



Stock market aversion? Political preferences and stock market participation[☆]

Markku Kaustia*, Sami Torstila

Aalto University School of Economics, P.O. Box 21210, FI-00076 AALTO, Finland

ARTICLE INFO

Article history:

Received 7 April 2009
Received in revised form
15 April 2010
Accepted 13 May 2010
Available online 27 October 2010

JEL classifications:

G11
D14

Keywords:

Household finance
Limited participation
Political preference

ABSTRACT

We find that left-wing voters and politicians are less likely to invest in stocks, controlling for income, wealth, education, and other relevant factors. This finding from unique data sets in Finland is robust both at the zip code and at the individual level. A moderate left voter is 17–20% less likely to own stocks than a moderate right voter. The results are consistent with the idea that personal values are a factor in important investment decisions, in this case leading to “stock market aversion.” The results are inconsistent with alternative explanations such as wealth effects, risk aversion, reverse causality, return expectations, or social capital.

© 2010 Elsevier B.V. All rights reserved.

[☆] Comments of an anonymous referee helped substantially improve the paper. We also thank Jonathan Berk, Stefano DellaVigna, John Duca, Terttu Kaustia, Matti Keloharju, Samuli Knüpfer, Yrjö Koskinen, Markku Lanne, Florencio Lopez-De Silanes, Enrico Perotti, Elias Rantapuska, Tomi Seppälä, Paolo Volpin, Juuso Välimäki, Jeffrey Wurgler, as well as seminar participants at University of Florida, Mannheim University, Stockholm School of Economics, University of Amsterdam, Midwest Finance Association 2009 meeting in Chicago, Financial Management Association 2006 European meeting in Stockholm, European Winter Finance Summit (EWFS) 2006, Science Forum 2007, Helsinki School of Economics and Swedish School of Economics Joint Finance Research Seminar, and Helsinki Center of Economic Research for comments. We also thank Jarmo Partanen from Statistics Finland for help with the database of regional information in Finland (Finland CD), and Ville Helske, Samuli Knüpfer, Nuutti Kuosa, Elias Rantapuska, Harri Toivonen, and Tommi Walther for help in conducting the exit poll survey. Part of this research was conducted while Torstila was visiting Haas School of Business at University of California, Berkeley. Both authors acknowledge financial support from the Academy of Finland and the Jenny and Antti Wihuri Foundation. Kaustia additionally acknowledges financial support from the Research Fund of the City of Helsinki and the Finnish Foundation for Advancement of Securities Markets.

* Corresponding author. Tel.: +358 40 353 8042; fax: +358 9 4313 8678.
E-mail addresses: markku.kaustia@hse.fi (M. Kaustia), sami.torstila@hse.fi (S. Torstila).

1. Introduction

Limited stock market participation, particularly among the wealthy, is one of the great challenges to financial theory (Campbell, 2006).¹ Standard models of participation assume that investors are concerned only with the payoffs from their portfolios, with risk preference the only preference parameter. It is plausible, however, that investors have tastes for assets as consumption goods. Fama and French (2007) argue that such tastes could potentially explain diverse phenomena, such as socially responsible investing, home bias in asset holdings, and even the factor structure of multi-factor asset pricing models.

We extend this argument to the level of asset classes, and hypothesize that a portion of the public stays out of the

¹ See also Mankiw and Zeldes (1991), Haliassos and Bertaut (1995), Heaton and Lucas (2000), Vissing-Jorgensen (2002, 2003), Bernheim and Garrett (2003), Guiso, Sapienza, and Zingales (2004, 2008), Polkovnichenko (2005), Calvet, Campbell, and Sodini (2007), Hong, Kubik, and Stein (2004), Christiansen, Joensen, and Rangvid (2008), Giannetti and Koskinen (2010), and others.

stock market because of value-expressive reasons. In an earlier example, Shiller (1984, p. 471) cites a New York Stock Exchange investor attitude survey from 1954, aimed at finding out the reasons for low stock market participation among the highly educated. Besides lack of information on the stock market, another key factor that emerged was a “vague sense of prejudice against the stock market.” This can represent a sense that participating in the stock market is not consistent with one’s set of personal values.

We use political preference as a measure of values, as political ideologies vary in the attitude projected towards the stock market. This measure allows the use of hard field data, which is generally not the case for multidimensional values and attitudes inventories, as used in the marketing literature. In related research, Hong and Kostovetsky (submitted for publication) show that US fund managers who donate to the Democratic party underweight stocks that are classified as socially irresponsible.

Our identification strategy relies on the following line of arguments. Consider an individual who has sufficient resources to invest in stocks. Now suppose he or she has left-wing political preferences.² He should generally invest in stocks in order to maximize utility according to standard models. However, he might still not invest if he has low enough return expectations, high risk aversion combined with low wealth (but we assumed wealth is sufficient, so risk aversion would need to be extremely high), or if he applies an anti-capital market attitude also to personal economic decisions. This last possibility is predicted by the value-expressive hypothesis.

Consider a regression, in which stock market participation is being regressed on proxies for left-wing political preferences, wealth, knowledge, risk aversion, and return expectations. A negative coefficient on left-wing political preferences is consistent with the value-expressive hypothesis. This method has the power to refute the value-expressive hypothesis, and so provides a sufficient identification method. However, a caveat is that we cannot control for all the factors in one and the same regression due to data limitations, but have to study some of these factors separately.

We use four unique sets of data from Finland. First, we combine zip-code-level voting data with information on individuals’ direct stock holdings from the Finnish Central Securities Depository (FCSD) official ownership registry in 1995 to 2002.³ This period includes three parliamentary elections. These data are immune from various problems associated with survey data, such as nonresponse bias. As

controls, we use zip-code-level information on variables such as income, wealth, education, age, housing type, and population density. Second, we obtain individual-level information on the same issues through an exit poll conducted for the 2003 election. This allows us to repeat the analysis at the individual level. In addition to direct stock holdings, this data set contains information on equity mutual funds as well. Third, we study the stock market participation of members of parliament (MPs). Politicians have heterogeneous and publicly known ideological orientation, while they are quite homogeneous in other important respects: they have a relatively high and approximately equal income, most have university degrees, and their awareness of stocks as an investment alternative is arguably high. Fourth, we use the results of a proprietary, nationally representative poll that allows us to study stock market-related attitudes and variables such as equity allocation, savings rate, return expectations, and social safety net expectations.

We find a strong negative association between left-wing political preferences and stock market participation in all data sets that we study. In addition to wealth and income, we control for all obvious candidates that could jointly determine both political preferences and stock market participation such as education, age, and gender. The results are economically significant: a change of one point to the left on a 1–10 right-left scale is associated with a 5–6% smaller likelihood of equity market participation, while a three-point move corresponding to a change from a moderate right to moderate left party decreases the likelihood of market participation by 17–20%. These magnitudes are comparable in all data sets.

This finding applies to direct stock holdings, as well as in data that include equity mutual funds. The value-expressive hypothesis is consistent with the results, and this interpretation is strengthened by further survey evidence that we obtain on the correlation between political preferences and attitudes toward the stock market. Overall, the findings are consistent with the idea that financial assets are not different from consumption goods in that people may get, or lose, direct utility from holding different types of financial assets.

We consider several alternatives to the value-expressive hypothesis that could account for the findings: wealth effects, risk aversion, reverse causality, return expectations, expectations about future social safety net, and social capital. First, we show that the effect remains in various subsamples partitioned on wealth, and in the presence of nonlinear and alternative wealth proxies.

The association could emerge if both are driven by risk preferences. Specifically, left-wing political orientation could be a feature of higher risk aversion. Our results do not support this hypothesis, however. First, we control for wealth, age, and gender, which are known proxies for risk aversion. If risk aversion drives the result, it must be due to the idiosyncratic component of risk aversion after these controls. Second, the results hold when we limit the sample to high income areas or individuals. Third, if the MPs’ choices are influenced by the preferences of their constituencies, it seems more likely that the MPs are signaling personal values, rather than risk preference, to the

² Left-wing political preferences are characterized by such opinions as being in favor of redistribution, high labor market protection, corporatist institutions, and a generalized antipathy towards capital markets. How these preferences arose, through a combination of economic reasons and ideology perhaps, does not matter for our purposes. However, political preferences have been shown to start forming relatively early in life, much before financial decisions are made: Political preferences have been shown to be partially genetically transmitted (Alford, Funk, and Hibbing, 2005), evident in early childhood (Block and Block, 2006), and even to have a neurocognitive basis in conflict-related anterior cingulate cortex activity (Amodio, Jost, Master, and Yee, 2007).

³ See Grinblatt and Keloharju (2000) for a description of the Finnish Central Securities Depository data.

electorate. Fourth, we find that, conditional on participating, political preference does not affect equity allocation.

An argument could be made for reverse causality: perhaps people who do not invest in stocks will develop leftist tendencies? Recall however, that given sufficient financial resources, they should still invest in stocks if personal values did not matter for that decision. People who are above the participation threshold thus provide a powerful test of this alternative hypothesis. Data on the MPs are useful here: Every single MP is very likely to be over the participation threshold in the classical sense. We find the results hold also for MPs, as well as in wealthy areas in other data sets. This is inconsistent with reverse causality driving the results.

The data do not support the view that the results are driven by expectations about the future of the social safety net, or future stock returns. We do, however, find some evidence of a connection between a higher savings rate and right-wing political views.

Further alternative explanations include social capital (Guiso, Sapienza, and Zingales, 2004) and trust (Guiso, Sapienza, and Zingales, 2008), but these factors do not appear to drive the results. In the individual-level analysis, we find the association to be strong within each community. In the zip-code-level analysis, we control for voting activity and the rate of home ownership, both measures of social capital used in prior literature. We also show that our political orientation variables do not reflect social capital and trust effects.

The rest of the paper is organized as follows. Section 2 discusses potential links between personal values and investment decisions. Section 3 presents our data sets and methods. Section 4 describes the results on the association between political preferences and stock market participation at both zip-code and individual levels. Section 5 analyzes equity allocation conditional on participation and savings rates, as well as alternative transmission mechanisms between values and investments. Section 6 considers alternative explanations for the results, and Section 7 concludes.

2. Personal values, political preferences, and investment decisions

Personal values affect consumption decisions (Vinson, Scott, and Lamont, 1977). They are also a major driver of voting decisions (Kinder and Kiewiet, 1979; Markus, 1988; Rubin, 2001). The idea that personal values are fundamental and at least partly exogenous is supported by research showing that political preferences are genetically transmitted (Alford, Funk, and Hibbing, 2005), evident in early childhood (Block and Block, 2006), and have a neurocognitive basis (Amodio, Jost, Master, and Yee, 2007). Value-expressive elements may also be present in investment behavior, consistent with the popularity of socially responsible investing (see Statman, 2000; Heinkel, Kraus, and Zechner, 2001; Bollen, 2007; Hong and Kacperczyk, 2009).

If people apply similar value-expressive considerations also in their stock market participation decision, a portion of the public can stay out of the market due to their personal

values. The stock market, or its near synonym, Wall Street, has a rather questionable image among part of the public. Negative associations with greed, speculation, or even amoral behavior have been commonplace for decades. For example, consider the following characterization by the Spanish poet García Lorca (1940): “The terrible, cold, cruel part is Wall Street. Rivers of gold flow there from all over the earth, and death comes with it. There, as nowhere else, you feel a total absence of the spirit...”⁴ More recent quotations expressing similar sentiments—although in less dramatic linguistic register—were not hard to come by in the aftermath of the financial crisis of 2008.

Consequently, some people may experience a discrepancy between their personal values, and the values they perceive to be associated with the stock market. A mismatch between values and actions tends to create cognitive dissonance.⁵ One can think of this cognitive dissonance as an additional participation cost. Some potential investors may thus stay out of the stock market because of their need to avoid cognitive dissonance: a mechanism we might call stock market aversion.

As a measure of stock market aversion, we use political preferences. Political ideologies differ in opinions projected towards the stock market. We hypothesize that left-wing political preference brings about an additional cognitive participation cost through the mechanism of cognitive dissonance, and causes some people to stay out of the stock market.⁶

In addition to a value-expressive choice, some other factors may cause political preferences and stock market participation to be related. First, political preferences could be correlated with beliefs regarding the need for making additional pension savings. Guiso, Haliassos, and Jappelli (2003a) suggest that a mistrust toward promised state-funded pensions provides a motive to invest in stocks. Specifically, left-wing voters may expect a strong social safety net in the future, decreasing the need to ensure retirement income through personal savings. Conversely, right-wing voters may be motivated to save for their own good because they expect that the social safety net will weaken in the future. In this scenario, left-wing voters would be investing less in stocks as a byproduct of their overall lower savings rate. Second, right-wing voters may have higher stock return expectations due to a belief in the

⁴ Further historical quotations include: “A symbol for sin for every devil to rebuke. That Wall Street is a den of thieves is a belief that serves every unsuccessful thief in place of a hope in Heaven...” (entry for Wall Street in Bierce's (1911) *Devil's Dictionary*; “Evils and abuses [brought] a disastrous effect on the entire nation.” (Pecora Commission in 1933, quoted in Welles (1975); “Shady lair...a place as wicked as a pool hall or a gambling den” (Chernow, 1997).

⁵ Festinger (1957) develops the theory of cognitive dissonance, and Akerlof and Dickens (1982) present an early application in economic theory.

⁶ It is plausible that value-expressive choices are binary in nature. One either is or is not a stock market investor—the amount of stock market investment is less relevant for self-identification. Consider an example from another area of life. The dietary choice of many vegetarians is primarily influenced by ethical considerations. A favorable attitude towards animal rights might then predict the decision to abstain from eating meat, but not the amount of meat consumed conditional on it being greater than zero.

efficiency of stockholder wealth maximization as a corporate goal. Conversely, left-of-center voters may be less optimistic in this respect. Bonaparte, Kumar, and Page (2010) show that US voters supporting the political party in power have more optimistic views on stock returns.

All the three channels outlined above predict a correlation between political preferences and stock market participation. However, they make different predictions regarding equity allocation conditional on participation and the overall savings rate. Earlier research finds that income and education predict participation, but are not related to the conditional equity allocation.⁷ This is consistent with fixed costs of participation: income is related to direct transaction costs, and education is related to information costs. Once an individual crosses the participation threshold in these variables, further increase does not affect the conditional equity allocation. Prior literature also finds that the conditional allocation is weakly or moderately increasing in wealth, which is consistent with decreasing relative risk aversion preferences.

In the first channel (value-expressive choice), political preference does not affect the equity allocation if, as we argue, it is related to a cognitive participation cost. The other channels lead to further predictions, however. The second channel (safety net expectations) predicts a negative relation between left-wing political preferences and overall saving rates. The third channel (return expectations) predicts a negative relation between left-wing political preferences and allocation to equity.

Some external factors could also jointly influence the formation of personal values and investment decisions. Wealth is probably the clearest candidate for such a factor: wealthier people are more likely to invest in stocks, and also more likely to vote right-of-center. This is not a particularly interesting link, and we control for wealth in many ways in our analysis in an effort to get rid of this confound. We also control for income and education, which are known to affect both investment and voting choices.

Alternatively, investing and voting could both be caused by risk aversion. People with different risk aversion should primarily differ from each other based on the amount allocated to equity. The combination of high risk aversion and low wealth could nevertheless keep investors out of the market altogether.⁸ Perhaps risk preferences determine political preferences as well. Specifically, people with left-wing ideologies could be more risk-averse, and hence emphasize risk sharing and a relatively greater role for the government, while right-wing people might emphasize individual rights and competition, due, in part, to more risk-tolerant preferences.

However, the hypothesis that risk aversion determines political preferences may be problematic. First, left-wing supporters may not be more risk-averse. Psychologists have long been interested in correlations between ideology and personality traits. A meta-analysis by Jost, Glaser, Kruglanski, and Sulloway (2003a, 2003b) investigating 88 data samples from 12 countries concludes that right-wing supporters are more averse to uncertainty and less prone to sensation seeking compared to left-wing supporters. Sensation seeking, in turn, has been shown to be a reliable measure of risk-taking tendency in financial decisions (e.g., Wong and Carducci, 1991; Horvath and Zuckerman, 1993; Grinblatt and Keloharju, 2009). Existing research thus suggests, at a minimum, that left-wing supporters are not more risk-averse. Second, Benjamin, Choi, and Strickland (2010) show that social identity can be a more fundamental driver of behavior compared to risk aversion.

3. Data and methods

3.1. Institutional background and measuring political preferences

Elections for the 200-seat Finnish Parliament are held every four years. No other elections that would influence the results, such as referenda, take place on election day. Finland uses the d'Hondt constituency list system, typical of multiparty proportional representation systems. This means that votes count towards total party representation, rather than just an individual candidate, which is the case in district-based majority voting systems. This makes it less likely that the results are affected as described by Levitt (1994) by differences in personal vote-getting ability between two opposing individual candidates. A multiparty structure implies smaller within-party variation in political views compared to two-party systems, as well as a quantifiable left-right scale of parties. For further details of the electoral process and results, see Nurmi and Nurmi (2004).

We measure political orientation along the right-left axis. It is the most common measure of values in the political science literature, and numerous studies show that personal ideological considerations have a significant effect on how people vote (Rubin, 2001). Hix and Lord (1997) provide a quantitative classification of all major Finnish parties on a left-right axis. For ease of interpretation, we apply a linear transformation to the original scale⁹ to obtain a right-left axis from 1.0 to 10.0, in which a higher value corresponds to a more left-wing political position. Prior research, e.g., Huber and Inglehart (1995), has shown that a single right-left factor captures well different sub-factors, such as opinions on economic issues. In zip-code-level analysis, we calculate the weighted average of political orientation based on the distribution of the vote shares, and the parties' respective Hix and Lord

⁷ Guiso, Haliassos, and Jappelli (2003a, 2003b) provide reviews of this literature. See Calvet, Campbell, and Sodini (2007) for an example of a recent study reaching the same conclusions.

⁸ The link between stock market participation and risk aversion may be complicated, however. Gomes and Michaelides (2005) show that the likelihood of participation can also increase with risk aversion. In their life-cycle model with uninsurable labor income risk and fixed entry costs, more risk-averse investors are more prudent and save more. They find that this effect dominates in the participation decision over typical parameter values.

⁹ Our right-left axis variable equals 11 minus the original Hix and Lord (1997) score.

classifications. Alternatively, we use the vote share of left-wing parties with a right-left score above 5.0.

3.2. Zip-code-level sample

The data on stock ownership come from the registry of the Finnish Central Securities Depository (FCSD) covering the period from January 1995 to November 2002. The registry contains the official records of ownership of all Finnish investors for publicly held firms in Finland. More description is provided in Grinblatt and Keloharju (2000). Based on these data, we calculate the number of stock market investors in each zip-code area at the time of the parliamentary elections. During the study period, elections took place in 1995 and 1999. The 2003 elections took place about four months after the coverage of our stock ownership data ends. We use ownership data from November 2002 as a proxy for the ownership at the time of the elections in March 2003. In determining the local number of stock market participants at the time of a particular election, we count all those individuals who have bought common stock through the stock exchange at some point before the election.

The zip-code-level data do not contain information on mutual funds. However, this omission turns out not to affect the results. First, we do have information on mutual fund holdings in the exit poll data discussed in Section 3.3, and the results there are in line with the zip-code results. Second, mutual funds are a relatively recent phenomenon in Finland. We estimate the results using data just from the election of 1995 when only 1% of household assets¹⁰ were invested in mutual funds. The results are similar to the full sample results.

The country is divided into voting precincts, and there were 3,582 such districts in 1995. We obtained the number and distribution of ballots cast on election day as well as the number of voting-aged (18 years) inhabitants for each voting precinct from Statistics Finland. It is also possible to vote before the actual election day with a postal ballot system, and about 40% of voters use this option. Our data for 1995 and 1999, however, cover only the votes cast on the election day itself. We do have the postal votes for 2003, which allows us to check whether the omission of postal votes causes any bias. That turns out not to be the case: the results are similar in 2003 with and without the postal votes.

The number of voting precincts is approximately equal to the number of zip codes, but there is not a one-to-one correspondence between the two systems. In most cases, the vast majority of the population in a particular voting precinct nevertheless live in one zip code area: For example, 70% of the voting precincts have a dominant zip code area where over 80% of the population live. To convert election results reported at the voting-precinct level to the level of the zip code area, we prorate the election results in the ratio of the voting-aged population. For example, say a voting precinct A with a total population of 400 overlaps with two zip code areas, called 1 and 2. The population in the intersection of A and 1 is 300, while in the

intersection of A and 2 it is 100. In this case, we would allocate a share of $300/400=0.75$ of the votes in the precinct to zip code area 1, and $100/400=0.25$ to zip code area 2.

We obtain a number of zip-code-level control variables from a product called 'Finland CD' released by Statistics Finland, using editions from 1996 and 2002. These variables are the total number of individuals and households, the share of people in various age cohorts, the share of Swedish-speaking individuals, median income, mean wealth, share of high income individuals (as defined by Statistics Finland), share of people with high school and college degrees, share of people owning their house, and population density. The control variables are not available annually, and we use measurements as close as possible to our time points of interest, namely the elections of 1995, 1999, and 2003. Many of the variables are skewed, so we take logs of all the continuous variables. We determine a scaling coefficient c for each variable such that $\log(x+c)$ has zero skewness. The population density variables are the first three orders of orthogonal polynomials of the logarithm of population density.

After matching the zip-level election results with the data set containing the control variables, we have 2,694 observations for the elections of 1995, 2,724 for 1999, and 2,632 for 2003, which amounts to 8,050 after pooling the three elections. We exclude the zip areas located in the autonomous island province of Åland where the major parties do not set candidates, areas with undefined geographical boundaries, and areas with boundary changes (106 pooled observations). We exclude areas with less than 50 votes given (further 927 observations), areas with zero investors (further 461 observations), and areas where at least one of the three major parties received zero votes (further 234 observations). This results in a final sample of 6,322 observations after pooling all three elections.

Table 1 shows descriptive statistics, at the zip-code level, of the share of investors in the area and the vote shares of the major parties for each election. The three big parties for which the vote share is reported are: the right-of-center Conservative Party (National Coalition), the Centre Party, and the left-of-center Social Democratic Party. The three biggest parties account on average for about two-thirds of the votes, but there is significant geographic variation. Note that the election participation rates we report in the table do not include postal ballots, as stated earlier. The overall election participation rates, including election day votes as well as postal votes, are much higher, averaging 70% in the elections during our sample period.

3.3. Individual survey sample

Our individual-level sample is based on an exit poll conducted in connection with the Finnish Parliamentary elections on March 16, 2003. The exit poll covered nine Helsinki voting precincts representing different socioeconomic settings. These voting precincts function as an experimental setting where the objective is to interview a maximum of voters who are investors, plus naturally a much larger control group of voters who are not investors. As in Saunders (1995), this geographical choice weights the sample automatically towards stock-owning voters, which is useful in order to obtain a large enough sample of such

¹⁰ As reported by the The Finnish Bankers' Association.

Table 1

Descriptive statistics on zip-code-level investor and voting data.

The sample consists on votes by zip code area in the Finnish parliamentary elections of 1995, 1999, and 2003. Panel A shows zip-code-level descriptive statistics for the voting age (over 18 years) population, percentage of voters in the population, percentage of investors in the population, and the vote shares of the three main parties separately and aggregated. Panel B shows the aggregate numbers for the entire country. The data are based on votes given on election day, i.e., they exclude postal votes given before the election day.

					% share of votes			
	Year	Voting age population	% voting ^a	% investors	Social Democrats	Center Party	Conservatives	Total, big three
Panel A: Unit of analysis=zip code area								
Mean	1995	1,688	40.2	7.9	22.9	33.1	13.8	69.8
Median		693	40.5	7.2	22.4	32.0	13.0	72.8
St. dev.		2,190	9.6	4.6	12.5	23.1	9.0	16.0
Min		95	3.7	0.6	0.7	0.5	0.2	4.5
Max		18,316	98.8	40.0	75.4	92.8	64.2	98.3
N		2,196	2,196	2,196	2,196	2,196	2,196	2,196
Mean	1999	1,836	40.5	9.4	19.5	34.3	16.3	70.1
Median		783	40.6	8.6	18.7	33.3	15.3	72.7
St. dev.		2,395	8.7	4.9	11.1	22.7	10.1	16.3
Min		92	11.6	0.9	0.5	0.4	0.2	3.0
Max		20,595	93.5	40.6	79.5	90.5	55.7	98.5
N		2,087	2,087	2,087	2,087	2,087	2,087	2,087
Mean	2003	1,698	43.0	12.3	20.7	36.9	14.2	71.8
Median		717	42.5	11.2	20.0	36.0	12.9	74.6
St. dev.		2,238	10.4	5.9	11.2	22.2	9.3	16.6
Min		58	2.0	1.5	0.6	0.3	0.1	1.8
Max		21,074	93.1	65.7	73.9	90.2	55.9	98.6
N		2,039	2,039	2,039	2,039	2,039	2,039	2,039
Mean	Pooled	1,740	41.2	9.8	21.1	34.7	14.7	70.6
Median		727	41.2	8.8	20.3	33.8	13.8	73.5
St. dev.		2,275	9.7	5.5	11.7	22.8	9.5	16.3
Min		58	2.0	0.6	0.5	0.3	0.1	1.8
Max		21,074	98.8	65.7	79.5	92.8	64.2	98.6
N		6,322	6,322	6,322	6,322	6,322	6,322	6,322
Panel B: Unit of analysis=entire country								
	1995	3,705,796	40.0	12.4	28.3	17.7	18.4	46.0
	1999	3,830,696	39.7	13.9	23.3	19.7	21.7	42.9
	2003	3,462,869	42.3	17.5	24.9	23.8	18.9	48.7
	Mean	3,666,454	40.7	14.6	25.5	20.4	19.6	45.9

^a % voting is based on election day only and thus excludes postal ballots.

individuals. Consequently, the objective is not that our sample be representative of the whole Finnish population.

The exit poll provides us with 824 usable responses. The pollsters reported a very low refusal rate. This is probably due to the following facts: First, respondents did not know that the survey focused on stock market investments before agreeing to participate; and second, the survey form was deliberately kept short (one page) to minimize non-responses. The number of control variables was kept limited for this reason. Third, exit polling is not very common in Finland, so voters have not become weary of requests to participate in a survey. A low refusal rate makes our results robust to self-selection bias, unlike a typical mail survey with a 10–20% return rate.

3.4. Data for members of parliament

We collected data on stock ownership, income, taxable wealth, and personal characteristics of the Finnish Members of Parliament (MP) as of September 2006. The Parliament has 200 seats, and we are able to find all the required data for 191 MPs.

Finnish MPs do not need to declare their personal assets including stock market investments, unless they choose to do so voluntarily. Few of them do. For this reason, we obtained data on MPs' investments in stock market-listed companies incorporated in Finland directly through a public access terminal of the FCSO which has official records of ownership. We exclude shares obtained from local phone companies' customer certificate conversions as they do not represent a voluntary stock market investment decision. This is consistent with the construction of the zip-code-level data. Tax information in Finland is also public, allowing us to control for income and taxable wealth. We obtain official tax information for all MPs from a publication called Tax Bourse (Veropörssi in Finnish). Finally, we collect data on MPs' party affiliation, age, and education from their official Parliament Web sites.

3.5. National poll

The fourth data set is based on a proprietary poll administered through the regular national panel poll of TNS Gallup, a nationally leading polling organization. The

panel was surveyed during week 23 of 2009. The panel consists of a nationally representative sample of 1,300 individuals recruited by the polling organization (i.e., no self-recruitment or online recruitment). Recruitment criteria are gender, age, region, income level, and occupation. Around 30% of the panelists are replaced annually. The typical response rate per survey is 80%. A great advantage of using a regular panel survey is that the political views and voting intentions are collected regularly. This means that the respondents are not able to anticipate that our additional investment-related questions will be used in combination with the political data, so the political data are not contaminated by respondents' anticipations. We also obtain a number of useful control variables.

In addition, we use data from the Finnish Business and Policy Forum (EVA) Survey on Finnish Values and Attitudes 2000. The survey contains a large set of questions that are repeated in each survey wave, as well as some questions that change on each round. We use the 2000 wave of the survey which happens to contain questions related to the stock market. The data for this wave were collected between November 21, 2000 and January 18, 2001 using a mail survey. The target group consisted of a random sample of 4,500 people aged 18–70 living in mainland Finland, and the response rate was 50%. In its essential demographic, social, and regional factors, the sample corresponds to the Finnish population structure.

4. Association between values and investing

4.1. Zip-code-level results

We begin by analyzing the zip-code-level determinants of the proportion of stock market investors. We pool the zip-level observations for all three elections together. Since error terms within a zip area are likely correlated over the elections, we calculate standard deviations with clustering as well as heteroskedasticity corrections. As a check of robustness, we also investigate results from regressions run separately for each election.

Table 2 presents the results of this analysis in various combinations of the explanatory variables. Left-wing political preferences are strongly negatively associated with stock market participation. The right-left axis value is a negative and significant determinant of the proportion of investors, and takes *t*-values from -4.3 to -8.6 depending on the controls used. As an alternative measure, we use the vote share of the left-wing parties with a right-left score above 5.0. The results are similar. The effect of the political variable remains strong after adding other control variables such as proportions of high income earners, owner-occupied dwellings, and college graduates.¹¹

¹¹ To investigate causality, we instrument the right-left axis value and the proportion of left-wing voters with a number of demographic factors. The instruments used are the proportions of Swedish speakers and population density, as well as the frequencies of different occupational groups. The coefficients of the political variables remain negative and significant (*t*-values from -5.7 to -6.7 depending on specification), which is consistent with a causal interpretation from values to investing. However, although justified *ex ante*, the instruments turn out to be weak

The economic interpretation of these results is as follows. A one point move towards the left on the right-left scale is associated with a 6.2% decrease in the zip code's participation rate. Let us compare a zip code in which the median voter voted for the main right-wing party (Conservative Coalition Party), with one where the median voter voted for the main left-wing party (Social Democratic Party), holding other things constant. This is equivalent to a move of three points on the right-left scale. Such a move would decrease participation by 19.8%.

The proportion of high income individuals, mean household wealth, and median income are all incrementally significantly positively related to the proportion of investors. Education measured by the proportion of college graduates is also positive and significant. The level of voting activity in an area (the variable *Votes*) is also positively associated with investment. In prior research, Guiso, Sapienza, and Zingales (2004) find that voting activity explains stock market participation in Italy.

Some areas could be intrinsically appealing to right-voting investors who invest in stocks, and other areas to left-voting investors who do not invest in stocks. This type of sorting would then give rise to our results. However, we do control for many regional characteristics. Moreover, there is no material difference within the country in national taxation, investor protection, or legal enforcement, so our setting is fundamentally very different from, e.g., a cross-country comparison. Municipal tax, which varies from 16% to 21%, does introduce one source of geographical variation. However, if the municipal tax rate affects people's choice of residence (and there is some anecdotal evidence that it does for very high income individuals), the effect should be picked up by income and wealth, which we use as controls.

When we run the regressions separately for each election, we get the same strong results for political orientation. We also rerun the regression, excluding observations as detected by Hadi's (1994) procedure for identifying outliers in multivariate data. We use a standard cutoff probability of 0.05. The results are virtually unchanged. We also partition the sample along the rural/urban dimension, and the results remain consistent within each population density quartile.

4.2. Results for individual voters

This section examines individual-level evidence from an exit poll that was executed in connection to the Finnish parliamentary elections of March 16, 2003. Table 3 reports the results of logit regressions in which the dependent variable is an investor dummy (owned stocks as of election day). In addition to directly held stocks, this includes equity mutual funds as well.

The independent variable in Specification 1 is right-left axis, which takes higher values for left-wing parties, and a

(footnote continued)

empirically. Given the well-known problems with weak instruments, we want to be careful not to overemphasize these results and thus refrain from formally reporting them.

Table 2

Determinants of stock ownership in zip-code-level data.

Specifications 1 through 6 are OLS. Zip-code-level observations for three Finnish parliamentary elections (1995, 1999, and 2003) are pooled together. Investors is the log number of stock market investors per population. Right-left axis value is a weighted-average political orientation of the zip code, based on party-by-party score on a scale of 1.0 (right) to (left); Source: Hix and Lord, 1997. Left-wing proportion is the number of votes for parties with a right-left score of more than 5.0, divided by the total number of votes given. Votes is the log number of votes given per population. Income is the log of median income of individuals. Wealth is the log mean taxable wealth of families. High income individuals is the log number of people in the highest income bracket per population. House owners is the log number of owner-occupied dwellings in the area per population. College degrees is the log number of people with higher academic education per population. Heteroskedasticity and clustering (at the zip-code-level) corrected *t*-statistics are below coefficients in parentheses. All significance tests are two-sided. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Dependent variable: Investors					
	(1)	(2)	(3)	(4)	(5)	(6)
Right-left axis value	−0.129*** (−8.59)	−0.060*** (−4.52)	−0.051*** (−4.29)			
Left-wing proportion				−0.540*** (−9.12)	−0.247*** (−4.40)	−0.428*** (−8.19)
Votes	0.508*** (7.52)	0.126** (2.00)	0.231*** (3.91)	0.461*** (6.72)	0.101 (1.58)	0.194*** (3.31)
Income		0.293*** (7.41)	0.174*** (2.97)		0.317*** (7.75)	0.248*** (4.24)
Wealth		0.518*** (21.84)	0.337*** (16.65)		0.509*** (20.62)	0.295*** (14.41)
High income individuals			0.230*** (8.65)			0.237*** (9.07)
House owners			0.373*** (6.20)			0.368*** (6.20)
College degrees			0.156*** (8.77)			0.150*** (8.51)
Election fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Population density controls	Yes	Yes	Yes	Yes	Yes	Yes
Demographic controls	No	No	Yes	Yes	Yes	Yes
<i>N</i>	6,322	6,322	6,322	6,322	6,322	6,322
<i>R</i> -squared	0.31	0.48	0.62	0.31	0.48	0.62

left-wing vote dummy for parties with a score above 5.0 on the right-left axis in Specification 2. Control variables include a male dummy, six dummies for age classes (unknown ages omitted), and six dummies for monthly¹² gross income in euros (unknown incomes omitted). The number of control variables in the survey was kept limited to achieve a higher participation rate. We also include polling station fixed effects to control for potential variation across areas.

The results show that the right-left axis is negative with a *t*-value of −4.6, which makes it the most significant variable in the regression. Using a left-wing dummy instead of the right-left axis gives a *t*-value of −4.2. The economic interpretation of this finding is that a move of one point to the left on the 1–10 right-left scale is associated with a 5.8% smaller likelihood of market participation. Comparing the coefficient for the left-wing dummy (coefficient value −0.68) to the income dummies shows that the decrease in stock market participation due to a left-wing political preference is roughly comparable to that associated with a move from a monthly income bracket of 2,000–2,999 euros (the omitted category) to an income bracket of 1,000–1,999, which represents a decrease of 40%

in income, on average.¹³ As a check of robustness we run the regressions separately for each polling station. The effect of political preference remains significant within polling areas, including the wealthiest and poorest areas.

These individual-level results are in line with the zip-code level results in significance and economic magnitude. They show that the relation between left-wing voting and stock market participation is not driven by geographic sorting, and that the same relation holds when we consider indirect stock market participation through equity mutual funds.

4.3. Results for members of parliament

In this section we examine the stock market participation of Finnish members of parliament (MP). MPs form a particularly interesting group to study, because their ideological orientation is explicitly known and because all of them have a relatively uniform above-average income (though not uniform wealth). Moreover, their education level is more uniform than in the population they represent, with approximately 70% having college education.

¹² Income is typically stated in monthly figures as opposed to annual figures in Finland.

¹³ The magnitude is also similar for a move in monthly income from 3,000–3,999 to 2,000–2,999, and for a move from 5,000 and beyond to 4,000–4,999.

Table 3

Determinants of stock ownership in exit poll data.

Both specifications are logit. The dependent variable used is a dummy for owning stock as of the election date in the 2003 Finnish parliamentary election. Right-left axis value is a score of 1.0 to 10.0 for Finnish parties based on Hix and Lord (1997), with higher values representing left-wing parties. The left-wing vote dummy takes a value of one for voting any of the left-wing parties with a Hix and Lord (1997) right-left score above 5.0. The reference group for age dummies is 36–45 years and for income dummies 2,000–2,999 euros. Heteroskedasticity corrected t-statistics are in parentheses below the coefficients. All significance tests are two-sided. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Dependent variable: Investor dummy	
	(1)	(2)
Right-left axis value	–0.23*** (–4.55)	
Left-wing vote dummy		–0.68*** (–4.22)
Male dummy	–0.02 (–0.16)	–0.007 (–0.04)
Age 18–25 dummy	0.22 (0.73)	0.23 (0.77)
Age 26–35 dummy	0.08 (0.38)	0.08 (0.38)
Age 46–55 dummy	0.13 (0.47)	0.14 (0.55)
Age 56–65 dummy	0.66** (2.14)	0.73** (2.40)
Age 66 or above dummy	0.11 (0.29)	0.17 (0.45)
Income 0–999 euros dummy	–0.35 (–1.31)	–0.36 (–1.39)
Income 1,000–1,999 euros dummy	–0.85*** (–3.70)	–0.90*** (–3.97)
Income 3,000–3,999 euros dummy	0.82*** (3.31)	0.76*** (3.12)
Income 4,000–4,999 euros dummy	0.64** (2.13)	0.653** (2.18)
Income 5,000 euros or above dummy	1.24*** (3.80)	1.27*** (3.94)
Constant	1.71*** (4.01)	0.81** (2.51)
Polling station fixed effects	Yes	Yes
N	782	806
Pseudo R-squared	0.12	0.11

MPs are presumably all aware of stock markets through their legislative and committee work involving securities markets.

Every single MP is very likely to be over the participation threshold in the classical sense, but we hypothesize that personal ideology may impact the MPs' attitudes towards stock market investments, and make some of them stay out of the market. Alternatively, politicians may act strategically, and choose to participate or not to participate in the stock market based on the views of their voters. In other words, left-wing voters may look unfavorably at their MP investing in the stock market, while right-wing voters may behave in an opposite manner.

Univariate analysis shows that MPs from right-wing parties, defined here as parties with a score below 5.0 on the modified Hix and Lord (1997) scale, are overwhelmingly more likely to own stock (51% of them do) than MPs

Table 4

Determinants of stock ownership for members of parliament.

Both specifications are logits in which the dependent variable (Investor dummy) takes the value of one if the individual member of the Finnish parliament owns stocks as of September 2006, and zero otherwise. Right-left axis value is a score of 1.0 to 10.0 for Finnish parties based on Hix and Lord (1997), with higher values representing left-wing parties. The left-wing dummy takes a value of one for belonging to any of the left-wing parties with a Hix and Lord (1997) right-left score above 5.0. Log income and log wealth are calculated as the natural logarithm of taxable income and taxable wealth, in euros, in the 2004 tax year. The parliament has 200 members; income and wealth data are missing for nine individuals. Heteroskedasticity corrected t-statistics are in parentheses below the coefficients. All significance tests are two-sided. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Dependent variable: Investor dummy	
	(1)	(2)
Right-left axis	–0.209** (–2.04)	
Left-wing dummy		–0.721** (–2.21)
Log income	0.828 (1.45)	0.832 (1.45)
Log wealth	0.076** (2.50)	0.075** (2.47)
Male dummy	0.520 (1.31)	0.493 (1.23)
Age	0.065 (0.34)	0.059 (0.31)
Age squared	0.000 (0.23)	0.000 (0.20)
College degree dummy	0.017 (0.05)	0.022 (0.06)
Constant	–13.547 (–1.53)	–11.945 (–1.34)
N	191	191
Pseudo R-squared	0.11	0.11

from left-wing parties (21% investors). The difference is statistically highly significant. We add control variables and show logit results in Table 4. Left-wing political preference remains a negative and significant determinant of stock market participation. Log income is positive but not significant, most likely reflecting the MPs' fairly even income profile. Log wealth, where there is no uniformity among MPs, is positive and significant with t-values up to 2.5. The male dummy, age, and the college degree dummy are all positive as expected, but not significant. The fact that education is not a significant determinant of stock market participation is consistent with the idea that members of parliament, regardless of their education level, are more aware of stock markets than the general population.

The economic significance of these findings is that moving one point to the left would correspond to 5.2% lower likelihood of the MP being an investor. A move from the Conservative Coalition Party to the Social Democratic Party, a move of three points on the 1–10 right-left scale, would make participation 17.5% less likely. These figures are in line with the earlier results on general population.

In sum, these results suggest that those MPs who choose not to participate in the equity market are likely to be motivated by political or ideological considerations. This test is unable to distinguish between two mechanisms: the MPs genuine personal values having direct impact on their

choices, or MPs acting strategically based on the values of their constituencies. Both mechanisms, however, support the value-expressive hypothesis.

5. Transmission mechanisms

This section discusses further results that are useful for assessing alternative explanations and transmission mechanisms. The first subsection investigates whether political values affect the equity allocation conditional on participation, or the savings rate. The second subsection focuses on whether the transmission mechanism between political values and stock market participation relates to value-expressive choices, expectations about the social safety net, or expectations about future market returns.

5.1. Equity allocation and savings rates

The nationally representative polling data described in Section 3.5 allow us to investigate alternative dependent variables describing investment behavior. First, this data confirm the significant negative relation between left-wing political views and the decision to participate, after controlling for income, age, gender, and education (see Table 5, Specification 1). This is the fourth independent data set in our paper to confirm this.

We ask the participants for details of their equity savings and total wealth, and calculate the equity portfolio allocation. Conditional on participating, the association

between the equity allocation and political views is very close to zero (Table 5, Specification 2). We also run a similar regression using the data for the members of parliament. The sample size there is only 65 due to the requirement of positive reported taxable wealth needed for calculating equity allocation. The results (Table 5, Specification 3) nevertheless confirm that there is no relation between equity allocation and political view conditional on participation. Political views thus seem to operate similar to variables like income and education that have been linked to fixed costs of participation. That is, they predict participation, but not equity allocation conditional on participating.

In order to proxy the savings rate, we ask the poll respondents whether they are able to save money monthly after regular expenses: always, mostly, sometimes, rarely, or never. These five responses are analyzed with ordered probit, including a variety of controls. The results, reported in Table 5, Specification 4, indicate that left-wing political views are associated with less frequent savings (t -value -2.9). The European Values Survey for Sweden from 1999 provides a further source of data (this question was not asked in Finland, so we use data from Sweden—a country with similar institutions and culture). The dependent variable here is the answer to the question “Were you able to put some money aside last year?” The results are reported in Table 5, Specification 5. Here the t -value on a left-wing political view is -1.9 .

The results do not support the idea that conditional on participating, left-wing political views would also be

Table 5

Equity allocation and savings rates.

This table shows a comparative analysis of three alternative dependent variables. The data for Specifications 1, 2, and 4 come from a nationally representative poll conducted in Finland in week 23 of 2009; for Specification 3, from data on Finnish members of parliament as of September 2006; and for Specification 5, from the European Values Survey for Sweden for 1999. The first specification uses a dummy for stock market participation as a dependent variable; the second and third specifications use equity allocation conditional on stock market participation as a continuous variable from zero to 100%; the fourth specification is a variable taking the values from 1–5 for an answer to the question “Are you able to save money monthly after regular expenses never/rarely/sometimes/mostly/always?”; and the fifth specification a dummy variable for a positive answer to the question “Were you able to put some money aside last year?”. Right-left axis value is a score of 1.0 to 10.0 for Finnish parties based on Hix and Lord (1997), with higher values representing left-wing parties. Heteroskedasticity corrected t -statistics are below coefficients. All significance tests are two-sided. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1) Participation	(2) Equity allocation	(3) Equity allocation	(4) Savings rate	(5) Savings rate
	Logit Decision to participate	Tobit Equity allocation (%)	Tobit Equity allocation (%)	Ordered probit Higher monthly savings	Logit Able to save the year before
Right-left axis value	−0.166*** (−2.64)	−0.002 (−0.18)	0.012 (0.12)	−0.082*** (−2.88)	−0.068* (−1.92)
Male dummy	0.405** (2.07)	0.048 (1.58)	0.293 (0.62)	−0.112 (−1.30)	−0.071 (−0.44)
College degree dummy	0.237 (0.89)	−0.003 (−0.06)	0.339 (0.83)	0.291** (2.39)	0.155 (1.08)
Log income			−0.131 (−0.31)		
Income dummies	Yes	Yes		Yes	Yes
Age dummies	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes		Yes
N	536	210	65	649	958
Source:	Gallup survey	Gallup survey	MP data	Gallup survey	Sweden survey

associated with lower equity allocation. We interpret this finding as suggesting that value-expressive actions are typically categorical, and consistently with prior literature, that equity allocation is better explained by more parsimonious models based on wealth. Finally, we do find some evidence of a connection between a lower savings rate and left-wing political views.

5.2. Value-expressive choices, safety net expectations, and return expectations

In Section 2 we presented three hypotheses about the transmission mechanism from politics to investing: value-expressive choice, expectations about the social safety net, and stock return expectations. The national polling data described in Section 3.5 allow us to empirically address these hypotheses.

The most direct question we use for value-expressive choices is the following question in our proprietary poll: “Do you consider the stock market beneficial or harmful to society as a whole?” The respondents are presented with a seven-point Likert scale going from very harmful (1) to very beneficial (7). The descriptive statistics for this question show much variation, with answers spread over all seven

categories. An ordered probit (Table 6, Specification 1) shows that the respondent's political view on the right-left scale is a key determinant of the answer after various controls. More left-wing voters tend to see the stock market as a less beneficial institution in society by a clear margin. The *t*-value is -7.2 .

Additionally, we use responses from the EVA Finnish Values and Attitudes Survey. We analyze responses to three questions related to the stock market. The statements are: “The stock market is excessively worshipped in Finland”; “Investment in shares is an excellent way to increase national wealth”; and “Finnish society has succumbed too much to market forces and selfish profit seeking.” Responses for these three questions are coded on a five-point Likert scale (from 1 strongly disagree to 5 strongly agree) and analyzed using ordered probit. To ease interpretation, in the tables we converted the two negative statements and their corresponding answers to always align “agree” with a positive stock market attitude. We thus use the labels “Stock market not excessively worshipped” and “Not too much selfish profit seeking.”

The results (Table 6, Specifications 2, 3, and 4) show that left-wing political views are robustly associated (*t*-values -5.1 to -6.7), after controls, with antipathy towards the stock market. These results strengthen the interpretation

Table 6

Value-expressive choices, safety net expectations, and return expectations.

This table shows a comparative analysis of three alternative transmission mechanisms that may account for the association between stock market participation and political preferences. The data for Specifications 1, 5, and 6 come from a nationally representative poll conducted in Finland in week 23, 2009; for Specifications 2, 3, 4, and 7 from The Finnish Business and Policy Forum (EVA) Survey on Finnish Values and Attitudes 2000. The dependent variables are specified as follows. Column 1: coded from 1–7 (very harmful to very beneficial) based on “Do you consider the stock market beneficial or harmful to society as a whole?” Column 2: coded from 1–5 (strongly disagree to strongly agree) with the statement “The stock market is not excessively worshipped in Finland.” Column 3: coded from 1–5 (strongly disagree to strongly agree) with the statement “Investment in shares is an excellent way to increase national wealth.” Column 4: coded from 1–5 (strongly disagree to strongly agree) with the statement “Finnish society has not succumbed too much to market forces and selfish profit seeking.” Column 5: coded from 1–7 (will get significantly better/worse) for the question “How do you think pensions will develop within the next 20 years?” Column 6: a continuous variable for expected annual stock returns over the next 20 years. Column 7: coded from 1–5 (strongly disagree to strongly agree) with the statement “The present stock market boom is not a bubble.” Right-left axis value is a score of 1.0 to 10.0 for Finnish parties based on Hix and Lord (1997), with higher values representing left-wing parties. Heteroskedasticity corrected *t*-statistics are below coefficients. All significance tests are two-sided. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Value-expressive opinions about the stock market				Safety net exp.	Return expectations	
	Ordered probit Stock market is beneficial	Ordered probit Stock market not excessively worshipped	Ordered probit Stock investments good for economy	Ordered probit Not too much selfish profit seeking	Ordered probit Pensions will get worse	OLS Expected stock return	Ordered probit Present boom is not a bubble
Right-left axis value	−0.222*** (−7.23)	−0.137*** (−6.72)	−0.103*** (−5.09)	−0.127*** (−6.20)	0.054* (1.92)	−0.534 (−0.55)	−0.021 (−1.05)
Male dummy	−0.079 (−0.87)	0.012 (0.19)	0.007 (0.12)	0.061 (0.99)	0.0001 (0.00)	1.465 (1.33)	0.101* (1.67)
College degree	−0.054 (−0.50)	0.197*** (3.07)	−0.042 (−0.66)	0.198*** (3.11)	−0.037 (−0.36)	−0.716 (−1.28)	0.193*** (2.97)
Income dummies	Yes				Yes	Yes	
Class dummies		Yes	Yes	Yes			Yes
Age dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant		Yes	Yes	Yes		Yes	Yes
N	533	1,297	1,304	1,301	624	269	1,296
Data source:	Gallup survey	EVA survey	EVA survey	EVA survey	Gallup survey	Gallup survey	EVA survey

that stock market participation and political views are mediated through value-expressive elements.¹⁴

The results are economically significant. In our nationally representative poll data, 20.0% of respondents think that the stock market is harmful rather than beneficial to society, 42.0% have a neutral view, and only 38.0% think that it is beneficial. Of the first group, only 27.7% invest in stocks, compared with 44.8% for those who have a neutral view of the market, and 57.9% for those who find the market beneficial to society. Moreover, of the first group, 14.9% vote right-wing, compared with 29.3% of those who have a neutral view of the market, and 44.5% of those who find the market beneficial to society.

One issue is whether the Finnish sample is internationally representative in this respect. Consider the following data on the attitudes towards capitalism among the general public in various countries. According to a 2006 poll described by *The Economist* (January 31, 2008, “France’s Contempt for Markets”), only 36% of the French agreed that the free market was the best system available, compared with 71% of Americans and 66% of the British. In a 2009 poll run in Finland, asking if they agreed with the statement “Although the capitalist system is unstable, it is in practice the only possible economic system,” 72% of those who expressed an opinion were in complete or partial agreement with the statement (Haavisto and Kiljunen, 2009). Moreover, the percentage agreeing with the statement “Government ownership of business should be increased” is 18% for Finland and 24% for an average of the United States, United Kingdom, Japan, Germany, and France; and for the statement “The owners should run their business or appoint their managers”, 62% of Finns versus 59% of the other countries mentioned disagree (Landier, Thesmar, and Thoenig, 2008). These responses show that Finnish public opinion on capitalism is in line with the public opinion in the countries with the world’s largest stock markets.

In the poll, we ask the respondents to quantify, on a scale of 1–7, how they expect the old-age pension safety net to develop during the next 20 years, a question that is under great public scrutiny in many countries with aging populations. These answers are then correlated across our usual variables of political views and controls. The multivariate results (see Table 6, Specification 5) show that there is no link between left-wing political views and optimism about the pension system. If anything, left-wing voters are marginally (t -value 1.9) more pessimistic about pensions. We therefore remain skeptical that plausible disagreements over the strength of the safety net could account for our main results.

Finally, our poll asks respondents directly about their estimates of future expected stock returns per annum. The mean answer is 8.6%. Cross-tabulations do not show immediately apparent differences between parties and this is confirmed in the multivariate analysis. Political orientation is not a significant determinant of expected stock market returns (t -value -0.6 , see Table 6, Specification 6). Additionally, the EVA Survey on Finnish Values and Attitudes from year 2000 includes the question “Do you think the present boom is a bubble?”, which proxies for some expectations about future stock returns. Again, political opinions do not appear to drive this response, and the result is not statistically significant.¹⁵

In sum, the data show that political preferences are strongly associated with a variety of value-expressive opinions about the stock market, but not with expectations of future stock returns, or with expectations about the social safety net. This supports the interpretation that the coordination of investors’ value-expressive opinions and actions is the key factor explaining the association between political preferences and stock market participation.

6. Alternative explanations

6.1. Wealth and income effects

Although we do include linear wealth proxies (taxable wealth, income, house ownership) as control variables in our zip-level analysis, there still remains some concern that the regional relation between investment and political orientation is driven by wealth or income. The following facts should mitigate this concern. Recall that we also include in the regression the percentage of high income earners in an area; this should pick up possible nonlinear effects better. We have also estimated the regressions with square terms of our wealth proxies, and the results do not change. The exit poll data allow controlling for income at the individual level, and give similar results regarding stock market participation. The exit poll results hold separately in all polling areas despite their widely different socio-economic structure (one polling area has the highest real estate prices in Helsinki). Finally, when we partition the zip-code-level sample into income quartiles, the results remain consistent within all quartiles.

¹⁴ We also regress stock market participation directly on attitudes towards the stock market. That is, instead of using right-left axis as the explanatory variable (as in Table 5, Specification 1), we now use answers to the question “Do you consider the stock market beneficial or harmful to society as a whole?” coded (1) for very beneficial to (7) for very harmful. The set of controls is the same as in Table 5. The attitude variable receives a coefficient of -0.31 (t -value -5.93), a result that is even stronger than the one obtained using right-left axis. The fact that the attitude variable is stronger indicates that while political ideology is a good measure of attitudes towards the stock market, it is nevertheless a noisy proxy.

¹⁵ Bonaparte, Kumar, and Page (2010) show an incumbency effect where Republican voters are more optimistic about stock returns during a Republican administration and Democratic voters during a Democratic administration. The 2009 poll was conducted at a time when Finland had a right-of-centre prime minister. As the results do not show higher return expectations for right-wing voters, it does not appear that an incumbency effect is driving the results. In any case, the incumbency effect could be expected to be stronger in a two-party environment such as the US or the UK than in a multiparty environment such as Finland, where governments consist of complex coalitions and transfers of power are more gradual than in two-party systems. In fact, a rather remarkable 62% of voting-age Finns are unable to name correctly the parties which are currently represented in the government coalition, despite Finland’s top ratings in international comparisons regarding literacy and newspaper readership statistics (Elo and Rapeli, 2008).

6.2. Risk aversion

People with different risk aversion may primarily differ from each other based on the amount allocated to equity, but the combination of high risk aversion and low wealth could keep investors out of the market altogether. However, our results also hold when we limit the sample to higher income areas or individuals. This does not support a risk-based explanation.

The results from the stock ownership data on the members of parliament are also difficult to reconcile with the risk aversion hypothesis. These individuals are likely all above the fixed-costs participation threshold, but nonparticipation still correlates with left-wing political orientation. Even if the politicians were making investment choices based on the perceived preferences of their constituencies, it is much more plausible that they would be acting based on the values, rather than the perceived risk preference, of their voters.

Furthermore, as discussed in Section 5.1, we find that the political variable does not predict equity allocation conditional on participation. This is evidence against the risk aversion hypothesis.

6.3. Social capital and trust

Guiso, Sapienza, and Zingales (2004) show that people tend to invest more in stocks in provinces of Italy that are characterized by high levels of social capital. Guiso, Sapienza, and Zingales (2008) further show that trusting others has a positive impact on stock ownership.

Social capital is unlikely to drive our results because we control for voting activity and homeownership rates in our zip-code-level regressions, both canonical area-level measures of social capital (Putnam, 2000; DiPasquale and Glaeser, 1999). Our results show that both measures are positively associated with stock market participation. The concept of social capital offers one meaningful interpretation of this finding. The results on political orientation, however, have a strong incremental impact.

We nevertheless investigate this issue further by measuring the extent to which our political variable covaries with individual-level measures of social capital, following the method of Glaeser, Laibson, Scheinkman, and Soutter (2000). We replicate their analysis using data from the World Values Survey for the Scandinavian countries,¹⁶ and augment the set of explanatory variables with variables related to voting activity and political orientation.¹⁷

The political variables are measured as follows. We use a self-reported measure of political orientation on a scale of

1–10, where 1 is right and 10 is left. We construct a likely voter dummy receiving the value of one for those respondents who feel politics is at least somewhat important to them (the original variable has a four-point scale), and zero for those who feel politics is “not at all important.” In Finland, 74% of the respondents feel politics has at least some importance, which is approximately equal to the share of voters in the population.

The dependent variable in the first regression (results unreported) is the number of organizations to which the respondent belongs, and the parameters are estimated with ordinary least squares. The second regression is a probit model, where the dependent variable is a dummy for trusting other people.¹⁸ In line with prior research, education and income are strong determinants of both measures of social capital. The likely voter variable is also a strong positive predictor of both measures. This supports the interpretation that the zip-code-level association between voting turnout and stock market participation is a manifestation of social capital.

There is no relation in the data between left-wing political orientation and organization membership, and the relation between left-wing political orientation and trusting others is actually positive. We confirm that these results hold also for Finland separately, and for alternative specifications of the political variables. In sum, the results discussed in this section show that left-wing political preferences are not negatively related to measures of social capital and trust, and hence, the main results of this paper are not driven by variation in social capital or trust.

7. Conclusion

We find that stock market participation is strongly associated with political orientation after controlling for income, wealth, education, and other relevant factors. This finding comes from a unique data set of zip-code-level election results and stock ownership information from Finland, and is confirmed using individual-level data from an exit poll, data from members of parliament, and a nationally representative poll. A change of one point to the left on a 1–10 right-left scale is associated with a 5–6% smaller likelihood of stock market participation, while a three-point move corresponding to a change from a moderate right to moderate left party decreases the likelihood of market participation by 17–20%. The magnitudes are comparable in zip-code-level and individual-level data.

The results show the relevance of a new variable related to stock market participation, and confirm that it has predictive strength comparable to, or even surpassing that of commonly analyzed variables. Alternative explanations based on wealth effects, risk aversion, reverse causality, return expectations, safety net expectations, social capital, or trust are unlikely to account for the results. The results

¹⁶ We use surveys conducted in Finland in 2000, and in Denmark and Sweden in 1999, countries with very similar institutions. Data for Norway are not available. These data are archived and distributed by the European Values Study Group and World Values Survey Association.

¹⁷ Some of the control variables differ from those in Glaeser et al. (2000) for practical reasons: dummies for high school dropouts and for African-American origin are not included due to a very small number of cases; instead of dummies for different religions, only one dummy (non-Protestant) is used; income is based on a ten-point scale rather than dollar amount; age cohort effects are not included, as our data are from a single point in time; a country dummy (omitting Finland) is included.

¹⁸ These variables are the most frequently used individual-level proxies for social capital. The survey question regarding trust reads: “Generally speaking, do you feel other people can be trusted, or that you can never be too careful?” This is the same question as analyzed by, e.g., Guiso, Sapienza, and Zingales (2008). The dummy receives the value of one for those respondents who answer that other people can be trusted.

are consistent with the idea that personal values figure importantly in major investment decisions.

On a more general level, this paper is related to the discussion of financial assets as consumption goods (Fama and French, 2007, and others). The idea that people can derive direct utility (or lose utility) from holding certain financial assets is an application of a more general micro-economic model of consumer behavior to household finance. Alternatively, financial economists have explained limited participation with nonstandard risk preferences (Benartzi and Thaler 1995; Ang, Bekaert, and Liu, 2005; Cao, Wang, and Zhang, 2005; Barberis, Huang, and Thaler, 2006). We see these approaches as complementary efforts to understand household financial behavior.

References

- Akerlof, G.A., Dickens, W., 1982. The economic consequences of cognitive dissonance. *American Economic Review* 72, 307–319.
- Alford, J.R., Funk, C., Hibbing, J.R., 2005. Are political orientations genetically transmitted? *American Political Science Review* 99, 153–167.
- Amodio, D.M., Jost, J.T., Master, S.L., Yee, C.M., 2007. Neurocognitive correlates of liberalism and conservatism. *Nature Neuroscience* 10, 1246–1247.
- Ang, A., Bekaert, G., Liu, J., 2005. Why stocks may disappoint. *Journal of Financial Economics* 76, 471–508.
- Barberis, N., Huang, M., Thaler, R.H., 2006. Individual preferences, monetary gambles, and stock market participation: a case for narrow framing. *American Economic Review* 96, 1069–1090.
- Benartzi, S., Thaler, R.H., 1995. Myopic loss aversion and the equity premium puzzle. *Quarterly Journal of Economics* 110, 73–92.
- Benjamin, D.J., Choi, J.J., Strickland, A.J., 2010. Social identity and preferences. *American Economic Review* 100, 1913–1928.
- Bernheim, B.D., Garrett, D.M., 2003. The effects of financial education in the workplace: evidence from a survey of households. *Journal of Public Economics* 87, 1487–1519.
- Bierce, A., 1911. *The Devil's Dictionary*. Doubleday, Page, and Company, New York.
- Block, J., Block, J.H., 2006. Nursery school personality and political orientation two decades later. *Journal of Research in Personality* 40, 734–749.
- Bollen, N.P.B., 2007. Mutual fund attributes and investor behavior. *Journal of Financial and Quantitative Analysis* 42, 683–708.
- Bonaparte, Y., Kumar, A., Page, J.K., 2010. Political climate, optimism, and investment decisions. Unpublished working paper. Claremont McKenna College and University at Texas at Austin.
- Cao, H.H., Wang, T., Zhang, H.H., 2005. Model uncertainty, limited market participation, and asset prices. *Review of Financial Studies* 18, 1219–1251.
- Calvet, L.E., Campbell, J.Y., Sodini, P., 2007. Down or out: assessing the welfare costs of household investment mistakes. *Journal of Political Economy* 115, 707–747.
- Campbell, J.Y., 2006. Household finance. *Journal of Finance* 61, 1553–1604.
- Chernow, R., 1997. *The Death of the Banker: The Decline and Fall of the Great Financial Dynasties and the Triumph of the Small Investor*. Vintage Books, New York.
- Christiansen, C., Joensen, J.S., Rangvid, J., 2008. Are economists more likely to hold stocks? *Review of Finance* 12, 465–496.
- DiPasquale, D., Glaeser, E.L., 1999. Incentives and social capital: are homeowners better citizens? *Journal of Urban Economics* 45, 354–384.
- Elo, K., Rapeli, L., 2008. *Suomalaisten politiikkatietämys*. Finnish Ministry of Justice Publications 2008, 6.
- Fama, E.F., French, K.R., 2007. Disagreement, tastes, and asset pricing. *Journal of Financial Economics* 83, 667–689.
- Festinger, L., 1957. *A Theory of Cognitive Dissonance*. Stanford University Press, Stanford, CA.
- García Lorca, F., 1940. *A Poet in New York*, trans. Rolphe Humphries. W.W. Norton, New York.
- Giannetti, M., Koskinen, Y., 2010. Investor protection, equity returns, and financial globalization. *Journal of Financial and Quantitative Analysis* 45, 135–168.
- Glaeser, E.L., Laibson, D., Scheinkman, J.A., Soutter, C.L., 2000. Measuring trust. *Quarterly Journal of Economics* 65, 811–846.
- Gomes, F.J., Michaelides, A., 2005. Optimal life-cycle asset allocation: understanding the empirical evidence. *Journal of Finance* 60, 869–904.
- Grinblatt, M., Keloharju, M., 2000. The investment behavior and performance of various investor types: a study of Finland's unique data set. *Journal of Financial Economics* 55, 43–67.
- Grinblatt, M., Keloharju, M., 2009. Sensation seeking, overconfidence, and trading activity. *Journal of Finance* 64, 549–578.
- Guiso, L., Haliassos, M., Jappelli, T., 2003a. Household stockholding in Europe: where do we stand and where do we go? *Economic Policy* 18, 123–170.
- Guiso, L., Haliassos, M., Jappelli, T. (Eds.), 2003. *Household Portfolios*. MIT Press, Boston.
- Guiso, L., Sapienza, P., Zingales, L., 2004. The role of social capital in financial development. *American Economic Review* 94, 526–556.
- Guiso, L., Sapienza, P., Zingales, L., 2008. Trusting the stock market. *Journal of Finance* 63, 2557–2600.
- Haavisto, L., Kiljunen, P., 2009. *Kapitalismi kansankäräjällä*. Finnish Business and Policy Forum (EVA) publications, Helsinki.
- Hadi, A.S., 1994. A modification of a method for the detection of outliers in multivariate samples. *Journal of the Royal Statistical Society* 56, 393–396.
- Haliassos, M., Bertaut, C., 1995. Why do so few hold stocks? *Economic Journal* 105, 1110–1129.
- Heaton, J., Lucas, D., 2000. Portfolio choice and asset prices: the importance of entrepreneurial risk. *Journal of Finance* 55, 1163–1198.
- Heinkel, R., Kraus, A., Zechner, J., 2001. The effect of green investment on corporate behaviour. *Journal of Financial and Quantitative Analysis* 36, 431–450.
- Hix, S., Lord, C., 1997. *Political Parties in the European Union*. Macmillan Press, London.
- Hong, H., Kacperczyk, M., 2009. The price of sin: the effects of social norms on markets. *Journal of Financial Economics* 93, 15–36.
- Hong, H., Kostovetsky, L., Red and blue investing: values and finance. *Journal of Financial Economics*, submitted for publication.
- Hong, H., Kubik, J.D., Stein, J.C., 2004. Social interaction and stock market participation. *Journal of Finance* 59, 137–163.
- Horvath, P., Zuckerman, M., 1993. Sensation seeking, risk appraisal, and risky behavior. *Personality and Individual Differences* 14, 41–52.
- Huber, J., Inglehart, R., 1995. Expert interpretations of party space and party locations in 42 societies. *Party Politics* 1, 73–111.
- Jost, J.T., Glaser, J., Kruglanski, A.W., Sulloway, F.J., 2003a. Political conservatism as motivated social cognition. *Psychological Bulletin* 129, 339–375.
- Jost, J.T., Glaser, J., Kruglanski, A.W., Sulloway, F.J., 2003b. Exceptions that prove the rule—using a theory of motivated social cognition to account for ideological incongruities and political anomalies: reply to Greenberg and Jonas (2003). *Psychological Bulletin* 129, 383–393.
- Kinder, D.R., Kiewiet, D.R., 1979. Economic discontent and political behavior: the role of personal grievances and collective economic judgments in congressional voting. *American Journal of Political Science* 23, 495–527.
- Landier, A., Thesmar, D., Thoenig, M., 2008. Capitalism aversion. *Economic Policy*, 467–497.
- Levitt, S.D., 1994. Using repeat challengers to estimate the effect of campaign spending on election outcomes in the U.S. house. *Journal of Political Economy* 102, 777–798.
- Mankiw, N.G., Zeldes, S.P., 1991. The consumption of stockholders and nonstockholders. *Journal of Financial Economics* 29, 97–112.
- Markus, G., 1988. The impact of personal and national economic conditions on the presidential vote: a pooled cross-sectional analysis. *American Journal of Political Science* 32, 137–154.
- Nurmi, H., Nurmi, L., 2004. The parliamentary election in Finland, March 2003. *Electoral Studies* 23, 557–565.
- Polkovnichenko, V., 2005. Household portfolio diversification: a case for risk-dependent preferences. *Review of Financial Studies* 18, 1467–1502.
- Putnam, R., 2000. *Bowling Alone: The Collapse and Revival of American Community*. Simon and Schuster, New York.
- Rubin, P.H., 2001. Ideology. In: Shugart II, W.F., Razzolini, L. (Eds.), *Elgar Companion to Public Choice*. Edward Elgar, pp. 328–336.
- Saunders, P., 1995. Privatization, share ownership and voting. *British Journal of Political Science* 25, 132–138.
- Shiller, R.J., 1984. Stock prices and social dynamics. *Brookings Papers on Economic Activity* 1984 (2), 457–498.
- Statman, M., 2000. Socially responsible mutual funds. *Financial Analysts Journal* 56 (3), 30–40.

- Vinson, D.E., Scott, J.E., Lamont, L.M., 1977. The role of personal values in marketing and consumer behavior. *Journal of Marketing* 41, 44–50.
- Vissing-Jorgensen, A., 2002. Limited asset market participation and the elasticity of intertemporal substitution. *Journal of Political Economy* 110, 825–853.
- Vissing-Jorgensen, A., 2003. Perspectives on behavioral finance: does “irrationality” disappear with wealth? Evidence from expectations and actions. *NBER Macroeconomics Annual*, 139–194.
- Welles, C., 1975. *The Last Days of the Club*. Dutton, New York.
- Wong, A., Carducci, B.J., 1991. Sensation seeking and financial risk taking in everyday money matters. *Journal of Business and Psychology* 5, 525–530.