard errors, clustered by bank, are reported in parentheses, and ***, **, and * denote significance at 1%, 5%, and 10%, respectively. Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, Securities Holdings Statistics (SHS-Base), 2006-2015, own calculations.

	Home bias stocks (1)	Home bias bonds (2)	Home bias funds (3)	Overall home bias (4)
Political score	0.0022 (0.0016)	0.0156*** (0.0053)	-0.0034* (0.0020)	0.0010 (0.0029)
Elections dummy	0.0020*** (0.0004)	-0.0078*** (0.0013)	-0.0019*** (0.0005)	-0.0020*** (0.0007)
Right change on state level	0.0062*** (0.0018)	-0.009 (0.006)	0.0076*** (0.002)	0.0011 (0.0031)
Left change of state level	-0.0018** (0.0008)	0.0085*** (0.0023)	0.0004 (0.0009)	-0.0005 (0.0013)
Right change on country level	0.0043 (0.0036)	0.0284*** (0.0071)	0.0058* (0.0033)	0.0131*** (0.0051)
Left change on country level	0.0028*** (0.0007)	-0.0036* (0.0021)	0.0069*** (0.0008)	0.0032*** (0.0012)
Bank group	0.0169*** (0.0048)	-0.0045 (0.0109)	0.0548*** (0.0035)	0.0276*** (0.0080)
Number of branches (log)	-0.0037 (0.0028)	-0.0056 (0.0067)	0.0016 (0.0021)	-0.0144*** (0.0044)
Average portfolio volume (log)	-0.0038 (0.0067)	0.0889*** (0.0146)	-0.0494*** (0.0045)	0.0344*** (0.0099)
Income (log)	-0.0403** (0.0190)	0.0073 (0.0340)	0.0380*** (0.0118)	0.0155 (0.0276)
Property ownership	0.0066 (0.0168)	0.0113 (0.0314)	0.0139 (0.0108)	0.0227 (0.0259)
DAX return (lagged)	0.0110*** (0.0013)	-0.0585*** (0.0031)	-0.0077*** (0.0013)	-0.0178*** (0.0018)
Observations	52,577	52,577	52,577	52,577
Demographic Characteristics	YES	YES	YES	YES
Bank balance sheet controls	YES	YES	YES	YES
District-level controls	YES	YES	YES	YES
Year and quarter FE	YES	YES	YES	YES
State FE	YES	YES	YES	YES
Adjusted R^2	0.0857	0.199	0.169	0.151

4.3 Robustness Checks and Discussions

To confirm the validity of results, we conduct several robustness checks. First, we use various criteria in order to split the data in subsamples. The results of the subsample regressions are presented in Table 5.

- Several authors have conducted research on the systematic differences in investment decisions between East and West Germany (see Bucher-Koenen and Lusardi (2011) and Rochow (2013a), among others). Panel “Subsample 1” presents regression results for both data subsets. The results for Western Germany stay mostly unchanged. Coefficients for Eastern Germany are largely insignificant. This evidence confirms the precious findings that the different investment behavior of Eastern states can only be explained by wealth effects.
- Next, we exploit the fact that since 2013 the banks should report their statistics to Bundesbank on a monthly basis. Panel “Subsample 2” presents regression results for the two data samples: on a monthly basis for the time period of January 2013 to March 2015 as well as on quarterly basis for the time of Q1 2006 to Q4 2012. Again, the results mostly stay unchanged, except for the overall risky share. Even though the coefficient of stocks share changes the sign, it becomes insignificant.
- Finally, we split the sample into two groups based on the household characteristics on the regional level. Subsamples 3 to 5 present the results for the following categories: highest income versus other income quintiles, professional university graduates versus lower educational steps, and large cities (more than 100.000 inhabitants) versus smaller towns. In the districts with highest average income individuals tend to depend less on the political climate. Consistent with the baseline results, they participate more and invest larger shares in securities portfolios, but in contrast to other income groups, they invest more and exhibit higher levels of home bias in stocks when the political climate is more right-dominated. The investments in other product classes do not tend to depend on political situation. Results for other income groups remain unchanged. Independently of educational level, households behave in the similar manner: they increase their safe investments and decrease risky investment when the political climate shifts to the right. Results for the subsamples based on the city size reveal that both groups behave in the same direction,

although for smaller towns some of the variables lose their statistical significance. In large cities the magnitude of estimates is higher, which suggests that proximity to firm headquarters and institutes intensify the responses to political changes.

Second, the alternative measure of political climate is used. Die Linke is the major left-wing party in Germany, and in the next specification we use the share of votes for this party in order to approximate the political sentiment. The last line in table 5 shows the results of this specification. Since political score and share of left votes are negatively correlated, we expect the coefficients to change the sign, but stay statistically significant. Indeed, the participation rate and overall risky share are significantly negatively related to the share of left voters. It is worth noticing that the loadings of home shares on the fraction of left voters are significantly positive for directly held stocks. Given that the share of left votes is higher in East Germany, this result provides some support to the fact that the percentage of financially literate people is higher in Western states: sophisticated investors should have lower levels of home shares in their portfolios.

In addition to the presenter results, some further robustness checks were conducted, which did not alter the outcomes. These include, among others¹⁵:

- Using different clustering strategies (bank level versus district level);
- Using various time fixed effects (year and quarter versus dummies for each out of 37 quarters);
- Using different regional fixed effects (state versus district).

¹⁵These results are not reported but are available upon request.

Table 5: Robustness Checks

Table 5 presents the regression coefficients of political score from the panel OLS regressions, where the dependent variable is participation on the district level, share of securities portfolios to deposits (overall risky share), share of a particular product class or home share at the bank level. All regressions include state and time (year and quarter) fixed effects. The total sample covers the time between Q1 2006 and Q1 2015 and includes 1,421 unique banks in 386 administrative districts. Robust standard errors, clustered by bank, are reported in parentheses, and ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, Securities Holdings Statistics (SHS-Base), 2006-2015, own calculations.

	Participation	Overall risky share	Stocks share	Bonds share	Funds share	Derivatives share	Home bias stocks	Home bias bonds	Home bias funds	Overall home bias
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Baseline results	0.0072*** (0.0006)	0.0079*** (0.0019)	-0.0044 (0.0027)	0.0085** (0.0041)	0.0058** (0.0023)	-0.0095*** (0.0029)	0.0022 (0.0016)	0.0156*** (0.0053)	-0.0034* (0.0020)	0.0010 (0.0029)
Subsample 1										
West states	0.0077*** (0.0014)	0.0078*** (0.0020)	0.0018 (0.0027)	-0.0006 (0.0039)	0.0051** (0.0023)	-0.0058** (0.0028)	0.0020 (0.0015)	0.0136** (0.0056)	-0.0033* (0.0020)	0.0005 (0.0029)
East states	0.0019 (0.0022)	0.0096 (0.0110)	0.0068 (0.0120)	-0.0577* (0.0297)	-0.0118 (0.0123)	0.0636*** (0.0237)	-0.0081 (0.0164)	-0.0050 (0.0149)	-0.0080 (0.0201)	-0.0029 (0.0173)
Subsample 2										
Q1 2006 – Q4 2012 (quarterly data)	0.0023** (0.0012)	0.0033 (0.0022)	0.0122*** (0.0029)	-0.0118** (0.0048)	0.0072*** (0.0024)	-0.0073*** (0.0036)	0.0035** (0.0018)	-0.0091 (0.0061)	0.0023 (0.0025)	-0.0076** (0.0035)
Jan 2013 – Mar 2015 (monthly data)	0.0012** (0.0005)	-0.0032*** (0.0011)	0.0052** (0.0021)	0.0141*** (0.0028)	0.0083*** (0.0018)	-0.0275*** (0.0022)	0.0029* (0.0016)	0.0217*** (0.0044)	-0.0033** (0.0016)	0.0070*** (0.0021)
Subsample 3										
Highest income quintile	0.0049* (0.0027)	0.0095** (0.0046)	0.0154*** (0.0043)	-0.0129 (0.0093)	0.0044 (0.0054)	-0.0061 (0.0067)	0.0079*** (0.0028)	0.0006 (0.0086)	-0.0022 (0.0034)	0.0054 (0.0056)
Other income groups	0.0072*** (0.0014)	0.0074*** (0.0025)	-0.0094** (0.0037)	0.0130** (0.0064)	0.0062 (0.0030)	-0.0096** (0.0047)	0.0003 (0.0020)	0.0176** (0.0074)	-0.0032 (0.0041)	-0.0008 (0.0041)
Subsample 4										
Highest education level	0.0060** (0.0029)	0.0089* (0.0048)	-0.0033 (0.0061)	0.0164* (0.0093)	0.0085 (0.0063)	-0.0212** (0.0083)	0.0045 (0.0038)	0.0133 (0.0156)	-0.0078 (0.0051)	0.0035 (0.0068)
Other education niveaus	0.0072*** (0.0014)	0.0081*** (0.0025)	-0.0051 (0.0035)	0.0072 (0.0062)	0.0053* (0.0028)	-0.0071 (0.0044)	0.0018 (0.0019)	0.0167** (0.0066)	0.0025 (0.0024)	0.0009 (0.0038)
Subsample 5										
Large cities	0.0067* (0.0037)	0.0069 (0.0050)	-0.0174** (0.0072)	0.0259** (0.0129)	0.0248*** (0.0073)	-0.0334*** (0.0080)	0.0003 (0.0050)	0.0432*** (0.0135)	-0.0127* (0.0065)	-0.0026 (0.0090)
Other town sizes	0.0074*** (0.0014)	0.0080*** (0.0024)	-0.0034 (0.0033)	0.0065 (0.0057)	0.0036 (0.0028)	-0.0063 (0.0042)	0.0023 (0.0018)	0.0107* (0.0063)	-0.0033 (0.0023)	0.0007 (0.0036)
Alternative dependent variable										
Share of left votes	-0.0461*** (0.0106)	-0.0605*** (0.0222)	0.1899*** (0.0297)	-0.0875* (0.0485)	-0.0136 (0.0241)	-0.0826** (0.0373)	0.0382** (0.0185)	-0.1355** (0.0568)	0.0435 (0.0284)	0.0145 (0.0333)

Another concern arising from the outlined results is whether the altered political environment is driving the differences of the portfolio characteristics. Regression results present merely evidence of correlation. To provide the evidence of causation we run some additional tests.

The composition of the data under consideration can provide the first insights. One of the possibilities to check for the direction of causation is to run predictive regressions for the dependent variables. However, our dataset is of somewhat similar construction: elections are held at some time during the quarter, whereas the participation and portfolio variables are measured at the end of the quarter. In this sense, there is a natural gap between the dependent and independent variables. In case of parliament elections, the lag was either 4 days (in 2009) or 9 days (in 2013). For EU elections, the numbers are 24 (in 2009) and 37 (in 2014) days. For the state elections, figure 7 shows the histogram of lag distribution, with minimum being 3 and maximum – 73 days.

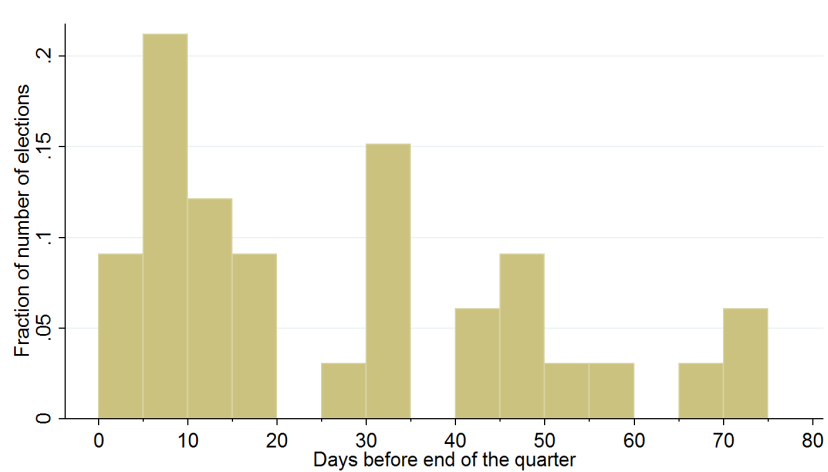


Figure 7: Distribution of Elections over Time

This figure depicts the distribution of days between elections time and end-of-quarter date. Only state elections are considered for the time period of 2006 to 2015.

Given the fact that main dependent and independent variables do not occur simultaneously and there is on average a monthly lag (27 days) between election and measurement dates, we believe that political climate plays an important role in predicting the portfolio characteristics.

To provide additional supportive evidence, the Granger causality tests are conducted (see Granger (1969) and Granger (1980)). Single tests are run for every bank and one – for the average time-series data for the whole country. Table 6 provides the results of the general test, as well as the averaged F-statistics and the corresponding p-values for the

single tests.

Table 6: Granger Causality Tests

This table presents the results for the Granger causality tests. First, the test is run on the averaged across 1,421 banks (386 regions for participation variable) time-series. Second, the tests are run for each of 1,421 banks (386 regions for participation variable) and the averaged F-statistics and p-values are presented. Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, Securities Holdings Statistics (SHS-Base), 2006-2015, own calculations.

Equation	Excluded	Averaged time-series		Average of single tests	
		F-stat.	p-value	F-stat.	p-value
Political score	Participation	3.36	0.048	2.60	0.091
	Total risky share	0.32	0.731	0.77	0.472
	Stocks share	0.13	0.880	0.89	0.421
	Bonds share	0.11	0.897	1.03	0.369
	Funds share	0.22	0.801	1.02	0.373
	Derivatives share	0.19	0.825	1.26	0.298
	Home share stocks	0.88	0.425	0.91	0.413
	Home share bonds	0.15	0.860	1.11	0.343
	Home share funds	0.87	0.430	0.98	0.387
	Overall home share	0.40	0.672	1.02	0.373
Participation		2.65	0.087	1.75	0.192
Total risky share		2.42	0.106	2.51	0.098
Stocks share		3.87	0.032	2.91	0.070
Bonds share		1.95	0.161	2.18	0.131
Funds share		3.43	0.046	2.42	0.106
Derivatives share	Political score	3.07	0.061	3.03	0.063
Home share stocks		3.25	0.053	2.52	0.097
Home share bonds		2.83	0.075	2.08	0.143
Home share funds		1.39	0.265	1.86	0.173
Overall home share		3.26	0.053	2.32	0.116

The null hypothesis of the outlined tests reads: past values of X (where X is the “excluded” variable) do not Granger cause the values of Y (where Y is the “equation variable”). The p-values suggest that portfolio characteristics variables do not have any predictive power for the political score except for participation proxy, whereas political climate variable, indeed, is helpful in predicting the differences in the variables of interest.

Taken together, the outlines provide additional evidence that political climate is inducing changes in investment decisions. Thus, these results are in line with psychological and neurocognitive findings that political preferences are prior to the financial decisions of individuals.

5 Summary and Conclusions

In this paper we investigate whether political preferences and political climate can have an impact on financial decisions of individuals investors, in particular – portfolio composition and preferences for national securities. The large field of psychological and neuroscientific literature suggests that political preferences stem from individual characteristics and personal values of individuals and are formed much earlier than the person is confronted with any kind of financial decision. Based on this information, we hypothesize that (observed) political preferences at the regional level can express (unobserved) personal values of individuals and in this manner influence the investment strategy.

The comprehensive dataset from Deutsche Bundesbank provides detailed aggregated information on all German households. This allows us to investigate the impact on an representative household. By combining the results of elections with the survey of partisan evaluation, we construct a new measure – “political score” – which is thought to capture political preferences on a district level.

The effect of political climate on participation level and the overall risky share is positive and significant, both economically and statistically. The impact on portfolio composition is not so straightforward: consistent with the political conservatism of right-wing supporters, the shares of risky assets – stocks and derivatives – are negatively loaded on political score (although not statistically significant for stocks). Safer assets, such as bonds and funds, on the other hand, are positively dependent on political climate. The results are not driven by economic conditions on the regional level nor by the social capital measures. The coefficients stay significant after controlling for property ownership and quintile of elections participation rate, as well as the average income at the district level. These findings confirm the hypothesis that to some extent there is predictive power in the political climate at the regional level, which captures difficult to observe personal values of individuals in that particular district.

We further investigate the possible influence of political score on the preferences for national securities – by looking at the home shares in the bank-level portfolios. However, inconsistent with the optimism theory, the impact is positive only for bond home share, while for funds it is negative, and for stocks – insignificant. In addition to the level of political climate variable, home share levels change when ruling party or coalition changes. That means that household may adjust holdings of national securities in response to

political uncertainty and elections surprise.

Several robustness check have been conducted to confirm the validity of findings. The results hold for different time periods, but not across all the states. For East Germany the coefficients of political score become insignificant, which is consistent with the studies on the differences between East and West Germany. The findings are consistent for various subgroups: high versus low average income and education districts, and large cities versus small towns. When the alternative measure of left-right dimension is used as the explanatory variable (share of votes for the left party) – the results are in line with the baseline specification.

This paper adds to the growing body of literature that links investor's preferences and beliefs to political values. Additionally, it relates to the literature of unobserved heterogeneity among investors. The implications of these findings can be of policy importance. The importance of political climate for portfolio composition can be used by both regional governments and regional banks to help individuals overcome the investment mistakes or improve their portfolio composition.

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A Appendix

A.1 Variable Definitions

Variable	Definition
Elections variables	
Political score	Weighted average of the left-right score from ARD-DeutschlandTREND (weights are the election results)
Left votes	Share of votes for die Linke
Elections dummy	Dummy = 1 if elections took place this quarter
Political changes dummies	One dummy for each of four cases: change to the right (left) on state (country) level
Regional characteristics	
Share of savings banks (quintile)	Number of savings banks relative to total number of regional banks in the district
Age	Average age
Gender	Dummy = 1 for male
Income (log)	Average logarithm of income
Education	Multinomial variable for the level of education
Property ownership	Percentage of households owning property
Household size	Amount of people in household
Internet usage	Percentage of individuals using Internet
Unemployment	Unemployment rate in %
Population	Amount of people living within a district
Town size	Multinomial variable for the size of the city
Bank-level characteristics and controls	
Bank group	Dummy = 1 for savings banks
Branches (log)	Number of branches (proxy for market power)
Equity to total assets (quintile)	Share of equity to total assets
Retail deposits share (quintile)	Share of retail to total deposits
Total assets (log)	Logarithm off total bank assets
Average portfolio volume (log)	Average volume of investor's portfolio = Total portfolio volume / Number of securities accounts
Portfolio characteristics	
Securities portfolios	Value of securities portfolios at a bank
Customer deposits	Value of customer deposits at a bank
Securities accounts	Number of securities accounts per bank
Product class shares	Share of product classes at the bank level (stocks / bonds / funds / derivatives)
Home shares	Share of products with German investment focus (stocks / bonds / funds / overall)

A.2 ARD-DeutschlandTrend

Grundgesamtheit: Wahlberechtigte Bevölkerung in Deutschland ab 18 Jahren

Stichprobe: Repräsentative Zufallsauswahl / DualFrame (Relation Festnetz- / Mobilfunknummern 70:30)

Erhebungsverfahren: Computergestützte Telefoninterviews (CATI)

Fallzahl: 1,003 Befragte

Frage 1: Man spricht in der Politik immer wieder von “links” und “rechts”. Wenn Sie einmal an die Parteien in Deutschland denken: Wo würden Sie <Parteiename> auf einer Skala von 1-11 einordnen, wobei 1 bedeutet, dass die Partei “links” ist und 11 bedeutet, dass die Partei “rechts” ist. Mit den Werten dazwischen können Sie ihre Einschätzung abstufen.

Frage 2: Und wie ist das mit Ihnen selbst? Wo würden Sie sich auf einer Skala einordnen, bei der 1 “links” bedeutet und 11 “rechts”?

A.3 Average Political Score across Districts

The choropleth map shows the differences in the average values of political score across the 402 district in Germany. Different colors represent the equal length intervals. There is few variation in the Eastern states of Germany, whereas in the West the differences in political climate are quite strong.

