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# The long-lasting effects of experiencing communism on attitudes towards financial markets

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# The Long-Lasting Effects of Experiencing Communism on Attitudes Towards Financial Markets

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# The long-lasting effects of experiencing communism on attitudes towards financial markets

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September 14, 2023

**Abstract**

We show that exposure to anti-capitalist ideology can exert a lasting influence on attitudes towards capital markets and stock-market participation. Utilizing novel survey, bank, and broker data, we document that, decades after Germany's reunification, East Germans invest significantly less in stocks and hold more negative views on capital markets. Effects vary by personal experience under communism. Results are strongest for individuals remembering life in the German Democratic Republic positively, e. g., because of local Olympic champions or living in a "showcase city". Results reverse for those with negative experiences like religious oppression, environmental pollution, or lack of Western TV entertainment.

*JEL-Classification Codes*: D14, D83, D91, G41, P10, P26, P34, P36
*Keywords*: Capital markets, Anti-capitalist Ideology, Life-time Experiences, Stock-market Participation

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# 1 Introduction

Anti-capitalist ideology is still markedly more present in formerly communist countries than in Western countries (Fuchs-Schündeln and Schündeln (2020)), but there are also substantial and persistent differences *within* Eastern Europe. For example, the approval rate for the change to a market economy is 85% in Poland but only 55% in Bulgaria.[1] Only 2-4% of Slovaks participate in the stock market, which communist ideology casts as the "root of all evil"[2], while this rate is more than twice as high in nearby Slovenia.[3]

What is the root of these differences in convergence and adjustment to capital markets after the fall of the Iron Curtain? Why do some individuals who have lived under a communist government embrace the adoption of capitalism, while others hold on to the ideas of communism?

In this paper, we argue that exposure to anti-capitalist ideology can have longlasting effects on attitudes towards capital markets and alter personal investment decisions for years and decades to come. These longlasting influences explain not only average differences between East and West, but also differences in adjustment within-East. We identify variation in exposure to anti-capitalist ideology, channeled through personal experiences and quality of life under the communist rule. Those who had relatively positive life experiences under communism are more likely to continue to adhere to the anti-capitalist ideology. They have a higher likelihood of disapproving of capital markets and stock-market investment decades later, and they invest less in stocks personally, even if their positive experiences were unrelated to economic or financial outcomes. Those, instead, whose life was negatively affected by the communist regime are significantly more likely to embrace the market-based system, and invest personally in the stock market.

Our analysis focuses on East Germany (the former German Democratic Republic, GDR) and the longlasting effects of living under the GDR's socialist doctrine, i. e., under a communist and strongly anti-capitalist ideology. Germany is a popular testing ground for the long-lasting effects of living under communism since it was divided into a capitalist and a communist part after World War II, but reunified in 1990. In the capitalist West, the stock exchange re-opened under American

[1] See the 2019 PEW Research Center survey discussed in Wike et al. (2019). Data from the World Value Survey shows that around 30% of the population in Ukraine, but only 19% in Slovenia and 12% in Poland view income equality as essential to democracy.

[2] See, e. g., Handelsblatt, 11/08/2014, "Millionaires not wanted."

[3] Data are from the second wave of the ECB Household Finance and Consumption Survey.



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protectorate in 1945. In the communist East, there was no stock market, and people were exposed to strongly negative views about capitalism in general and the stock market in particular.[4] While prior literature uses this setting to establish persistent East-West differences,[5] the core of our analysis focuses on within-East differences, with the West serving as a comparison benchmark. To the best of our knowledge, we are the first to leverage the large cross-sectional within-East differences to better understand the roots of slower or faster adjustment to capitalism.

We utilize three novel sources of data: (1) a representative survey on attitudes towards capitalism and communism and on stock-market participation, which we fielded across 9,695 East and West Germans, (2) extensive proprietary bank data on individual stock-market investments of 326,437 clients, and (3) a large broker account data set on individual stock-market investments of 230,229 clients, augmented by a set of granular, regional indicators.

We first establish East-West differences as a comparison benchmark for the within-East analysis. Even though East and West Germans have faced the same investment universe and the same legal and regulatory framework for almost 30 years, East Germans are still more reluctant to invest in the stock market than West Germans. Our estimates of the raw East-West gap are remarkably similar in all three datasets and range from 25.2% to 27.7%. Consistent with prior literature (Fuchs-Schündeln and Haliassos, 2021), we estimate that a large part of the gap is explained by demographics and financial resources. However, all three data sets reveal that a significant unexplained gap of 10% remains after including an exhaustive battery of control variables, also compared to prior literature, including wealth, education, employment, financial literacy, social capital, trust, risk aversion, familiarity with the stock market, and return expectations. We also find significant differences in stock-market participation in several arguably more homogeneous East-West subsamples, including investors living in East and West Berlin, and investors in characteristics-matched cities closely located on each side of the former border. Even individuals who moved from the East

[4] The GDR stood out in its intense propagation of the anti-capitalist doctrine even relative to other communist countries. The more intense propaganda arguably reflected that the GDR could not legitimize itself as a "national state" like the other communist regimes (Haury, 2004): Its territory was defined by the Allies and Soviets, Germans were living on both sides of the border, and West Germany publicly claimed to represent all Germans. The ideological indoctrination served to stabilize the political system and to differentiate the GDR from the West.

[5] Prior research shows, for example, that almost 30 years after the Reunification of Germany, there are still profound differences in social norms, personality traits, and wealth between East and West Germans (Fuchs-Schündeln, 2008; Alesina and Fuchs-Schündeln, 2007; Bursztyn and Cantoni, 2016; Lichter et al., 2021).



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to West Germany after Reunification invest significantly less than West Germans, despite sharing (and self-selecting into) the exact same aggregate economic environment.

The participation gap is not an artefact of other historical East-West differences that might have existed before the separation of Germany after World War II. Data from 2,000 clients' portfolios of a German bank from 1920-1924 in Braggion et al. (2023) reveal no significant difference in stock-market participation between East and West Germans, at neither the extensive nor the intensive margin.

These baseline findings motivate the main part of our analysis, which examines how stock-market participation among East Germans relates to individual attitudes toward capitalism and explores the channel of past experiences under the communist doctrine.

A first indication that exposure to communist ideology plays a role in East Germans' investment behavior comes from the types of stock East Germans invest in. In all three datasets, we find that—consistent with communist friends-and-foes propaganda—stocks of firms from communist countries attract significantly *more* East German ownership, while stocks of American companies and the financial industry attract significantly *less* East German ownership.

Second, our survey results link pro-communist values and attitudes towards stock markets even more directly. They show that significantly more East than West Germans have anti-capitalist attitudes and think that stock-markets reflect the capitalist system. Moreover, East Germans with stronger anti-capitalist attitudes are less likely to participate in the stock market. The same holds for East Germans who deem stock-market investments immoral and think that they reflect the capitalist system.

Building on these findings, we explore whether variation in individual exposure to the GDR's anti-capitalist ideology helps explain the significant heterogeneity among East Germans, i. e., the variation in attitudes towards communism, capital markets, and investment in the stock market within East Germany. That is, our combination of data sets allows us to go one step further in linking ideology to financial decision-making in that the large subsample of Eastern Germans provides for significant variation in exposure. The variation we exploit here leverages insights from the cognitive-science literature that establishes long-term effects of ideological and emotional priming on behavior (Richter-Levin and Akirav, 2003). Modern neurological foundations of mood and memory



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emphasize the role of the amygdala in reconsolidating emotional memory traces, and establish that emotionally arousing stimuli are remembered better since emotionally dependent information is modulated into enhanced memory (Dolan, 2002; Richter-Levin and Akirav, 2003; LaBar and Cabeza, 2006).[6] This concept of "emotional tagging" relates to, and expands, the concept of *experience effects* from prior research, which has identified personal lifetime experience as an important driver of financial risk taking. For example, stock-market participation has been found to depend on the stock returns experienced over one's lifetime so far (Malmendier and Nagel, 2011; Malmendier et al., 2020). These types of results mirror the cognitive-science finding that repeated exposure to a stimulus leads to enhanced long-term memory formation (Poppenk et al., 2010). In our context, the emotional-tagging hypothesis predicts that the long-term behavioral consequences of exposure to the communist doctrine depend on the emotional context of living under communism: positive personal life experiences predict longlasting adherence to the communist ideology, and negative personal life experiences can cause the opposite behavior. This hypothesis is also motivated by prior research showing that indoctrination and ideology are less effective if they contradict people's cultural values and everyday experiences (McGuire, 1993; Adena et al., 2015).

We start the analysis from our survey data, where we elicit East Germans' memories about various aspects of life in the GDR, whether they wish back the GDR, and whether their standard of living was high during GDR times. We find strong evidence that positive memories of the GDR are associated with lower stock-market participation among East Germans today. East Germans who experienced life in the GDR more negatively, instead, are less receptive to the communist anti-stock market doctrine, and invest more today.

Building on these correlations with subjective experiences and memories, we turn to our administrative financial data and corroborate our findings using external determinants of positive and negative life experiences in the GDR. That is, we leverage geography-based variation in experiences and relate it to stock-market investment in our brokerage data.[7]

[6] In the context of autobiographical memory retrieval, Piefke et al (2003) show how different responses to an experience depend on positive versus negative valence in that different brain areas get activated. This more recent literature builds on an older literature on mood congruence and state dependence in the 1970s and 1980s, e. g., Weingartner et al. (1977), Isen et al. (1978), Blaney (1986). We thank Peter Bossaerts for first suggesting the link to the emotional tagging literature.

[7] Note that the bank data does not provide sufficient sample size for the within-East analysis as it only comprises 16.7% East German clients, and only 7.3% of those participate in the stock market.



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Our first proxy for negative experiences under communism is environmental pollution. In spite of the communist regime's claim to protect the environment in the interest of people's well-being, the GDR had the highest dust and sulfur dioxide emissions across all European countries (Petschow et al., 1990). In heavily air-polluted territories, almost every second child suffered from respiratory diseases.[8] East Germans living in highly polluted areas are thus more likely to have negative emotions tagged to their experience with communism, and are in turn more likely to embrace the capitalist system. We find that stock-market aversion is indeed significantly less pronounced in areas that were highly polluted during GDR times.

Second, we utilize religious oppression. As common in communist systems, the GDR suppressed religious life (Müller et al., 2013). We conjecture that religious people formed more negative views of the communist system and more positive views of Western countries, which honor the freedom of religion. Consistently, we find that differences between East and West German stock-market investment are significantly mitigated in municipalities with high levels of religiosity.

Third, we exploit exogenous variation in access to West German TV. Previous literature in political science has shown that opposition to the communist system was higher in regions of the GDR that did *not* have access to Western TV. This may at first seem surprising. As has been documented, though, Western TV was a major source of entertainment for East Germans, the lack of which resulted in lower satisfaction with the GDR and higher resistance to the political system (Kern and Hainmueller, 2009).[9] Since access to Western TV is orthogonal to other potentially confounding variables (Bursztyn and Cantoni, 2016), we examine its relation with stock-market investment. We find that the stock-market participation gap is weaker for investors living in areas without access to Western TV entertainment.

Vice versa, a proxy for external circumstances that made life in the GDR a more positive experience is living in one of the GDR's renamed "showcase" cities, for example the city of Chemnitz, which became "Karl-Marx-Stadt."[10] The act of renaming was accompanied by festivals, significant

[8] Cf. www.bundesregierung.de/breg-de/aktuelles/wahrheit-ueber-verschmutzung-der-umwelt-336222.

[9] Exposure to West German TV in the East has also been linked to consumption of advertised goods (Bursztyn and Cantoni, 2016), aspirations (Hyll and Schneider, 2013), fertility (Bönisch and Hyll, 2023), entrepreneurship (Slavtchev and Wyrwich, 2017), beliefs about the determinants of success (Hennighausen, 2015), and crime (Friehe et al., 2018).

[10] The cities were selected by a central committee of politicians, and there is some interesting quasi-exogenous variation in the selection. For example, the name Karl-Marx-Stadt had originally been assigned to Eisenhüttenstadt; but after Stalin's death in 1953, Eisenhüttenstadt was spontaneously renamed Stalinstadt, and then Chemnitz was given the name Karl-Marx-Stadt.



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press coverage, and visits by domestic and foreign politicians. These celebrations and expressions of national pride likely tagged the communist experience of residents positively. Karl-Marx-Stadt, for example, developed a flagship role in promoting communist ideology and had a very high number of voluntary state-security collaborators (Horsch, 1997). We show that stock-market aversion is indeed more pronounced among investors living in renamed cities.

A second proxy for positive tagging of the communist experience is Olympic victories. In the GDR, sports was a tool to promote communist ideology and demonstrate the superiority of socialism over the capitalist system. Olympic winners, in particular, were celebrated as national heroes. We show that East Germans living in the same municipality as an Olympic gold medal winner continue to adhere to stronger anti-capital markets attitudes and are more averse to stock-market investment.

Lastly, we utilize variation in the support for the secret surveillance system (STASI). Extensive research has documented that the dominant motivation for serving as a voluntary, unofficial collaborator (Inoffizieller Mitarbeiter, IM) was political ideology rather than monetary incentives or extortion (Mueller-Enbergs, 1995). We show that stock-market aversion is stronger in regions where voluntary state-security collaboration was particularly high.

In summary, relating geography-based, predetermined proxies for positive or negative experiences to stock-market investment corroborates the survey-based finding of a link between ideological adherence and stock-market investment. We note that, while some of the proxies are, individually, subject to alternative interpretations, the repeated and differential subsampling of the East German population by unrelated proxies and the usage of two different databases helps alleviate concerns about other correlates that predict the receptiveness to communist propaganda.

We also provide evidence that the persistent differences in financial investment are costly to East Germans. In addition to the negative impact on wealth accumulation due to lower stock investment, the portfolios of East Germans are less diversified than those of West Germans and pay lower returns, and a higher share of their liquid funds are invested in high-fee products of the bank.

Our paper contributes to several strands of research. Research in political science and economics has shown that the political, economic, and social values in formerly communist countries differ systematically from those in other countries (Pop-Eleches and Tucker (2017); see also Fuchs-Schündeln and Schündeln (2020, 2015)). To compare post-communist citizens to those growing up



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under capitalism, several papers have exploited the division and then reunification of East and West Germany from 1945 to 1990. These papers show that there are still profound differences in social norms, personality traits, and wealth between East and West Germans (Fuchs-Schündeln, 2008; Alesina and Fuchs-Schündeln, 2007; Bursztyn and Cantoni, 2016; Lichter et al., 2021). A recent paper by Becker et al. (2020) questions whether the German Reunification is a good natural experiment. For example, selective migration of more highly skilled East Germans to West Germany after Reunification might contribute to persistent wealth differences, challenging the causal attribution to post-communism effects. Also, the term "post-communism" may be misleading as a significant fraction of East Germans still hold communist views today. Consistent with this view, our paper confirms that the support for communism is still stronger in East Germany 30 years after Reunification. We are the first to explore cross-sectional differences within East Germany and how they are connected to the type of experiences that East Germans have had under the communist system. To the best of our knowledge, no prior research has systematically studied the predictors of faster versus slower convergence in capital-market attitudes and investment.

We also contribute to the literature in household finance which has identified various drivers of financial risk-taking and stock-market participation. Risk perception and investment in risky asset markets are particularly influenced by experienced market returns over the lifetime (e.g., Malmendier and Nagel (2011)), experienced inflation (e.g., Malmendier and Nagel (2016)), personal investment outcomes (e.g., Strahilevitz et al. (2011), Kaustia and Knüpfer (2008)), an investor's local environment (e.g., Laudenbach et al. (2021), Kaustia and Knüpfer (2012)), individuals' perceptions of stockholders' identity-relevant characteristics (Henkel and Zimpelmann (2023)), social capital (e.g., Guiso et al. (2004)), and trust (e.g., Guiso et al. (2008)). Most closely related, Fuchs-Schündeln and Haliassos (2021) also document an East-West participation gap of comparable magnitude, utilizing survey responses from the Socio-Economic Panel. Decomposing the gap, they show that it can almost entirely be attributed to disparities in financial resources. We use a large set of control variables, including meausres for trust and social capital as well as a very granular wealth measure and also unveil substantial explanatory power of personal characteristics. The composition, and especially the size of our datasets allow us, however, to explore additional important differences not only between the West and East but also within East Germany, for example regional differences



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in exposure to propaganda or various measures for attitudes towards capital markets. This enables us to contribute to this strand of literature in household finance by identifying a novel channel that affects individuals' willingness to participate in the stock market, i. e., their experience with capitalist vs. communist political regimes as well as attitudes towards capitalism.

## 2 Data and summary statistics

Our analyses utilize three core data sets on attitudes towards capital markets and stock-market investment—an online survey in East and West Germany, a proprietary bank data set, and a brokerage data set—as well as several auxiliary data sources. All sources of data are listed in Appendix-Table A1, which also provides a detailed description of all variables.

### 2.1 Survey data

We surveyed 9,695 individuals living in West and East Germany via the polling firm Bilendi between April and June 2023. Bilendi operates an online panel of 300,000 individuals with an average response rate of 35%, out of which it draws customized samples for its clients. A registration key ensures that no respondent fills in the survey multiple times. Participation is incentivized by bonus programs and gifts.

According to the German census, only 14.9% of Germans live in East Germany (the former GDR). To increase the number of exposed individuals in our sample, i.e., East Germans with exposure to the communist ideology of the GDR, we oversampled East Germans and restrict the sample to individuals of at least 30 years of age. This permits a refined analysis of heterogeneity in pro-communist attitudes and stock-market participation within East Germany. Overall, the survey includes 5,286 respondents from East Germany, and 4,409 respondents from West Germany. Bilendi guarantees that the composition of the samples is representative of the respective baseline populations. In our sample, the survey data represent the German population in terms of gender, age groups above 30 years of age, and federal states in East and West Germany, respectively.

In the survey, we elicit respondents' attitudes towards capitalism and communism, as well as their stock-market participation. Specifically, survey respondents are asked whether they currently invest in the stock market and whether they plan to invest (more) in the future. If they do not partic-



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ipate in the stock market, we ask whether they ever did so in the past. In addition, we elicit variables that have been shown to predict stock-market participation in the previous literature: trust, risk tolerance, financial literacy, familiarity with the stock market, social capital, stock-market participation of peer groups and return expectations. Finally, we collect socio-demographic information such as respondents' monthly income, total wealth, employment and education.

The left map in Panel A of Figure 1 displays the distribution of survey respondents at the municipality level. The dark shading over East Germany (which actually accounts for only 30% of Germany's total area) reflects the intentional oversampling of East Germans, who make up 54.5% of the respondent population. Summary statistics for the survey data are shown in Panel A of Table 1. Respondents are 55 years old on average, and 48% are male. 30.8% of respondents indicate that they participate in the stock market, and average return expectations for the German stock market index are 6.5%. This estimate compares well to the returns of the German stock market after reunification, which were positive with an annual average return of 7.5% p.a. according to the German stock institute (DAI).

In Table 2, we compute univariate tests for differences in these variables between East and West Germans. Panel A shows the results for the survey data. Consistent the findings for the other data sets, discussed below, Panel A reveals that East and West German respondents differ along many dimensions. For example, they are less likely to be single (65.6% are married or in partnerships compared to 63.2% in West Germany). East Germans also have lower wealth, income, and – anticipating the baseline result – lower stock-market participation (26.9% versus 35.5%). The geographic distribution of stock-market participants is shown in the left map of Panel B in Figure1. East Germans indicate lower levels of trust, financial literacy, familiarity, social capital and return expectations, but higher risk aversion. These differences are likely to contribute to their lower willingness to participate in the stock market. In our analysis, we quantify the remaining gap after controlling for the full set of demographics and other control variables that predict stock-market participation.



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## 2.2 Bank data

We also utilize data from a major German financial institution that operates an extensive branch network across Germany. The dataset includes a cross-section of 326,437 randomly selected clients. The middle map of Panel A of Figure 1 shows the geographic distribution of bank clients. The distribution also matches population densities in both the East and the West, including highly populated areas such as the Ruhr Valley and the larger municipalities in East Germany.

The data set records information on clients' demographics (age, gender, marital status, employment status, a proxy for socio economic status), their financial situation (wealth and income variables, and information on retirement savings plans, mortgages, consumer credit and credit cards, savings plans, and retirement savings plans), along with administrative bank information (clients' product portfolio, account balances, and risk tolerance, and the number of consultations a client had with the bank) as of September 2019.

All summary statistics are in Panel B of Table 1. Approximately 16.7% of clients reside in East Germany. On average, clients are 45 years old, 58% are male, and 44% are married. These statistics compare to 49% male, 42% married, and an average age of 45 years in the German Census of 2019.

The participation of clients in the stock market is lower than in our survey data, with an average of 9.1%. The lower rate might reflect the fact that the clients are, on average, ten years younger and belong to a financial institution with a branch network, as opposed to, for instance, broker clients. As such, it illustrates the well-known fragmentation of the German banking sector (private banks versus Sparkassen versus Volksbanken etc.). This fragmentation results in client populations with different socio-economic characteristics at different financial institutions, where those characteristics can be correlated with stock-market participation.

Panel B of Table 2 shows the univariate differences in these variables between East and West Germans. Consistent with the survey data, we observe disparities in investment behavior: East Germans exhibit significantly lower participation in the stock market than West Germans (9.5% vs. 7.3%). The low fraction of East German stock-market participants ($0.167 \times 0.073 = 0.018$) makes it difficult to analyze within-East heterogeneity in stock-market participation in this data. The table also confirms that West Germans tend to have higher wealth and income.



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### 2.3 Broker data

We also obtain the security holdings and demographics of a representative sample of 230,229 retail investors of a online German broker from June 2004 to December 2012, resulting in 839,292 observations. The broker is associated with a large bank that has branches in almost all municipalities, with very similar market shares and uniform financial products and services offered in East and West Germany.

The right map in Panel A of Figure 1 displays the geographic distribution of broker clients in our sample. Like the bank data, the broker data matches population densities in both the East and the West. The data include investor characteristics like age, gender, marital status, a client's zip code, and account-related data such as the date the account was open or closed (if applicable).

Summary statistics are in Panel C of Table 1. They show that 20.4% of clients in our sample live in East Germany. There are slightly more men (52.6%) and married people (58.2%), and the sample is older (60 years on average) than the German population. Stock-market participation (in stocks and in equity funds) is high, at 82%. Note that the high level of stock-market participation reflects selection into the sample: Most broker accounts are opened to trade stocks or hold equity in retirement savings plans. We will see later that, nevertheless, estimation results conditional on stock-market participation are very similar across all three data sets.

Panel C of Table 2 reports differences between East and West German broker clients. The raw differences in investment behavior are again striking: East Germans participate significantly less in the stock market than West Germans (61% vs. 87%) Similar to the survey and bank data, we also observe that West German investors are wealthier and live in regions with better economic conditions. Our main analysis controls for all systematically differing factors relevant to stock-market participation.

### 2.4 Auxiliary sources of data

While wealth and educational variables are available at the individual level for the survey and bank data, we use additional sources of data, listed in Panel D of Table 1, in the broker data. For example, we merge municipality-level data on local real estate wealth from the SAVE survey (a



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yearly household panel in Germany), educational variables from the German Census, and proxies for local economic conditions from the German Federal Statistical Office.

# 3 The Stock-Market Participation Gap between East and West

We first establish the East-West gap in stock-market participation as our baseline result before turning to the within-East heterogeneity analysis. Here, we leverage the statistical power and robustness of our estimations across three large data sets to quantify the magnitude of the gap.

## 3.1 Historical Background

Prior to the historical events of the 1930s and 1940s, and the fallout from Word War II, East and West Germans did not display systematic differences in stock-market participation. This can be seen in the (proprietary) data on German security portfolios from Braggion et al. (2023). Their data records portfolio holdings and trades from 1920-1924 for more than 2,000 clients from both East and West Germany. While Braggion et al. do not indicate the exact number of clients living in East and West Germany, Figure 4 of their paper shows that the clients are distributed evenly between East and West Germany. Client-level averages over the time period from January 1920 to December 1924 show that 66.7% of the East German and 68.2% of the West German clients participate in the stock market. This difference is not statistically significant. (The t-statistic for differences in means at the client-level is 0.34.) At the intensive margin, the fraction of stocks in East German portfolios is even slightly higher, and amounts to 74.9%, compared to 72.9% in West German portfolios. Again, the difference is not statistically significant (t-statistic -0.54).[11]

These results imply that the stock-market participation gap that we observe today between East and West Germans is not the result of persistent historical differences.

## 3.2 Quantification of the Stock-Market Participation Gap

We start by quantifying the difference in stock-market participation between East and West Germans using three different datasets. Each of these datasets has its advantages and disadvantages.

[11] We thank the authors of Braggion et al. (2023), Fabio Braggion, Felix von Meyerinck, and Nic Schaub for providing us with these statistics.



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The survey data is representative of the population in East and West Germany and allow us to control for the largest set of potential confounds, including variables such as trust, financial literacy, or social capital, which are usually not available in field data. It comes at the disadvantage that we can only examine one cross-section and the data are by nature self-reported. The bank data is rich when it comes to monetary control variables such as income, loans, credit card ownership etc. It also includes many non-participants and is more representative of the average bank client than the broker data. However, the banking sector in Germany is quite fragmented and clients self-selecting into the bank that provided us with the data may be different from the general population. Finally, the broker data is the largest dataset available to us, allowing for a detailed analysis of differences within East Germany. Given that only 15% of the German population lives in East Germany and their low stock-market participation, a high number of observations is important to have sufficient statistical power. On the other hand, the broker sample is highly selective given that most broker accounts are opened to trade stocks or hold equity in retirement savings accounts. As a result, it has a high baseline stock-market participation rate (81.9%) and is not representative of the average population. In the following, we use all three datasets for our analysis and compare the results against the background of each dataset's characteristics. We will document surprisingly similar raw estimates of the East-Wet gap across all three data sources as well as their robustness to the varying and extensive sets of controls in each dataset.

The three maps in Panel B of Figure 1 illustrate the distribution of stock-market participants across and within East and West Germany. The area of East Germany is much less dense (lighter) in terms of stock-market participation than the area of West Germany in all three datasets. The graphs also give us a first glimpse of the within-East heterogeneity in stock-market investment. The relative shades (—which regions are darker and which ones are lighter—) indicate significant within-East variation.

**Empirical Model.** To quantify differences between East and West Germans, we estimate the following logit regression for each of the three datasets:

$$P(y_{it} = 1|East_i, x_{it}, z_{c(i),t}, \nu_t) = \Phi(\alpha + \beta East_i + \gamma' x_{it} + \delta' z_{c(i),t} + \nu_t), \tag{1}$$



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where the indicator $y_{it}$ equals one if investor $i$ participates in the stock-market in year $t$. In the survey data, this variable is defined based on the question "Do you invest in stocks, equity funds, or exchange traded funds?" In the bank and broker data, stock-market participation is defined based on whether a client holds any stocks, equity funds, or ETFs in her portfolio. The key independent variable, $East_i$, is an indicator equal to one if an investor lives in East Germany. We typically exclude investors from Berlin, which originally had an Eastern and a Western part. We analyze these clients separately in the broker data in column (3) of Panel B, Table 3.

The vector of individual-level controls, denoted as $x_{it}$, encompasses variables such as gender, age, marital status, risk tolerance, and a set of dataset-specific control variables. Notably, all datasets incorporate controls for financial resources. For the survey data, we have access to total household wealth and monthly income. The bank dataset provides the most extensive array of financial controls, including wealth and income variables, as well as product ownership (such as consumer credit, retirement savings plans, general savings plans, credit cards, or mortgages). In the broker data set, we proxy for wealth using each individual's portfolio value.

We utilize our survey data to mitigate potential confounding factors identified in the literature as significant determinants of stock-market participation, that are usually not available in field data. These include trust (Guiso et al., 2008), financial literacy (van Rooij et al., 2011), product familiarity (Fuchs-Schündeln and Haliassos, 2021), and peer effects (Hong et al., 2004; Kaustia and Knüpfer, 2012). We also include respondents' return expectations for the German stock index DAX.[12] Appendix-Table A2 provides pairwise correlations of all survey variables and show that we can include them in one regression without multicollinearity problems.

The vector of municipality-level control variables $z_{c(i),t}$ is used to address differences across regions that could result in different participation levels. In the case of the broker data, which provides, compared to the other datasets, limited individual-level information, we employ several variables to capture differences in local economic development, education, and wealth like the number of banks branches in an investor's municipality[13], the number of people living in a given municipality,

[12] While the survey data are purely cross-sectional and return expectations are measured at one point in time, Appendix-Figure A1 shows that there are no systematic differences in stock-return expectations between East and West Germans between 2016 and 2018 as well.

[13] We thank the authors of Puri et al. (2017) for providing us with these statistics.



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real-estate wealth at the municipality level, the fraction of inhabitants in a municipality with a high-school degree, the municipality's GDP, and the number of local firms per zip-code area.[14].

Another crucial factor affecting stock-market participation, which has been observed to be higher in Western European countries than in Eastern European countries (Fidrmuc and Gërxhani, 2008; Heineck and Süssmuth, 2013), is social capital (Hong et al., 2004; Guiso et al., 2004). In the survey data, we address this aspect at the individual level through questions concerning the willingness to participate in federal elections (Guiso et al. (2004)), trust (Guiso et al. (2008), and respondents' memberships in organizations like church or religious organization, sport or recreational organization, political parties or others (Knack and Keefer (1997)). However, since these data are unavailable for our administrative datasets, we resort to using the social connectedness index from Facebook for Germany at the municipality level as a proxy for social capital.[15] Finally, $\nu_t$ are year fixed effects in the broker data, which is the only sample with a time series component.

**Baseline Results.** We report average marginal effects from logit regressions in Table 3, separately for the survey data (Panel A), bank data (Panel B), and broker data (Panel C).

Column (1) in each panel reports the results from the respective univariate regression without control variables. Across all three datasets, the raw stock-market participation gap between East and West Germans is strikingly similar. Relative to the respective baseline participation rate, the gap amounts to 27.6% in the survey data, 25.2% in the bank data, and 27.7% in the broker data.

The next step is to separate out the extent to which the raw gap in stock-market participation reflects the differences in demographics and other characteristics between East and West Germans. Prior work suggest that no significant gap remains after accounting for East-West heterogeneity (Fuchs-Schündeln and Haliassos, 2021), albeit in an estimation that does in most cases not distinguish between stocks and other securities (such as bonds) and that uses a smaller data set of East Germans.

We re-estimate model (1) with the full set of control variables that are available in each of the data sets. As shown in column (2) of Panels A–C in Table 3, the stock-market participation gap

[14] We always include data at the most granular geographical level available to us.

[15] We acknowledge that social connectedness is a weaker proxy for social capital, as it does not consider the intensity of contact between people (Chetty and et al., 2022), however, the Facebook based social capital variables developed by Chetty and et al. (2022) for the United States are not yet available for European countries.



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remains significant at the 1% level and economically meaningful, at about 8-10% in the survey and bank data, and about 19% in the broker data, which includes fewer control variables. In other words, a sizable portion of the raw stock-market participation gap remains unexplained after including the fully battery of control variables.

We show the coefficient estimates of all control variables in Appendix-Tables A3–A5. A few coefficient estimates are worth emphasizing. Consistent with prior literature, female investors are less likely to participate in the stock market, as long as risk-aversion is not included in the regression. The same is true for older investors, which likely reflects generational differences. Investor wealth, education, and financial literacy are positively related to stock-market participation. The same holds for individuals' willingness to take risk, familiarity with the stock market, knowing peers who invest, and their level of social capital.[16]

In summary, all three data sets reveal pronounced differences in stock-market participation between East and West Germans 30 years after Reunification. Living in East Germany is a stronger predictor of stock-market participation than most of the other control variables, including gender and portfolio value, and a significant portion (roughly 10%) of the participation gap between East and West Germans remains unexplained after controlling for differences in socio-economic status. Given that an investor who invested in the German stock-market index (DAX) in 1990 has since earned an average annual return of 7.5% p.a.[17], the stock-market participation gap also provides a micro-level explanation for macroeconomic wealth differences between East and West.[18]

**Alternative Participation measures and alternative samples.** We corroborate these results using alternative measures of stock-market participation and alternative samples. In the survey, we also elicited whether respondents are planning to invest in the future (for example, once they have more liquid wealth) and whether they had ever invested in the past. Results in columns (3) and

[16]Note that the negative coefficient of portfolio size in Appendix-Table A5 is driven by a specific form of retirement savings common in Germany, where investors deduct a small amount from their earnings every month and invest it in a broadly diversified equity fund. If we drop small portfolios below 5,000 Euro, the coefficient becomes significantly positive, while the coefficient of interest is unaffected.

[17] See DAI return triangles (2019) on www.dai.de/en/what-we-offer/studies-and-statistics/return-triangles, calculated until 2018.

[18] According to Becker (2015), West Germans' net worth was more than twice as high as East Germans' 25 years after Reunification.



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(4) of Panel A in Table 3 show that the gap between East and West Germans remains statistically significant at the 1% level and of very similar similar economic magnitude.

The bank data allow for different types of robustness checks. In column (3) of Panel B, we exclude potentially inactive accounts, by restricting the sample to clients who have a monthly inflow of more than 50 Euros on average over the last 12 months. The coefficient estimate of the East-West gap remains virtually identical. In column (4), we reestimate the regression using investment in single stocks (excluding equity funds) as the dependent variable. Here, the participation gap becomes almost three times larger.

Finally, the broker data allows us to address concerns about unobserved institutional and environmental differences between East and West. First, we consider the subsample of East and West Berliners. After World War II, the Berlin wall separated Berlin into East Berlin (part of the GDR) and West Berlin (part of the FRG), and inhabitants had no regular access to the other part of the city. After reunification, however, the city quickly grew back into one administrative unit, and many parts of East Berlin (e. g., Prenzlauer Berg and Friedrichshain) are nowadays inhabited by a large fraction of West Germans.[19] Thus, the Berlin subsample does largely eliminate differences in the institutional environment, and the large size of the broker data makes it possible to restrict the analysis to this more homogenous East-West subsample.

As shown in column (3) of Table 3, we find that investors from East Berlin are 5.4 pp less likely to participate in the stock market.[20] Relative to the average stock-market participation of broker account holders in Berlin (90%), this difference amounts to 6%. Thus, the effect is less pronounced than for the entire country, as we would expect given the above mentioned East-West movements.

In a related exercise, we searched the broker data for "matched cities" of comparable size and industry structure in East and West, located as close as possible to the former Inner German border. The city of Eisenach is located in East Germany, 29.8 kilometers from the former inner-German border. It has about 43,000 inhabitants and 224 observations from this city are in our database. The city of Bad Hersfeld in West Germany has a distance of 30.8 kilometers to the former border. It has about 30,000 inhabitants and 350 observations are in our database. The distance between the

[19]Since it is difficult to separate East and West German experiences, we excluded Berlin from the estimations in columns (1) and (2).

[20] Note that with the restriction to Berlin, municipality-level variables such as GDP per capita, real-estate wealth, and high-school degree drop out of these estimations.



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two cities is 59.8 kilometers, a 40-minute drive. Both cities are well-known tourist destinations and have comparable industry structures, dominated by medium-sized businesses. (Eisenach has a focus on automotives, Bad Hersfeld on textiles and logistics.) In column (4) of Panel C, we re-estimate the regression for these two cities. Even though this regression is only based on 574 observations, we still observe significantly lower stock-market participation in East Germany.

### 3.3 Further Robustness Tests.

**HAC standard errors.** As an additional robustness check, we re-estimate all regressions as linear probability models and calculate Conley spatial HAC standard errors to account more conservatively for spatial and serial autocorrelation (Conley, 1999, 2008).[21] We choose a distance cutoff of 50 kilometers for the spatial kernel, and use the default kernel to weight spatial correlations as recommended by Conley (2008), i. e., a uniform kernel that discontinuously falls from one to zero at length of 50 kilometers in all directions. In addition, we choose a two-year cut-off for the linear Bartlett window that weights serial correlation across time in the broker data. Results are reported in Appendix-Tables A6–A8, and the East-West participation gap remains highly statistically significant.

**Financial resources.** According to Fuchs-Schündeln and Haliassos (2021), demographic differences fully explain the East-West gap, with financial resources being a particularly important determinant. In our significantly larger data sets and with more extensive control variables, we estimate instead that a significant fraction of approximately 10% remains unexplained. However, motivated by their findings, we leverage the more detailed information on investors' income, savings, and other financial choices in the bank data, and include squared and cubic terms of wealth controls in the estimations from Panel B in Table 3. As shown in Appendix-Table A9, the point estimates are remarkably robust.

**Supply-side factors.** Finally, an important aspect to consider is the potential impact of supply-side differences, such as differences in financial advice or financial product offerings.

[21] We use the code provided by Hsiang (2010) to estimate Conley spatial HAC standard errors.



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We first consider supply-side issues arising from differential selection of East and West Germans into different types of banks (and their different product offerings). Such differences are important to consider in Germany due to the country's highly-fragmented banking sector, with private banks, Sparkassen, Volksbanken, and others, and clients sorting by socio-economic characteristics.

The robustness of our findings across our three different data sources, supplied by two very different financial institutions and a representative survey, helps to alleviate these concerns. Moreover, in our survey, we ask respondents about their affiliation with specific banks and brokerage entities, and find no differences that are economically relevant. When we explicitly ask whether respondents are client of the financial institution, of which we received our bank data, we also do not find significant differences between East and West Germans (see Panel A of Appendix-Figure A2).[22]. We also test for East-West differences in perception of the bank affiliated with the broker using YouGov panel data[23] and find no significant disparities (see Panel B of Appendix-Figure A2)

Next, we consider supply-side factors within a given financial institution. For instance, banks might choose to market different products in East and West regions. However, for the bank that provided the bank data, a central capital-market entity selects the products that go on recommendation lists, which are then distributed to branches and advisors throughout Germany. We have confirmed that these recommendation lists (e.g., "fund of the month") are consistent across regions and are actively utilized by advisors. In the brokerage data, product differentiation is unlikely to play a role either since the majority of trades are self-directed and access uniform products through the same webpage.

**Movers.** After the fall of the Berlin Wall in 1989, Germany witnessed substantial migration from East to West, especially among younger, more educated people and those with stronger social ties to the West (Fuchs-Schündeln and Schündeln, 2009; Hunt, 2006; Becker et al., 2020). To test whether

[22] Given the proprietary of our data sets, we do not state the names of the banks in the figure, as our sample financial institution is among them, but refer to the institutions as savings bank 1, etc.)

[23] We obtain access to panel data on brand usage, brand perception, and brand satisfaction, which consists of over 70,000 respondents, who are asked about their their perception of different banks and brands (including the bank of our broker entity). The market share of our bank is not significantly different between East and West German respondents ($p$-value for current customers: 0.21; $p$-value for former customers: 0.92). East and West German respondents do not differ in brand and advertisement awareness of the bank either: In both parts of the country, 88-89% generally know the bank and 25% report to have seen advertisements in the last two weeks. The general evaluation of the bank brand is positive for 75% of respondents in East Germany and 72% of respondents in West Germany and the difference is statistically insignificant ($p = 0.40$).



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selective migration of richer and more educated individuals from East to West Germany drives the East-West gap in stock-market investment, we use data provided by the Federal Office for Building and Regional Planning (BBSR) on annual municipality-level migration from East to West Germany. Overall, about 2 million people migrated from East to West Germany between 1991 and 2004 (the starting point of our analysis), but there is large heterogeneity on the municipality level.

We address the role of movers in our estimation results in two way. First, we exclude the ten East German municipalities with the highest migration levels from the sample, and re-estimate model (1). This reduces the number of observations by 14,448 in the bank and by 22,805 in the broker data. We continue to find a significant and economically meaningful East-West difference in stock-market participation in both data sets (coeff. -.006, std. err. 0.001 in the bank data, coeff. -0.162, std. err. 0.013 in the broker data respectively).[24]

Second, we analyze the effect of moving from East to West Germany in our survey data. Respondents were asked whether they have lived in East Germany at any point in time and if so for how long. We define a "mover" variable equal to one for survey respondents who moved from East to West Germany after Reunification and have lived in the GDR for at least 10 years. These "movers" are exposed to exactly the same economic environment as West Germans at the time of the survey, but experienced a different economic system in the past. We then re-estimate model (1) with the full set of control variables, and additionally including the mover variable. Results are shown in column (1) of Table 4. We find that, on top of the participation gap between East and West Germans, there also is a statistically significant stock-market participation gap between East Germans who moved to West Germany post Reunification, and West Germans. This result holds if we restrict the regression to West-Germans only (column 2), with a very similar coefficient estimate.

The same finding also emerges in columns (3) and (4), where we analyze a small subsample of bank clients, who indicated, in a survey of the bank, whether they moved from East to West Germany after 1989. We re-estimate model (1) on this small sample of 255 observations, separating Germans who live in the East (N=46), Germans who moved from East to West (N=46), and Germans who live in the West (and did not move from the East, N=163). We find that, compared to (other) West

[24] Alternatively, we only include East German municipalities with above (below) median migration levels. The dummy reflecting differences between East and West Germans remains economically and statistically significant in both subsamples both in the bank and in the brokerage data.



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Germans, movers are 10.7 pp less likely to invest in stocks. When we restrict the sample to Germans residing in the West today, we estimate a similar coefficient of −12.3 pp (column 4).

Overall, the results in Table 4 reveal a long-lasting aversion to stock-market participation even among (formerly) East Germans who self-selected into the Western environment and who now live in exactly the same economic and institutional environment as West Germans.

# 4 Mechanism: The Role of Anti-Capitalist Ideology

What explains the persistent gap in stock-market participation between East and West Germans? The main hypothesis proposed in this paper is that the persistent differences in East Germans' financial choices reflect the longlasting influence of living under communism. In fact, our survey reveals that East Germans consistently show a higher propensity to express anti-capitalist, anti-stock market, or pro-communist attitudes. For example, Figure 3 shows the fractions agreeing with various statements about capitalism, communism, and the stock-market, separately for East and West Germany.[25] For instance, we see that only 39% of West Germans but 51% of East Germans agree with the statement that "Capitalism should be abolished." In addition, half of East Germans indicate that they generally reject stocks and more East Germans than West Germans believe that investing in the stock market is immoral.

These attitudes are consistent with the negative views on capitalism propagated by the communist doctrine. For example, Lenin (1919) emphasized the "necessity of a relentless war on the capitalists." In his supplement to Marx's third volume of "The Capital", Friedrich Engels characterized the stock exchange as "the most prominent representative of capitalist production itself" where "the capitalists take away each other's accumulated capital, and which directly concerned the workers only as new proof of the demoralizing general effect of capitalist economy" Marx (1894). In Panel A of Figure 2, we show various examples of this type of propaganda.

To explore the role of exposure to anti-capitalist ideology in explaining stock-market participation, we proceed in three steps. First, we investigate whether these views are reflected in the *types* of stocks East and West Germans invest. Second, we leverage the large within-East sample size of our

[25] The exact statements are spelled out in Appendix-Table A10, and the corresponding bivariate statistics are in Appendix-Table A11.



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survey, and relate variation in ideological attitudes directly to stock-market investment. Third, we leverage the large within-East sample size of our broker data, and relate variation in East Germans' experience of living under communism to stock-market investment.

### 4.1 "Communist" versus "capitalist" stocks

The communist propaganda generally dismissed the stock market as "a paradise for only a few" (cf. the right propaganda poster in Figure 2.A, with the husband holding stock-price listings), and rallied against certain industries and certain countries in particular, including the financial industry and US companies (see left and middle posters in Figure 2.A for propaganda material criticizing the US and capitalism, including the dollar sign and American flag). In contrast, the GDR authorities conveyed positive views of other communist countries, such as Russia, China, or Vietnam. Figure 2.B displays two examples of posters demonstrating friendship with communist allies.

Using all three datasets, we examine whether the East-West gap is particularly pronounced for stocks associated with capitalism, i.e., stocks of the financial industry and US companies, and less pronounced, if not reversed, for stocks of firms belonging to (former) communist allies.

In our survey, we asked respondents whether they would be willing to buy stocks from the financial industry, US firms, Chinese firms, or East European firms (excluding Russia).[26]

In the bank and the broker data, we classify holdings based on their ISINs as "capitalist" if they are financial or US firms, and "communist" if Eastern European or Chinese.[27] In general, stocks of communist countries are typically held via American or Global Depository Receipts (ADRs or GDRs). Of the 29,768 clients holding equity in the bank dataset, 24.3% invest in financial firms, and 25.6% in US firms. "Communist" firms have low coverage in this data, with 1.5% of investors holding firms from Eastern Europe and 1.2% holding Chinese firms. Appendix-Table A12 lists the top ten stocks, in terms of bank clients' holdings belonging to each category. Among the "capitalist stocks," the top ten finance stocks include German, US and French banks, and insurance companies, and the top ten US stocks are well-known firms like Amazon, Microsoft or Walt Disney. The top ten Chinese and East European stocks are predominantly state-owned companies in the energy or

[26] Since the survey was conducted in 2023, we excluded Russia to avoid response bias due to the Russian war against Ukraine.

[27] Since the broker and bank samples end before the Russian war against Ukraine, we include Russian stocks in our definition of East Europe in the broker and bank data.



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basic materials sector. In the broker dataset, stocks of (formerly) communist countries are held by 4,812 investors (3%) of the sample. Again, Appendix-Table A13 lists the top ten stocks in terms of holdings for each category. Among the "capitalist stocks," the top ten finance stocks include German banks, financial advisory firms, and insurance companies, and the top ten US stocks, like in the bank dataset, well-known firms like Microsoft or Yahoo. The top ten Chinese and East European stocks are again predominantly state-owned companies in the energy or basic materials sector.

Panel A of Table 5 shows average marginal effects from logit regressions of survey respondents' willingness to buy "capitalist" stocks (US, finance) or stocks from (formerly) communist countries (China, East Europe) on the East dummy and our usual set of controls. Standard errors are clustered by municipality and shown in parentheses.

We find that East Germans are 1.9 pp less likely to buy stocks of firms in the financial industry or firms located in the US. Relative to the baseline willingness to invest in these types of stocks, this amounts to a 4.7% gap for financial firms, and a 5.5% gap for firms located in the US. The difference is only statistically significant for U.S. firms. With respect to stocks of firms located in formerly communist countries, we find that East Germans are 5.9 pp (23.5% relative to the baseline) more likely to invest in Chinese stocks, and 1.6 pp (11.4% relative to the baseline) more likely to invest in stocks of firms located in East Europe. The reversal of sign for the more "communist" stocks, which East Germans are more likely to invest in, is particularly striking.

In Panel B of Table 5, we examine investment in "capitalist" and "communist" stocks by bank clients conditional on participating, which leaves us with 29,768 observations. With regard to the capitalist stocks, the picture is very similar to our results based on survey data: East German investors are significantly less likely than West Germans to hold stocks from firms belonging to the financial industry (gap of 1.8 pp, 7.4% relative to the baseline) or firms located in the US (gap of 4.5 pp, 17.6% relative to the baseline). On the "communist" side, we find again a higher tendency of East Germany to invest in firms from Eastern Europe, which is marginally significant (gap of 0.3 pp, 18.8% compared to the baseline). We do not find a significant effects for Chinese firms. We have to take in to account, that we only have a very small subsample to identify a potential communist stocks effect, since the fraction of bank clients investing in Chinese stocks or stocks from Eastern Europe is quite small with 1.2% (1.5%).



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Finally, in Panel C of Table 5, we show the investment choices of stock market participants in the brokerage data set, where the share of stock investors is much larger. East German investors hold a 4.9 pp lower share of financial companies and a 1.9 pp lower share of US firms than investors from West Germany. Relative to the average share of financial companies and US firms in our sample, this corresponds to a negative East-West difference of 49.2% and 32.2%, respectively. In columns (3) and (4) of Panel C, we find that East Germans hold a 0.2 pp higher share of stocks of companies located in China, and a 0.4 pp higher share of stocks of companies located in East Europe. Relative to the average share of Chinese and East European stocks, this corresponds to a positive East-West difference of 30.3% and 4.1%, respectively. All differences between East and West German investors are statistically significant at least at the 5% level. As mentioned in the discussion of the survey data above, the reversal of sign for the more "communist" stocks is particularly insightful as it addresses remaining concerns about unobservables inducing a uniformly lower inclination to invest in stocks.

We conclude that anti-capitalist ideology appears to be reflected in the choice of stocks among East Germans: Financial and US firms are particularly objectionable, while investment in (formerly) communist countries is more in line with support for communism. A related interpretation is that, if East Germans suspect stock investment to pay off "only for a select few" as firms time the market and reveal inside information to some but not all stakeholders, they may trust managers of companies from (formerly) communist countries more.

### 4.2 Attitudes towards capitalism and communism

To test for a direct link between stock-market participation and pro-communist attitudes among East Germans, we first use the survey data and link ideological conviction to investment. To measure ideological conviction, we included different statements about capitalism, communism, and the stock market in the survey. Statements about capitalism and communism are adapted from Föste and Janßen (1999), who developed a questionnaire to measure the assessment of different economic systems among the German population. Since we did not find any surveys linking capitalist ideology to stock-market participation, we developed additional questions on the moral assessment of stock



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markets and added them to the survey. We then asked respondents to indicate on a 4-point Likert scale whether they fully agree, rather agree, rather disagree, or fully disagree with the statement.

As discussed in Section 2, we designed the East-German survey sample to be large and representative of the population (above 30 years of age to ensure some personal experience with the GDR). Using this subsample, we estimate logit models with stock-market participation as the dependent variable and respondents' agreement with one of the survey questions about attitudes towards capitalism, communism, and the stock market (cf. Figure 3) as the explanatory variables. We include the same control variables as in Panel A of Table 3. Results are reported in Table 6.

In Panel A, we relate several statements about negative attitudes towards the stock market to stock-market participation. The negative coefficient estimates indicate that East Germans with anti-capitalist attitudes towards the stock market are less likely to invest in the stock market than East Germans who do not share this view. For example, East Germans for whom the stock market reflects the capitalist system are 13.8 pp less likely to hold stocks, and those who believe that investing in the stock is immoral are 14.1 pp less likely than East Germans who do not agree with the respective statement. This also holds for East Germans who generally reject stocks (column 3). In economic terms, the differences amount to within-East participation gaps of 51.4–70.4%.

We obtain similar but statistically weaker results for more general anti-capitalist attitudes not directly targeted towards stock markets (Panel B). East Germans who believe that capitalism should be abolished or creates coldness are 1–2 pp less likely to participate in the stock market. Relative to the baseline participation rate in East Germany, this amounts to a difference of 7–8%.

Results on pro-capitalist attitudes in Panel C mirror the findings from Panels A and B: East Germans with pro-capitalist attitudes are *more* likely to invest in stocks than other East Germans. East Germans who believe that everyone is better off under capitalism are 2 pp more likely to participate in the stock market, and East Germans who think that capitalism is the better economic system are 1.6 pp more likely to participate. We do not find significant results for the statement that capitalism rewards the hard-working.

Our results show that, within East Germany, anti-capitalist attitudes towards stock markets predict lower stock-market participation. The relationship is significant for most of the statements and suggests that variation in how strongly East Germans absorbed the communist ideology predicts



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variation in how East Germans think about the economic system as well as in their actual financial decision to invest in the stock market.[28]

### 4.3 Experiences with communism

We test the ideology-based interpretation further using measures of positive versus negative exposure to communism. These measures serve as proxies for how strongly East Germans absorbed the communist ideology. That is, building on prior literature on experience effects, we leverage variation in individual-level exposure to anti-capitalist ideology as a source of identification. We focus on a novel aspect of "past experiences," the *emotional tagging*. Research in cognitive science suggests that stronger emotions cause past experiences to be more strongly encoded in a person's memory, where positive emotions lead to positive encoding, and negative emotions to negative associations being preserved in memory (Bergado et al., 2011).

In our context, the emotional-tagging hypothesis predicts that the long-term behavioral consequences of exposure to the communist doctrine depend on the emotional context of living under communism. We thus test for a role of positive and negative experiences with anti-capitalist ideology as the channel through which financial decision-making is affected.

The broker data allow us to use geographic variation to construct proxies for positive versus negative experiences under the communist system, some of which have been used in prior literature (e.g., Western TV reception) and some of which are new hand-collected data (e.g., Olympic gold medal winners). All of our proxies have in common that they do not provide any objective information on whether the stock market is good or bad. We also note that the repeated and differential subsampling of the East German population by unrelated proxies (pollution, religion, TV reception, renaming, Olympic victories, STASI support) helps alleviate concerns about unobserved correlates that predict the receptiveness to communist propaganda. Appendix-Table A14 shows the low cross-correlations of the various measures of exposure to communist ideology that we introduce in this section, indicating that our measures capture different aspects of communist experience. The

[28] Note that we elicited the same responses in West Germany. Generally, we find the same correlation, albeit typically less strong than in the East, with the East-West differences being significant for the stock-market related questions in Panel A.



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differences in exposure also break the link between experiences in the former GDR and the economic situation today, as the bottom two rows of Appendix-Table A14 reveal.

We consider three sources of negative tagging. The first is air pollution. The GDR had the highest levels of dust and sulfur dioxide emissions among all European countries, resulting in significant increases of respiratory diseases and skin problems like eczema, with children being particularly affected (Petschow et al., 1990). After the German Reunification in 1990, the German Ministry of Environmental Affairs issued a press release that identified 18 environmental emergency projects to stop environmental pollution in various GDR municipalities that needed immediate action because of outdated power, filter, or chemical plants. We investigate whether East Germans living in these heavily polluted municipalities display a *higher* willingness to invest in the stock market than other East Germans.

The second proxy for negative tagging is religious suppression. Communism famously views religion as a tool of the ruling class to oppress the working class – "Religion is the opium of the people" Marx (1843). While the GDR did not outlaw religious groups entirely, religious property was frequently confiscated and believers harassed. As a result, East Germans in more religious areas are more likely to have had a negative experience with the communist system. We test whether we can detect a more positive attitude towards stock-market investment in municipalities with a higher number of Catholics and Protestants relative to the total population in this municipality.

Third, we utilize differential access to West German television. Prior literature has documented and utilized the quasi-exogenous access of East Germans to (higher-quality) Western TV shows, e. g., to predict awareness of Western brands and consumption goods among East Germans (Bursztyn and Cantoni, 2016). Access depended on geography in two ways: distance from the Western border and the television tower in West Berlin, and location in low valleys or valleys behind mountains that blocked TV broadcasting signals. A famous example is the district of Dresden, situated in the Elbe valley, which became known as the "valley of the clueless" (Stiehler, 2001). Most relevant to our context, access to Western TV has been shown to predict higher satisfaction with life in the GDR, a reduction in the number of applications to emigrate, and fewer attempts to escape the GDR (Kern and Hainmueller, 2009). The latter results may at first seem counter-intuitive as one might expect Western TV to induce *pro*-capitalism and *pro*-Western attitudes. The reason for the



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increased life satisfaction is twofold: First, a typical East German consumer of Western TV tuned into entertainment, such as crime shows, to relax after work, rather than political news (Bösch and Classen, 2015), and better entertainment induced higher satisfaction. Second, differently from American radio projects such as "Voice of America" or "Radio Liberty" during the Cold War, the German TV channels were not designed to expose East Germans to pro-Western political opinions (Uttaro, 1982).[29] Also note that Chen and Yang (2019) document the same media consumption pattern in communist China: When provided with free access to uncensored internet, students go to entertainment websites rather than acquiring political information from foreign news outlets.

In summary, the data and prior research show that East Germans with access to Western TV were *more* satisfied with the political system of the GDR. Vice versa, not having access to Western TV predicts less satisfaction and, as we hypothesize, a lower willingness to follow the communist doctrine. We investigate heterogeneity of our main effect by an indicator for municipalities in the East that did not receive signals from Western TV stations.

In Panel A of Table 7, we relate stock-market investment to each of these three proxies, controlling for the full set of control variables and year fixed effects. The estimates in columns (1) to (3) reveal that stock-market participation among East Germans is about 5.8 pp higher in heavily polluted municipalities, about 0.6 pp higher in more religious areas, and 9 pp higher in areas without access to Western TV. Finally, column (4) shows that all proxies remain economically and statistically significant if they are included in the same regression. These results support the view that East Germans who plausibly experienced communism more negatively are more positively inclined towards capital markets and, as a result, are more open to investing in the stock market than other East Germans.

The opposite holds for positive tagging. We identify three sources of positive GDR experiences that might have increased susceptibility to communist propaganda and hence amplified the aversion to stock-market participation.

First, we consider living in one of the GDR's celebrated "renamed" showcase cities. When the communists assumed power in the newly founded GDR, they renamed numerous squares, streets, football stadiums, and steel mills to immortalize communist heroes. One of the most prominent

[29] In addition, Meyen (2003) argues that exposure to Western TV increased the awareness of the dark side of capitalism, including higher levels of crime, homelessness, and unemployment.



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acts was to rename an entire city. For example, Chemnitz was renamed "Karl-Marx-Stadt" to celebrate the $135^{th}$ anniversary of Karl Marx. The act of renaming a city was celebrated publicly with thousands of workers participating in marches and getting together in the big squares of the city. The celebrations and expressions of national pride likely tagged the experience with communism positively for East Germans in the five renamed cities.[30]

Second, we consider sports-related celebrations. In the GDR, athletic prowess was an important tool to prove the system's superiority to Western liberalism and promote national pride. As Wiese (2007) put it, "the GDR and the FRG not only competed for medals, but also fought a battle of ideologies in the Olympic arena." East German athletes won a total of 192 gold medals between 1968 and 1989, compared to 67 for West Germany. Celebrations typically took place in the hometowns of the Olympic champions, triggering pride and patriotism among locals. We collect the zip codes of the birth places of all GDR gold medal winnners on the Wikipedia lists for Olympic summer and winter games, and define a dummy variable indicating if an investor is from the same municipality as an Olympic gold medal winner. We multiply the indicator with an inverse population rank as we expect stronger effects in smaller communities, where an Olympic champion stood out more.

Our last proxy of positive tagging are somewhat different in nature. It is the percentage of voluntary state-security collaborators (IMs) in a municipality. In the GDR, the state security (STASI) recruited over 600,000 IMs to spy on their fellow citizens. As detailed in Mueller-Enbergs (1995), IMs' pre-dominant motivation was political and ideological, rather than being pressured. Collaborators tended to hold positive views of communism as the better and fairer system. Hence, we hypothesize that, in municipalities with a high percentage of IMs, particularly many citizens identified with the communist doctrine. Naturally, it is possible that this proxy is also correlated with negative experiences (for those who were policed).[31] The prediction is thus less clear ex ante.

In Panel B of Table 7, we include these proxies separately in columns (1) to (3). The estimates reveal that the stock-market participation of East Germans living in a renamed city is 16.9 pp lower than among other East Germans. Those living in municipalities of Olympic gold medal winners show a 4.4 pp lower stock-market participation, and investors in municipalities with a higher percentage

[30] The five renamed cities are Chemnitz, Eisenhüttenstadt, Kriegsdorf, Neuhardenberg, and Werminghoff.

[31] Lichter et al. (2021) show, for example, that a higher spy density has negative long-term effects on trust, political participation and, ultimately, economic performance (income).



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of STASI volunteers participate 7.6 pp less in the stock market. Including all variables jointly, in column (4), we find that all proxies remain economically and statistically significant.

As a placebo test, we estimate a similar set of regressions on the West German sample, constructing parallel proxies to those in Panels A and B of Table 7 whenever possible. For pollution, we use data on sulfor dioxide from Germany's Federal Environmental Agency, given that dust and sulfur dioxide emissions were the dominant problem in the GDR. For religiosity, we use the exact same variable as in the East, i. e., the percent of Catholics and Protestants in each municipality. Since there were no "renamed cities" in West Germany, we collect data on the most popular historical places in Germany from a Wikipedia list. The resulting proxy should capture pride of West Germans in the place they live, as these historical places are frequently visited by tourists and are deemed popular sites. For Olympic champions, we construct the same indicator variable of summer and winter Olympic winners for West Germany that we used for East Germany. We cannot construct proxies mirroring 'No West-TV' or 'STASI volunteer' as there were and are no such media constraints nor a secret police in West Germany.

As shown in Appendix-Table A15, our placebo analysis reveals that, in contrast to East Germany, these positive or negative experiences generally do not predict reduced or increased stock-market participation among West German broker clients (other than a marginally significant negative coefficient for Historicy City). Given that anti-capitalist ideology was promulgated in the East, but not the West, these placebo (non-)results are consistent with the proposed ideology-based hypothesis.

We conclude that positive and negative past life experiences under communism color the reception of the communist doctrine, including its anti-capital-markets stance, even when such experiences are unrelated to financial outcomes. They predict actual stock-market investment years and decades later, as predicted by the hypothesis of longlasting ideological influences.

### 4.4 Memories of communism

As another corroboration of the proposed link between positively or negatively colored exposure to communism and stock-market investment, we return to our survey data. The survey includes five questions that ask East Germans directly about their life experiences in the GDR: (1) how they would describe their living standard in the GDR relative to the overall GDR population; (2)



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whether they wish back the GDR; (3) whether they are disappointed by the FRG; (4) whether they had a positive or negative experience with the GDR in general; and (5) whether they have positive or negative memories about 10 different aspects of life in the GDR. (The exact wording is in Appendix-Table A10.)

We then link survey respondents' answer to these questions to their stock-market participation. This analysis mirrors the broker-data analysis in the previous section; but rather than using geographically predetermined proxies for experiences, it uses individual-level responses that reflect subjective memories. We note that the geographic proxies and the direct survey-based measures of experiences are weakly correlated. Most geographic proxies for positive experiences in the GDR are positively related to the survey based measures of positive memories, and the geographic proxies for negative GDR experiences are negatively correlated with a few exceptions. Correlation coefficients are, however, small, which likely reflects the noisiness of the indirect geographical proxies (see Appendix-Table A16).

Our estimation uses again the regression specification of column (2), Panel A in Table 3, i. e., including the full set of controls. Results are reported in Panel A of Table 8. In column (1), we find that East Germans with a high living standard in the GDR, relative to the overall GDR population, are significantly less likely to participate in the stock-market than East Germans with average or below-average living standard in the GDR. This finding is in line with East Germans remembering the GDR positively and thus being more inclined to internalize the communist ideology. It also mitigates concerns that wealth effects are driving our results, since the more wealthy (at least in times of the GDR and assuming some consistency in the cross-sectional wealth distribution) are *less* likely to participate in the stock market. Relative to East Germans' average stock-market participation of 26.9%, the 3.2 pp difference amounts to a gap amounts to a 12% gap.

Turning to the questions about "wishing back the GDR" and "being disappointed in the FRG" (columns 2 and 3), we also estimate a significantly negative relationship with stock-market investment. Here the economic magnitude is even higher, ranging from 14% to 23%.

We estimate a slightly smaller coefficient for the general question about GDR experiences (column 4), which is insignificant, and a larger coefficient for the question that elicits specific GDR memories (column 5), which is highly significant. In the latter case, we estimate that East Germans



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with positive memories about the GDR are 5.0 pp less likely to participate in the stock market than East Germans with negative memories (column 5), which amounts to a gap of 19% relative to the East German average.[32].

Overall, the analysis linking GDR memories to stock-market investment produces results that are consistent with our research hypothesis: Stronger adherence to the communist ideology (channeled through positive GDR experiences and memories) affect financial decision-making in the long-run and induce a larger reluctance to participate in the stock-market. Needless to say that subjective GDR memories are plausibly correlated with a host of unobserved variables, which might independently influence stock-market participation. However, the consistency of findings across the brokerage and the survey data, using differently constructed proxies for individual experiences, strengthens the proposed interpretation.

# 5 Financial implications

Less investment in the stock market should lead to lower financial wealth as investors forgo the equity premium. We provide several pieces of evidence that East German investors' reluctance to invest in the stock market, as well as the type of investment they choose, is costly.

First, we compare monthly portfolio returns of East and West German investors. We obtain monthly return data (including dividends) from Thomson Reuters Datastream and calculate monthly portfolio returns on holdings derived from the monthly position statements at the security level for each investor. For each month in our sample, we calculate both equal- and value-weighted returns for all investors belonging to the "East German portfolio" and the "West German portfolio," respectively. We then compute the difference return from being long in the East-German portfolio and short in the West-German portfolio and regress it on the excess market returns, the Fama and French (1993) three-factor model and the Carhart (1997) four-factor model. We use the global risk factors from Kenneth French's data library.[33] As shown in Panel A of Table 9, we observe that East Germans earn significantly lower returns than West Germans, irrespective of whether portfolios

[32] East Germans who indicate that they cannot recall any memories are dropped from the sample.
[33] The global risk factors are from `mba.tuck.dartmouth.edu/pages/faculty/ken.french/index.html`.



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are equal- or value-weighted (Panel A, Table 9). Monthly performance alphas vary from –0.08% to –0.11%.

In the next step, we examine other East-West differences in portfolio characteristics. First, we analyze whether an investor holds passive investments, i. e., index funds and ETFs, as these assets generally have lower fees compared to actively managed funds. Second, we examine how many different assets East and West German investors hold in their portfolios (diversification). Third, we calculate the average fund fees an investor pays for all-equity funds in her portfolio in a given year. To further capture the extent of portfolio diversification, we compute the Herfindahl index of all stock holdings in each portfolio. Finally, we compute the fraction of bank-owned products in a portfolio, which are typically associated with a higher total expense ratio (Bucher-Koenen et al., 2021). We then estimate the same regressions as before, using one of these portfolio characteristics as dependent variable. Results are in Panel B of Table 9.

Column (1) shows that East German investors are significantly less likely to hold index funds or exchange-traded funds. The economic magnitude is large: they are 44.7% less likely to hold passive investments. East Germans also hold 33.07% fewer assets in their portfolios, relative to the average in our sample (column 2). In addition, East German investors hold more expensive funds. Relative to the average (1.376%), they pay 3.78% higher fees on their equity funds (column 3). With respect to portfolio diversification, the Herfindahl index for stock holdings is significantly higher for East German investors' portfolios, indicating that these portfolios are less diversified (column 4). Finally, investors in the East are 7.45% more likely to hold bank-owned products than investors in the West.

Thus, the differences in stock-market investment that we document on the micro level have negative return implications. On the macro level, they might help explain why such large wealth differences between East and West Germans persist, with East Germans' total wealth being less than half that of West Germans (Grabka, 2014).

## 6 Discussion and Conclusion

Our analysis shows that exposure to the anti-capitalist ideology of the communist GDR system leads to persistently lower stock-market participation on average, but that there is also wide within-East heterogeneity. The stronger the anti-capitalist ideology reverberates, the more aversion to stock-



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market investment we observe in the data. This correlation holds both for subjectively reported variation in adherence to anti-capitalist ideas, and based on quasi-exogenous variation in personal life experiences under communism. That is, in line with the literature on long-term memory formation and experience-based learning, the quality of exposure to the communist doctrine strongly predicts the heterogeneity in attitudes and investment. For example, individuals with repeatedly negative experiences with the communist system adapt much faster to a capitalist system than those with positive memories of living under communism. We also show that wealth accumulation of those who abstain from capital markets is adversely affected. These results provide a micro-level foundation for macroeconomic growth differentials between formerly communist and capitalist countries.

Our findings are likely to apply more broadly to anti-capital market doctrines and ideologies, not just communism. It might be interesting to explore the role of anti-capital market attitudes in explaining the persistent differences in stock-market participation, even within Western countries.

At the same time, communism is certainly a particularly strong anti-capitalist ideology, and another interesting question that arises from our findings concerns the differences in transition from state-run economies to market economies after the fall of the Iron Curtain. What are the factors that might explain a faster or smoother transition in some countries than in others? Does the (re-)framing of ideology play a role? For example, in the GDR, the party's communist doctrine never fundamentally changed. After Reunification, the capitalist system of the FRG including its stock market, legislation, and governance system were immediately established in the East. For our empirical analysis, this is essential, as it rules out that weaker investor protection or governance standards drive lower stock-market participation in East Germany.

But in other communist countries, change happened more gradually and within the system. For example, in China, the communist regime remained in place and transformed the economy stepwise to "state capitalism." The party itself established a stock market in 1990. About 60% of the average Chinese company's shares are nontradable shares held by the government itself (Pistor and Xu, 2005). In addition, the Chinese government created incentives for firms to raise equity capital via IPOs, thus signaling that it does not condemn stock-market investment. As a result, Chinese people do not face a conflict between political ideology and investing in stocks. Indeed, they have more



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positive views on the stock market, though participation is low at 8-9% (Lucarelli and Palomba, 2007; Liang and Guo, 2015).[34]

In contrast, the transition in Russia resembled more closely that of the GDR. After the fall of the iron curtain, Russia quickly abolished price and interest-rate controls. Many firms were privatized in the 1990s, and the proceeds accrued to a small number of oligarchs. As a result, Russians witnessed "capitalism just how the Soviets had warned, with a few people requisitioning all the ladders and the vast majority left to be devoured by snakes."[35] Russia established its stock market in 1992, but even in 2015, participation of the general population reached only 0.8% (Bank of Russia, 2015).

Comparing these transition economies, it appears that quick changes from a planned to a market-based economy lead to large adaption problems. One possible interpretation is that the new system contradicts the values and experiences that people acquired, making them reluctant to accept the new system and its rules, with adverse effects on people's financial well-being for decades to come. Exploring these differences systematically is a promising area of future research.

[34] This may be due to weak shareholder-rights protection and corporate-governance (Goetzmann and Koell, 2005).

[35] https://www.theguardian.com/inequality/2017/apr/25/unequal-russia-is-anger-stirring-in-the-global-capital-of-inequality



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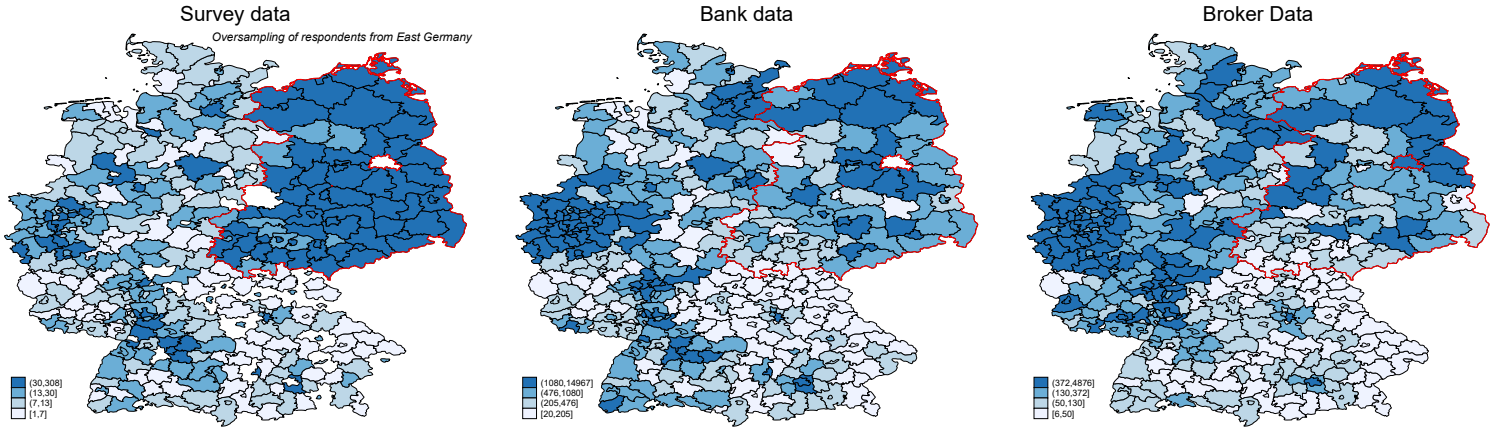
## Figure 1: Geographical Distributions

Panel A illustrates the number of observations per municipality in the survey, bank, and broker data sets, respectively. Panel B indicates the distribution of average stock-market participation across municipalities in each data set. The red line mark the former border of the GDR.

Panel A: Number of Observations




Panel B: Stock-Market Participants

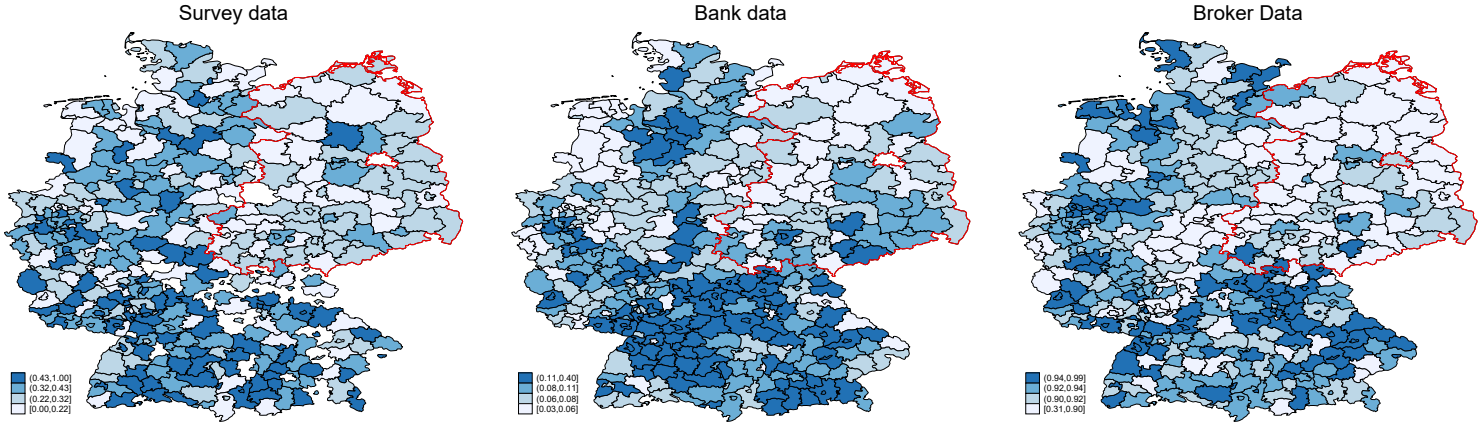





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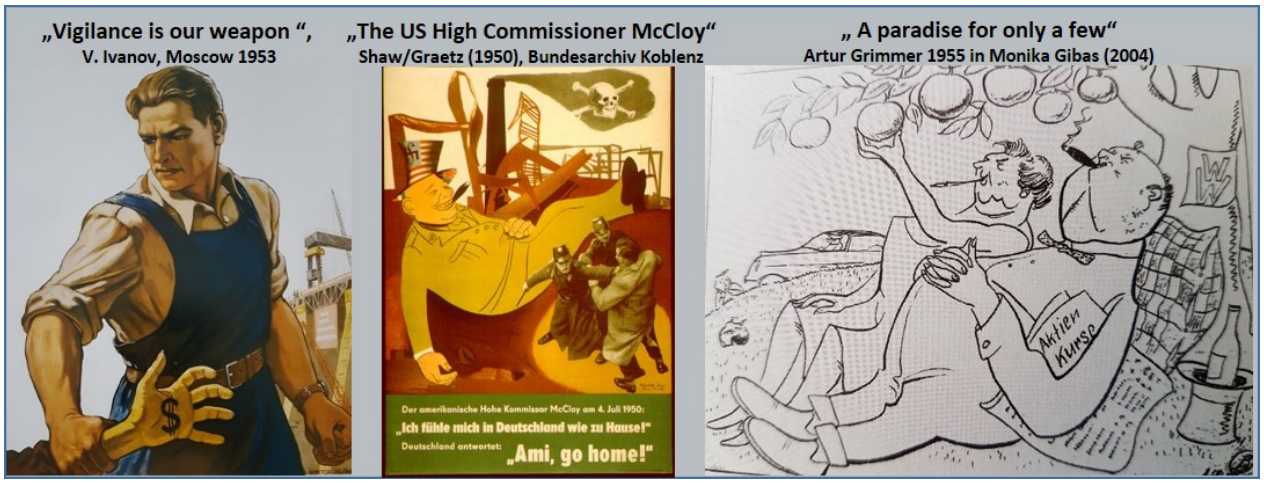
**Figure 2: Anti-capitalist Propaganda**

This figure shows propaganda posters that were used by the communist regimes to promote anti-capitalist and pro-communist ideology.

Panel A: Communist Propaganda against the Stock Market




Panel B: Communist Propaganda pro Allies

Source: Landesarchiv Baden-Württemberg, Deutsches Historisches Museum, Stadtgeschichtliches Museum Leipzig

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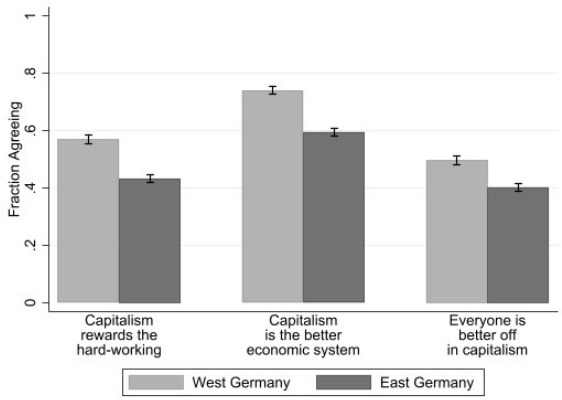
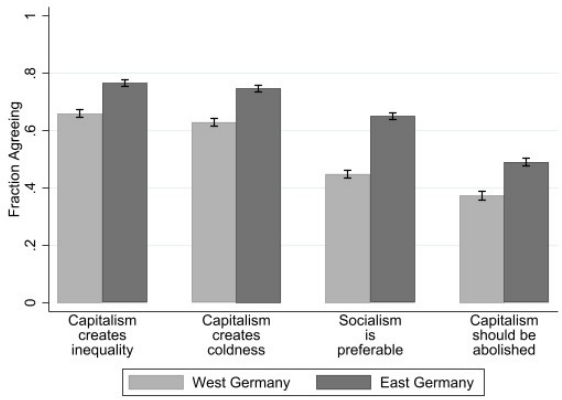
**Figure 3: Anti-capitalist Views among East and West Germans**

This figure shows attitudes towards capitalism and the stock market in a survey of 9,695 Germans (4,409 West Germans and 5,286 East Germans) conducted by the opinion-poll institute Bilendi in 2023. It shows the fraction of people agreeing to the statements listed on the horizontal axis. The precise wording of the questions is in Appendix-Table A10. Appendix-Table A11 presents differences between East and West Germans as well as the corresponding $t$-statistics.

Panel A: Pro-Capitalist Attitudes




Panel B: Anti-Capitalist Attitudes




Panel C: Anti-Stock Market Attitudes

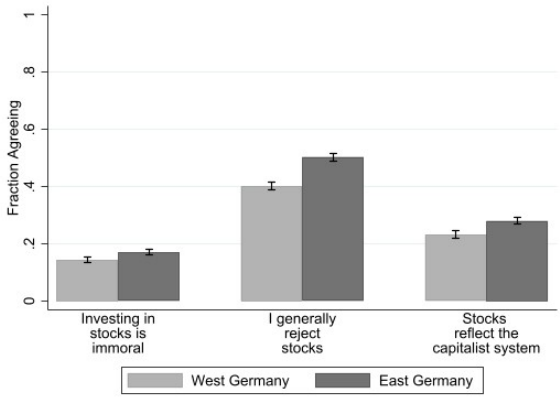





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**Table 1: Summary Statistics**

This table shows the number of observations, mean, standard deviation (sd), median (p50), $1^{st}$ percentile (p1), and $99^{th}$ percentile (p99) of all main variables in the survey (Panel A), bank (Panel B), broker (Panel C), and auxiliary (Panel D) datasets. The sample period is 2023 for the survey sample, 2019 for the bank sample, and 2004-2012 for the broker sample. All variables are defined in Appendix-Table A1.

| | Obs. | Mean | sd | p50 | p1 | p99 |
|---|---|---|---|---|---|---|
| Panel A: Survey data | (1) | (2) | (3) | (4) | (5) | (6) |
| East (1=yes) | 9,695 | 0.545 | 0.498 | 1.000 | 0.000 | 1.000 |
| Respondent age (in years) | 9,695 | 54.54 | 13.10 | 57.00 | 30.00 | 80.00 |
| Male (1=yes) | 9,695 | 0.480 | 0.500 | 0.000 | 0.000 | 1.000 |
| Married or in partnership (1=yes) | 9,695 | 0.645 | 0.478 | 1.000 | 0.000 | 1.000 |
| Total household wealth (1-8) | 9,695 | 1.924 | 1.320 | 1.000 | 1.000 | 7.000 |
| Monthly income brackets (1-6) | 9,695 | 2.931 | 1.278 | 3.000 | 1.000 | 6.000 |
| Stock-market participation (1=yes) | 9,695 | 0.308 | 0.462 | 0.000 | 0.000 | 1.000 |
| Unemployed (1=yes) | 9,695 | 0.028 | 0.165 | 0.000 | 0.000 | 1.000 |
| Education (1-4) | 9,695 | 2.728 | 0.979 | 3.000 | 1.000 | 4.000 |
| Trust (1=yes) | 9,695 | 0.427 | 0.495 | 0.000 | 0.000 | 1.000 |
| Risk tolerance (1-7) | 9,695 | 2.826 | 1.527 | 3.000 | 1.000 | 7.000 |
| Familiarity with stocks (1=yes) | 9,695 | 0.385 | 0.487 | 0.000 | 0.000 | 1.000 |
| Peers invest (1=yes) | 9,695 | 0.133 | 0.340 | 0.000 | 0.000 | 1.000 |
| Financial literacy (0-3) | 9,695 | 2.234 | 0.941 | 3.000 | 0.000 | 3.000 |
| Social capital (election) (1=yes) | 9,695 | 0.895 | 0.307 | 1.000 | 0.000 | 1.000 |
| Social capital (organization) (0-12) | 9,695 | 0.763 | 1.207 | 0.000 | 0.000 | 5.000 |
| Return expectation (in percent) | 9,695 | 6.460 | 9.463 | 4.000 | 0.000 | 50.00 |
| Panel B: Bank data | | | | | | |
| East | 326,437 | 0.167 | 0.373 | 0.000 | 0.000 | 1.000 |
| Client age (in years) | 326,437 | 44.909 | 14.081 | 43.000 | 20.000 | 78.000 |
| Male | 326,437 | 0.575 | 0.494 | 1.000 | 0.000 | 1.000 |
| Married or in partnership | 326,437 | 0.443 | 0.497 | 0.000 | 0.000 | 1.000 |
| Equity (1=yes) | 326,437 | 0.091 | 0.288 | 0.000 | 0.000 | 1.000 |
| Single stocks (1=yes) | 326,437 | 0.073 | 0.261 | 0.000 | 0.000 | 1.000 |
| Wealth | 326,437 | 26,584 | 181,481 | 1,824 | 0.000 | 446,422 |
| Income | 326,437 | 4,972 | 33,550 | 2,550 | 0.000 | 41,784 |
| Risk tolerance (0-7) | 326,437 | 0.778 | 1.653 | 0.000 | 0.000 | 5.000 |
| Employed | 326,437 | 0.466 | 0.499 | 0.000 | 0.000 | 1.000 |
| Retired | 326,437 | 0.093 | 0.290 | 0.000 | 0.000 | 1.000 |
| High socioeconomic status | 326,437 | 0.510 | 0.500 | 1.000 | 0.000 | 1.000 |
| Consumer credit (1=yes) | 326,437 | 0.199 | 0.399 | 0.000 | 0.000 | 1.000 |
| Retirement savings plan (1=yes) | 326,437 | 0.156 | 0.363 | 0.000 | 0.000 | 1.000 |
| Credit card (1=yes) | 326,437 | 0.515 | 0.500 | 1.000 | 0.000 | 1.000 |
| Mortgage (1=yes) | 326,437 | 0.066 | 0.248 | 0.000 | 0.000 | 1.000 |
| Savings plan (1=yes) | 326,437 | 0.386 | 0.487 | 0.000 | 0.000 | 1.000 |
| N. of consultations (past 12 months) | 326,437 | 3.800 | 5.844 | 2.000 | 0.000 | 26.000 |



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**Table 1: cont'd**

| | Obs. | Mean | sd | p50 | p1 | p99 |
|---|---|---|---|---|---|---|
| Panel C: Broker data | (1) | (2) | (3) | (4) | (5) | (6) |
| East (1=yes) | 839,292 | 0.204 | 0.403 | 0.000 | 0.000 | 1.000 |
| Investor age (in years) | 839,292 | 59.562 | 15.644 | 59.000 | 23.000 | 94.000 |
| Male (1=yes) | 839,292 | 0.526 | 0.499 | 1.000 | 0.000 | 1.000 |
| Married (1=yes) | 839,292 | 0.582 | 0.493 | 1.000 | 0.000 | 1.000 |
| Time account is open (in months) | 839,292 | 74.222 | 32.575 | 74.000 | 7.000 | 137.000 |
| Portfolio value (in Euro) | 839,292 | 25,964.858 | 132,296.2 | 4,922.500 | 0.000 | 304,889 |
| Stock-market participation (1=yes) | 839,292 | 0.819 | 0.385 | 1.000 | 0.000 | 1.000 |
| Passive investments (1=yes) | 515,600 | 0.038 | 0.192 | 0.000 | 0.000 | 1.000 |
| N. of assets in portfolio | 839,292 | 4.442 | 6.921 | 2.000 | 1.000 | 31.000 |
| Fund fees (in %) | 60,640 | 1.376 | 0.495 | 1.500 | 0.070 | 2.400 |
| Portfolio concentration (Herfindahl) | 622,519 | 0.689 | 0.331 | 0.815 | 0.070 | 1.000 |
| Fraction of bank-owned products | 90,136 | 0.416 | 0.375 | 0.285 | 0.000 | 1.000 |
| Panel D: Auxiliary data | (1) | (2) | (3) | (4) | (5) | (6) |
| Real-estate wealth (Ln) | 3,177 | 10.696 | 3.515 | 11.832 | 0.000 | 13.653 |
| Number of local banks (Ln) | 3,177 | 4.632 | 0.593 | 4.691 | 3.135 | 6.052 |
| Total population (Ln) | 3,591 | 10.079 | 1.615 | 9.931 | 6.916 | 13.823 |
| County GDP per capita (Ln) | 3,176 | 10.146 | 0.340 | 10.098 | 9.549 | 11.188 |
| Number of local firms (Ln) | 3,192 | 6.354 | 0.924 | 6.491 | 3.761 | 7.885 |
| % High-school degree | 3,474 | 0.146 | 0.063 | 0.126 | 0.056 | 0.375 |
| Social connectedness | 3,590 | 28.234 | 14.847 | 23.769 | 9.246 | 76.810 |
| Pollution | 171,343 | 0.081 | 0.272 | 0.000 | 0.000 | 1.000 |
| Religiosity | 171,343 | 20.596 | 7.643 | 18.90 | 12.60 | 46.00 |
| No West-TV | 171,343 | 0.035 | 0.185 | 0.000 | 0.000 | 1.000 |
| Renamed city | 171,343 | 0.054 | 0.227 | 0.000 | 0.000 | 1.000 |
| STASI volunteers | 171,343 | 0.408 | 0.294 | 0.539 | 0.000 | 0.875 |
| Olympic gold | 171,343 | 0.207 | 0.405 | 0.000 | 0.000 | 1.000 |



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**Table 2: Differences between East and West Germans**

This table shows East and West averages, the differences, and the corresponding $t$-statistics for the survey (Panel A), bank (Panel B), broker (Panel C), and auxiliary (Panel D) datasets. All variables are defined in Appendix-Table A1.

| | East | West | Difference (E-W) | $t$-statistic |
|---|---|---|---|---|
| Panel A: Survey data | (1) | (2) | (3) | (4) |
| Respondent age | 54.774 | 54.268 | 0.506 | 1.89 |
| Male | 0.477 | 0.484 | -0.008 | -0.76 |
| Married or in partnership | 0.656 | 0.632 | 0.024 | 2.45 |
| Total household wealth | 1.735 | 2.150 | -0.416 | -15.22 |
| Monthly income brackets | 2.841 | 3.038 | -0.197 | -7.55 |
| Stock-market participation (1=yes) | 0.269 | 0.355 | -0.086 | -9.12 |
| Unemployed | 0.031 | 0.025 | 0.006 | 1.89 |
| Education | 2.793 | 2.650 | 0.144 | 7.15 |
| Trust | 0.412 | 0.445 | -0.033 | -3.29 |
| Risk tolerance | 2.740 | 2.928 | -0.188 | -6.03 |
| Familiarity with stocks | 0.358 | 0.418 | -0.059 | -5.99 |
| Peers invest | 0.104 | 0.169 | -0.066 | -9.32 |
| Financial literacy | 2.193 | 2.284 | -0.090 | -4.72 |
| Social capital (election) | 0.888 | 0.903 | -0.0143 | -2.30 |
| Social capital (organization) | 0.704 | 0.834 | -0.130 | -5.21 |
| Return expectation | 6.289 | 6.666 | -0.377 | -1.94 |
| Panel B: Bank data | | | | |
| Client age | 45.89 | 44.81 | 0.57 | 8.74 |
| Male | 0.558 | 0.579 | -0.021 | -9.06 |
| Married or in partnership | 0.403 | 0.451 | -0.048 | -20.67 |
| Equity | 0.073 | 0.095 | -0.022 | -17.36 |
| Single stocks | 0.049 | 0.078 | -0.029 | -26.96 |
| Wealth | 20,197 | 27,965 | -7,819 | -11.39 |
| Income | 4,052 | 5,156 | -1,105 | -11.06 |
| Risk tolerance | 0.720 | 0.791 | -0.070 | -9.52 |
| Employed | 0.476 | 0.464 | 0.003 | 1.90 |
| Retired | 0.095 | 0.093 | 0.003 | 1.97 |
| High socioeconomic status | 0.335 | 0.545 | -0.210 | -93.876 |
| Consumer credit | 0.209 | 0.197 | 0.012 | 6.46 |
| Retirement savings plan | 0.158 | 0.156 | 0.002 | 1.27 |
| Credit card | 0.480 | 0.523 | -0.043 | -18.34 |
| Mortgage | 0.059 | 0.067 | -0.009 | -7.67 |
| Savings plan | 0.375 | 0.388 | -0.013 | -5.56 |
| N. of consultations | 3.569 | 3.846 | -0.277 | -10.47 |



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**Table 2: cont'd**

| Panel C: Broker data | East German (1) | West German (2) | Difference (E-W) (3) | $t$-statistic (4) |
|---|---|---|---|---|
| Investor age | 63.410 | 57.743 | 5.666 | 60.66 |
| Male | 0.376 | 0.555 | -0.179 | -65.94 |
| Married | 0.592 | 0.557 | 0.034 | 12.50 |
| Time account is open | 54.191 | 60.865 | -6.674 | -37.82 |
| Portfolio value | 19,302.103 | 25,077.197 | -5,775.094 | -24.40 |
| Stock-market participation | 0.537 | 0.830 | -0.293 | -115.14 |
| Passive investments | 0.013 | 0.033 | -0.020 | -33.06 |
| N. of assets in portfolio | 2.781 | 4.244 | -1.463 | -59.52 |
| Fund fees | 1.453 | 1.363 | 0.091 | 14.06 |
| Portfolio concentration | 0.720 | 0.637 | 0.08 | 50.18 |
| Fraction of bank-owned products | 0.428 | 0.402 | 0.026 | 4.45 |
| Panel D: Auxiliary data | | | | |
| Real estate wealth per county | 9.702 | 10.921 | -1.219 | -7.27 |
| Number of banks | 4.306 | 4.699 | -0.393 | -15.94 |
| Total population | 10.295 | 10.012 | 0.283 | 4.33 |
| County GDP per capital | 9.886 | 10.208 | -0.322 | -29.88 |
| Log number of firms in county | 6.601 | 6.295 | 0.307 | 9.19 |
| % High school degree in county | 0.140 | 0.147 | -0.007 | -2.60 |
| Social connectedness | 29.765 | 27.936 | 1.830 | 3.06 |



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**Table 3: The Stock-market Participation Gap**

Estimations in Panel A use the survey data from 2023. Estimations in Panel B use the bank data from 2019. Estimations in Panel C use the broker account data from June 2004 to December 2012. The coefficients are average marginal effects from logit regressions. In columns (1) and (2), the dependent variable is an indicator equal to one if a survey respondent (Panel A), bank client (Panel B) or broker client (Panel C) participates in the stock market. In column (3) of Panel A, the dependent variable is an indicator equal to one if a survey respondent plans to invest in the stock market in the future. In column (4) of Panel A, the dependent variable is an indicator equal to one if a survey respondent ever invested in the stock market in the past. In column (3) of Panel B, the sample is restricted to active clients (a positive monthly inflow $>$ 50 Euros on average). In column (4) of Panel B, the dependent variable is an indicator equal to one if a bank client is invested in single stocks. Column (3) in Panel C is based on broker clients living in East or West Berlin. Column (4) in Panel C is based on broker clients living in two matched cities, Bad Hersfeld and Eisenach, and robust standard errors are in parentheses. East is an indicator equal to one if an individual lives in East Germany. All variables are described in detail in Appendix-Table A1. Standard errors (in parentheses) are clustered by municipality with the exception of column (3) in Panel C, where the sample is restricted to one city (Berlin) and standard errors are clustered by broker client. Control variables are suppressed for brevity. The full tables are displayed in Appendix-Tables A3 (Panel A), A4 (Panel B), and A5 (Panel C). ***, ** and * denote statistical significance at the 1%, 5%, and 10% level.

Panel A: Survey data

| *Dependent variable*: | Stock-market participation | | Future participation | Ever invested in the past |
|---|---|---|---|---|
| *Sample*: | All survey respondents | | All survey respondents | Non stock-market participants |
| | (1) | (2) | (3) | (4) |
| East | –0.085*** | –0.026*** | –0.027*** | –0.028** |
| | (0.012) | (0.009) | (0.008) | (0.011) |
| Control variables | no | yes | yes | yes |
| Year FE | no | no | no | no |
| Pseudo $R^2$ | 0.007 | 0.328 | 0.345 | 0.175 |
| Observations | 9,695 | 9,695 | 9,695 | 6,711 |
| Mean dependent variable | 0.308 | 0.308 | 0.260 | 0.208 |
| Effect size | 27.6% | 8.4% | 10.4% | 13.5% |



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**Table 3: cont'd**

Panel B: Bank data

| *Dependent variable*: | Stock-market participation | | | |
|---|---|---|---|---|
| *Sample*: | All bank clients | | Equity (active account) | Single-stock holders |
| | (1) | (2) | (3) | (4) |
| East | –0.023*** | –0.007*** | –0.007*** | –0.017*** |
| | (0.004) | (0.001) | (0.001) | (0.002) |
| Control variables | no | yes | yes | yes |
| Year FE | no | no | no | no |
| Pseudo $R^2$ | 0.001 | 0.590 | 0.586 | 0.531 |
| Observations | 326,437 | 326,437 | 300,866 | 326,437 |
| Mean dependent variable | 0.0911 | 0.0911 | 0.089 | 0.073 |
| Effect size | 25.2% | 7.7% | 7.9% | 23.3% |

Panel C: Broker data

| *Dependent variable*: | Stock-market participation | | | |
|---|---|---|---|---|
| *Sample*: | All broker clients | | Berlin only | Matched cities |
| | (1) | (2) | (3) | (4) |
| East | –0.203*** | –0.156*** | –0.054*** | –0.129*** |
| | (0.002) | (0.002) | (0.009) | (0.024) |
| Control variables | no | yes | yes | yes |
| Year FE | no | yes | yes | yes |
| Pseudo $R^2$ | 0.070 | 0.192 | 0.137 | 0.351 |
| Observations | 839,292 | 839,292 | 16,207 | 574 |
| Mean dependent variable | 0.751 | 0.819 | 0.90 | 0.883 |
| Effect size | 27.7% | 19.1% | 6.0% | 14.6% |



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**Table 4: Movers**

Estimations in columns (1) and (2) use the survey data, and estimations in columns (3) and (4) use a bank survey augmented by administrative information of bank survey respondents. The coefficients are average marginal effects from logit models, with stock-market participation as the dependent variable. Stock-market participation is an indicator equal to one if an investor holds stocks, equity funds, or ETFs in her portfolio. East is an indicator equal to one if an individual lives in East Germany. Mover is an indicator equal to one if an individual has moved from East to West Germany after Reunification. In columns (2) and (4), we exclude all East Germans and only compare West Germans to former East Germans who have moved to and now live in West Germany. In columns (1) and (2), we include the same set of control variables as in Panel A of Table 3. In columns (3) and (4), we include personal characteristics (gender, age, marital status, employment status, wealth, financial literacy score) and account characteristics (access to online banking, having a mortgage, credit score) as control variables. All variables are described in detail in Appendix-Table A1. Standard errors clustered by municipality are presented in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% level.

| *Dependent variable*: | Stock-market participation | | | |
|---|---|---|---|---|
| *Data source*: | Survey | | Bank survey | |
| | All Germans | West Germans | All Germans | West Germans |
| | (1) | (2) | (3) | (4) |
| Mover | -0.072*** | -0.075** | -0.107* | -0.123* |
| | (0.026) | (0.029) | (0.060) | (0.068) |
| East | -0.028*** | | -0.244** | |
| | (0.009) | | (0.115) | |
| Control variables | yes | yes | yes | yes |
| Pseudo $R^2$ | 0.328 | 0.309 | 0.353 | 0.332 |
| Observations | 9,695 | 4,409 | 241 | 198 |



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**Table 5: "Capitalist" versus "Communist" Stocks**

Estimations use the survey data from 2023 in Panel A, the bank data from 2019 in Panel B, and the broker data from June 2004 to December 2012 in Panel C. The coefficients are average marginal effects from logit regressions. The dependent variable is an indicator equal to one if a survey respondent would buy (Panel A), if a bank client holds (Panel B), or if a broker client holds (Panel C) stocks from financial firms (column 1), US firms (column 2), Chinese firms (column 3), or other East European firms (column 4). In Panel A, East Europe does not include Russia. East is an indicator equal to one if an individual lives in East Germany. All variables are described in detail in Appendix-Table A1. Control variables are the same as in the baseline regressions (Table 3). In Panels A and C (Panel B), standard errors clustered by municipality (broker client) are in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% level.

| | "Capitalist" stocks | | "Communist" stocks | |
|---|---|---|---|---|
| | Financial firms | US firms | Chinese firms | East Europe firms |
| | (1) | (2) | (3) | (4) |
| Panel A: Survey data | | | | |
| East | –0.019 | –0.019* | 0.059*** | 0.016** |
| | (0.013) | (0.010) | (0.009) | (0.008) |
| Controls | yes | yes | yes | yes |
| Year FE | no | no | no | no |
| Pseudo $R^2$ | 0.094 | 0.144 | 0.063 | 0.106 |
| Observations | 9,695 | 9,695 | 9,695 | 9,695 |
| Panel B: Bank data | | | | |
| East | –0.018** | –0.045*** | –0.003 | 0.003* |
| | (0.01) | (0.01) | (0.00) | (0.00) |
| Controls | yes | yes | yes | yes |
| Year FE | no | no | no | no |
| Pseudo $R^2$ | 0.129 | 0.192 | 0.088 | 0.070 |
| Observations | 29,768 | 29,768 | 29,768 | 29,768 |
| Panel C: Broker data | | | | |
| East | –0.049*** | –0.019*** | 0.002** | 0.004*** |
| | (0.004) | (0.003) | (0.001) | (0.001) |
| Controls | yes | yes | yes | yes |
| Year FE | yes | yes | yes | yes |
| Pseudo $R^2$ | 0.163 | 0.065 | 0.113 | 0.099 |
| Observations | 622,519 | 622,519 | 622,519 | 622,519 |



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**Table 6: Anti-capitalist Ideology and Stock-market Participation**

This table presents average marginal effects from logit models based on a survey among 5,286 East Germans. The dependent variable is an indicator equal to one if a survey respondent participates in the stock market. The main independent variables are survey responses to questions on attitudes towards the stock market and communist ideology. They were elicited on a 4-point Likert scale. The exact wording is provided in Appendix-Table A10. Control variables are the same as in the baseline regression (Panel A, column (2), Table 3). Standard errors clustered by municipality are presented in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% level.

| *Dependent Variable*: | Stock-market participation | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Panel A: Anti-capitalist attitudes towards the stock market | | | | |
| Stock-markets reflect the capitalist system | –0.138*** | | | |
| | (0.015) | | | |
| Investing in stocks is immoral | | –0.141*** | | |
| | | (0.018) | | |
| I generally reject stocks | | | –0.187*** | |
| | | | (0.010) | |
| Pseudo $R^2$ | 0.360 | 0.354 | 0.389 | |
| Panel B: Anti-capitalist attitudes in general | | | | |
| Capitalism should be abolished | –0.020*** | | | |
| | (0.005) | | | |
| Capitalism creates inequality | | –0.003 | | |
| | | (0.006) | | |
| Capitalism creates coldness | | | –0.010* | |
| | | | (0.005) | |
| Socialism is preferable | | | | –0.010* |
| | | | | (0.005) |
| Pseudo $R^2$ | 0.344 | 0.342 | 0.343 | 0.343 |
| Panel C: Pro-capitalist attitudes in general | | | | |
| Everyone is better off under capitalism | 0.020*** | | | |
| | (0.006) | | | |
| Capitalism is the better economic system | | 0.016** | | |
| | | (0.008) | | |
| Capitalism rewards the hard-working | | | 0.010 | |
| | | | (0.007) | |
| Pseudo $R^2$ | 0.344 | 0.343 | 0.342 | |
| Control variables | yes | yes | yes | |
| Observations | 5,286 | 5,286 | 5,286 | |



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**Table 7: Experiences with Communism (Geographic Variation)**

All estimations use the broker data, restricted to East German clients, from June 2004 to December 2012. The coefficients are average marginal effects from logit models, with stock-market participation as the dependent variable. Stock-market participation is an indicator equal to one if an investor holds stocks or equity funds in her portfolio in a given year. In addition to the full set of control variables from Panel B in Table 3, we include different proxies for negative (Panel A) or positive (Panel B) experiences with the GDR. In Panel A, these proxies are: an indicator for heavily polluted GDR municipalities according to the 1990 report of the German ministry of environmental affairs (column 1), the fraction of Catholics and Protestants in a municipality according to the 2011 census (column 2), and an indicator for municipalities in the former GDR that did not receive West German TV signals (column 3). In Panel B, the proxies are: an indicator for cities that were renamed under the GDR regime (column 1), namely, Chemnitz (Karl-Marx-Stadt), Kriegsdorf (Friedensdorf), Neuhardenberg (Marxwalde), Werminghoff (Knappenrode), and Eisenhüttenstadt (Stalinstadt); an indicator equal to one if an Olympic gold medal winner as of the Wikipedia list of the GDR's Olympic champions was born in the same municipality than an East German investor (column 2), and the fraction of voluntary STASI participation in municipality during the GDR regime (column 3). The last columns in each Panel include all proxies for positive and negative experiences, respectively. All variables are described in detail in Appendix-Table A1. Standard errors clustered by broker client are presented in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% level.

| *Dependent Variable*: | Stock-market participation | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Panel A: Negative Experience | | | | |
| Pollution | 0.058*** | | | 0.061*** |
| | (0.009) | | | (0.009) |
| Religiosity | | 0.006*** | | 0.006*** |
| | | (0.000) | | (0.000) |
| No West-TV | | | 0.090*** | 0.068*** |
| | | | (0.016) | (0.016) |
| Pseudo $R^2$ | 0.212 | 0.215 | 0.212 | 0.216 |
| Panel B: Positive Experience | | | | |
| Renamed city | –0.169*** | | | –0.150*** |
| | (0.010) | | | (0.010) |
| Olympic gold | | –0.044*** | | –0.013** |
| | | (0.006) | | (0.006) |
| STASI volunteers | | | –0.076*** | –0.058*** |
| | | | (0.008) | (0.008) |
| Pseudo $R^2$ | 0.218 | 0.213 | 0.214 | 0.219 |
| Control variables | yes | yes | yes | yes |
| Year FE | yes | yes | yes | yes |
| Observations | 171,343 | 171,343 | 171,343 | 171,343 |



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**Table 8: Experiences with Communism (Survey Responses)**

This table presents average marginal effects from logit models based on our survey, restricted to all East German respondents who experienced the GDR. The dependent variable is an indicator equal to one if a survey respondent indicates that she participates in the stock market, and zero otherwise. The main independent variables are survey responses to respondents' memories of the German Democratic Republic. They were elicited on a 4-point Likert scale and their exact wording is provided in Appendix-Table A10. Control variables are the same as in the baseline regression (Panel A, column (2), Table 3). Standard errors clustered by municipality are presented in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% level.

| *Dependent Variable*: | Stock-market participation | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| High life standard in GDR | –0.032*** | | | | |
| | (0.008) | | | | |
| Wishing GDR back | | –0.062*** | | | |
| | | (0.016) | | | |
| Disappointed in FRG | | | –0.038*** | | |
| | | | (0.014) | | |
| Positive GDR experience | | | | –0.016 | |
| | | | | (0.011) | |
| Positive GDR memories | | | | | –0.050*** |
| | | | | | (0.019) |
| Controls | yes | yes | yes | yes | yes |
| Pseudo $R^2$ | 0.346 | 0.345 | 0.343 | 0.344 | 0.358 |
| Observations | 4,873 | 4,874 | 4,859 | 4,851 | 1,661 |



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**Table 9: Is Adherence to Anti-Capitalist Ideology Costly?**

All estimations use the broker data from June 2004 to December 2012. In Panel A, we use equal- or value-weighted returns, respectively, of a difference portfolio that is long in East German investors' stock holdings and short in West German investors' stock holdings as dependent variables. Performance alphas are calculated using the Global CAPM market factor in columns (1) and (4), the Global Fama and French (1993) factors in columns (2) and (5), and the Global Carhart (1997) four-factor model in columns (3) and (6). Global risk factors are from Kenneth French's website. Standard errors are presented in parentheses. Panel B shows results from a linear probability model in column (1), and standard OLS estimates in columns (2) to (5). The dependent variables are: an indicator equal to one if an investor holds index funds or ETFs (in column 1), the number of assets in an investor's portfolio (in column 2), the average fund fees an investor pays her all-equity funds (in column 3), the Herfindahl index of an investor's stock holdings (in column 4), and the fraction of bank-owned products an investor holds in her portfolio (in column 5). We regress the dependent variables on the East German dummy variable and the same set of control variables as in Panel C, column (2), of Table 3. Standard errors clustered by municipality are presented in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% level.

Panel A: Monthly performance alphas

| | Equal weighted | | | Value weighted | | |
|---|---|---|---|---|---|---|
| | $\text{CAPM}_t^{E-W}$ | $\text{3-Factor}_t^{E-W}$ | $\text{4-Factor}_t^{E-W}$ | $\text{CAPM}_t^{E-W}$ | $\text{3-Factor}_t^{E-W}$ | $\text{4-Factor}_t^{E-W}$ |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Performance $\text{alpha}_t^{East-West}$ | -0.086** | -0.080** | -0.083** | -0.110** | -0.108** | -0.103** |
| | (0.040) | (0.037) | (0.037) | (0.047) | (0.047) | (0.047) |
| $\text{MKTRF}^{Global}$ | -0.030*** | -0.023*** | -0.022*** | 0.018 | 0.019* | 0.016 |
| | (0.007) | (0.006) | (0.006) | (0.011) | (0.011) | (0.011) |
| $\text{SMB}^{Global}$ | | -0.086*** | -0.088*** | | -0.036 | -0.038 |
| | | (0.025) | (0.025) | | (0.028) | (0.029) |
| $\text{HML}^{Global}$ | | -0.024 | -0.020 | | -0.002 | -0.009 |
| | | (0.020) | (0.021) | | (0.035) | (0.038) |
| $\text{WML}^{Global}$ | | | 0.009 | | | -0.013 |
| | | | (0.008) | | | (0.013) |
| Adj. $R^2$ | 0.131 | 0.214 | 0.211 | 0.026 | 0.018 | 0.018 |
| Observations | 92 | 92 | 92 | 92 | 92 | 92 |

**Table 9: cont'd**

| Panel B: Other costs | | | | | |
|---|---|---|---|---|---|
| | Passive investments (1) | # of assets (2) | Fund fees (3) | Herfindahl index (4) | Bank owned products (5) |
| East | –0.017*** | –1.513*** | 0.052*** | 0.038*** | 0.031*** |
| | (0.002) | (0.040) | (0.008) | (0.002) | (0.006) |
| Male | 0.014*** | 1.024*** | –0.002 | –0.036*** | –0.060*** |
| | (0.001) | (0.033) | (0.005) | (0.001) | (0.004) |
| Investor age | –0.044*** | –0.196*** | 0.059*** | 0.043*** | 0.045*** |
| | (0.001) | (0.048) | (0.010) | (0.003) | (0.008) |
| Portfolio value | 0.010*** | 1.137*** | –0.010*** | –0.075*** | –0.090*** |
| | (0.000) | (0.009) | (0.002) | (0.000) | (0.001) |
| Married | 0.007*** | 0.313*** | –0.003 | –0.003* | –0.025*** |
| | (0.001) | (0.033) | (0.006) | (0.002) | (0.004) |
| Number of banks | 0.004*** | 0.227*** | –0.021*** | –0.002 | 0.006 |
| | (0.001) | (0.036) | (0.006) | (0.002) | (0.005) |
| Total population | –0.000 | 0.057*** | –0.001 | –0.002*** | 0.002 |
| | (0.000) | (0.015) | (0.002) | (0.001) | (0.002) |
| Time account is open | 0.008*** | 1.797*** | –0.000 | –0.050*** | –0.123*** |
| | (0.001) | (0.027) | (0.004) | (0.001) | (0.004) |
| Real estate wealth per county | –0.001*** | –0.073*** | 0.002** | 0.002*** | –0.002* |
| | (0.000) | (0.007) | (0.001) | (0.000) | (0.001) |
| % High school degree in county | 0.061*** | 2.099*** | –0.220*** | –0.017 | –0.097* |
| | (0.011) | (0.421) | (0.060) | (0.017) | (0.050) |
| County GDP per capital | 0.012*** | 0.525*** | –0.011 | –0.010*** | –0.012 |
| | (0.002) | (0.080) | (0.012) | (0.003) | (0.009) |
| Log number of firms in county | 0.003*** | 0.154*** | –0.014*** | –0.005*** | 0.000 |
| | (0.001) | (0.023) | (0.004) | (0.001) | (0.003) |
| Social connectedness | 0.000 | –0.002 | –0.001** | 0.000* | –0.001*** |
| | (0.000) | (0.002) | (0.000) | (0.000) | (0.000) |
| Pseudo/Adj. $R^2$ | 0.106 | 0.204 | 0.079 | 0.341 | 0.362 |
| Observations | 515,600 | 839,292 | 60,640 | 622,519 | 90,136 |



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# Appendix (For Online Publication)

This Online Appendix contains additional empirical results for the paper "The Long-lasting Effects of Experiencing Communism on Attitudes towards Financial Markets."

Appendix-Figure A1 provides time-series evidence on stock-return expectations of East and West Germans between 2016 and 2018.

Appendix-Figure A2 provides information on bank affiliations of our survey respondents, separately for East and West Germany, as well as perceptions of the bank affiliated with the brokerage data provider.

Appendix-Table A1 provides an overview of all data sources as well as a detailed variable description. Appendix-Table A2 shows pairwise correlations of all survey variables.

Appendix-Tables A3 to A5 show the same results as Panels A to C of Table 3 in the main paper, but display the full set of control variables.

Appendix-Tables A6 to A8 show results from re-estimating Panels A to C of Table 3 in the main paper, using linear probability models and Conley spatial HAC standard errors to account more conservatively for spatial and serial autocorrelation (Conley, 1999, 2008).[36]

Appendix-Table A9 repeats the analysis in Panel B of Table 3 in the main paper but includes additional (non-)linear wealth controls.

In Appendix-Table A10, we provide the exact wording of the ideology statements used in our questionnaire, and Appendix-Table A11 provides univariate statistics on differences between East and West Germans in their agreement with the ideology statements, as displayed in Figure 3 in the main paper.

Appendix-Tables A12 and A13 contain the Top 10 holdings of stocks in the bank and broker data, respectively, belonging to the financial industry, the United States, and formerly communist countries.

In Appendix-Table A14, we show cross-correlations of all geographic proxies for positive or negative experiences with the GDR, used in the broker data.

Appendix-Table A15 provides a placebo analysis, mirroring the Table 7, with similar geographic proxies applied to West Germany.

Appendix-Table A16 shows correlations between these proxies and the survey based proxies for positive and negative experiences with the German Democratic Republic.

[36] We use the code provided by Hsiang (2010) to estimate Conley spatial HAC standard errors.



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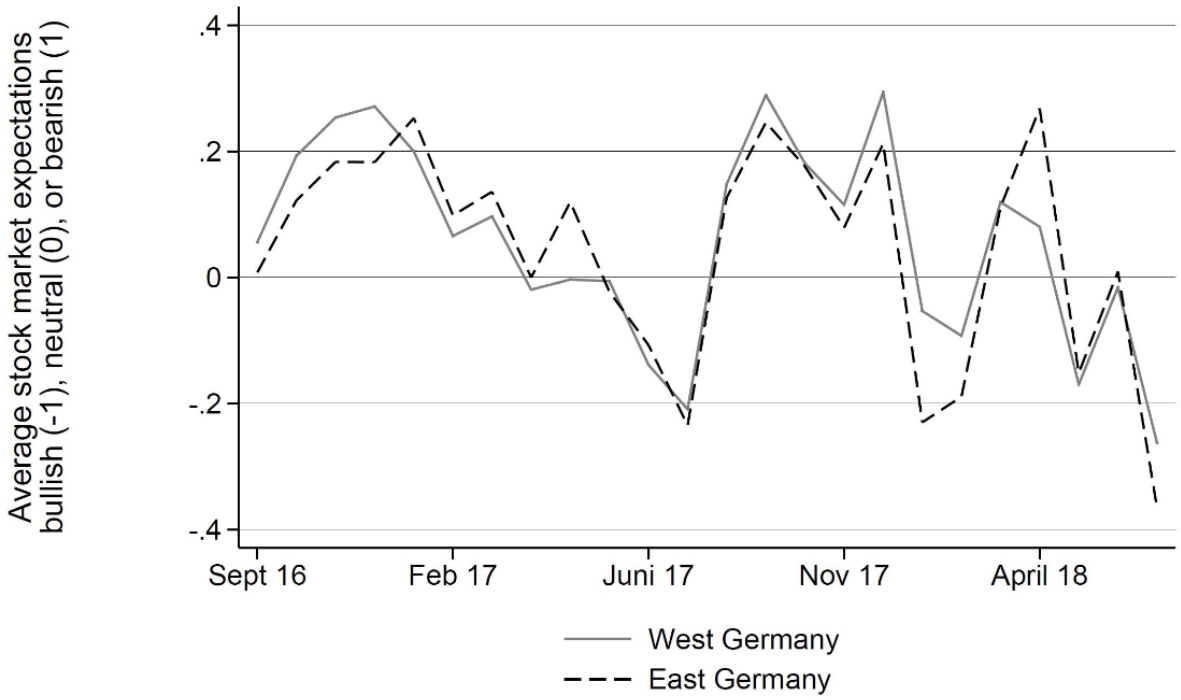
**Appendix-Figure A1: Stock-Market Return Expectations**

The figure shows average German Stock Index (DAX) return expectations over the next six months, separately for East (N=148) and West German (N=1,724) respondents, based on answers to a survey conducted by the market research firm Sentix Behavioral Indices GbR. Respondents are asked about their midterm (6 months) return expectations about the DAX being bullish (-1), neutral (0), or bearish (1). Places of residence for respondents are available since September 2016. Monthly averages are constructed for East and West Germany separately based on all responses (four waves) within a given month.



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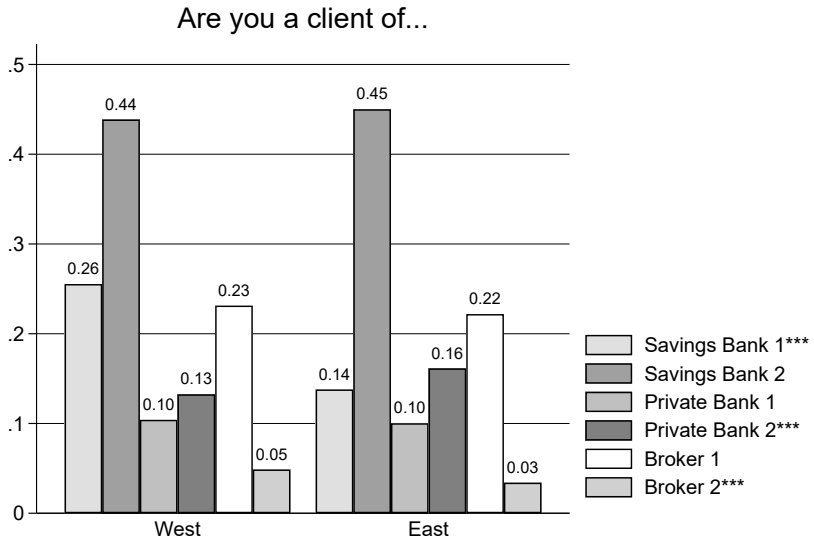
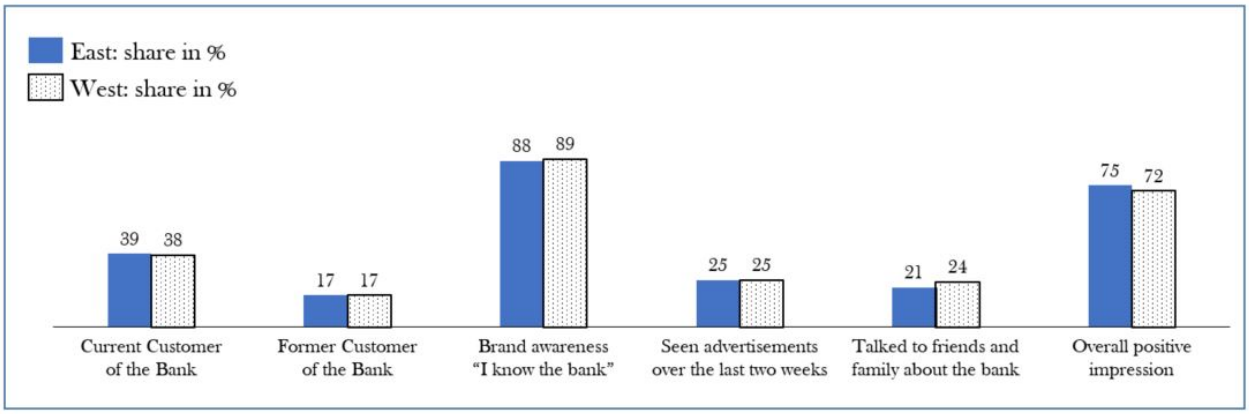
**Appendix-Figure A2: Bank Affiliations and Perceptions**

Panel A shows the shares of survey respondents who stated that they are clients of specific private banks, savings banks, or big brokerage entities in Germany, separately for respondents from East and West Germany. *** indicates significant East West differences at the 1% level. Panel B illustrates results from a survey fielded via the international data and analytics group YouGov regarding the bank to which the sample brokerage firm belongs. The figure plots the shares of survey respondents stating that (a) they are customers of the bank, (b) they are former customers of the bank, (c) they generally know this bank, (d) they have seen advertisements of this bank within the last two weeks, (e) they have talked to a friend or family member about this bank, and (f) they generally like this bank. Answers to (f) reflect the share of respondents with an answer higher than 3 on a scale from 1 ("I hate it") to 5 ("I love it"). Shares are shown separately for respondents in East and West Germany. None of the answers differ significantly between East and West Germans.

Panel A: Differences in Bank Affiliations




Panel B: Selection into Brokerage Bank



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**Appendix-Table A1: Data Sources and Variable Definitions**

List of Data Sources

(i) BIL: Survey data collected from the opinion polling institute Bilendi with 9,695 survey respondents (5,286 East Germans and 4,409 West Germans), data as of June 2023

(ii) BAC: Bank account data with 326,437 clients of a large German branch bank, data as of September 2019

(iii) BRO: Broker data with 230,229 retail investors, personal characteristics as of December 2012 and monthly holdings from June 2004 to December 2012

(iv) BS: Bank survey, 2,133 respondents, conducted in the first quarter of 2017, combined with administrative data on whether clients hold equity or not.

(v) GFSO: Data can be downloaded from the German Federal Statistic Office at https://www.destatis.de.

(vi) ECB: Data on voluntary STASI collaborators are purchased from Michael Wedow, Deputy Head of Division at the Directorate General Macroprudential Policy and Financial Stability of the European Central Bank.

(vii) MC: Manually collected

(viii) Wiki: Wikipedia

(ix) GMEA: German Ministry of Environmental Affairs, press releases obtained from internet downloads as indicated below.

(x) PRS: Statistics provided by the authors of Puri et al. (2017).

(xi) SAVE: SAVE (Sparen und Altersvorsorge in Deutschland) Household Panel conducted by the Munich Center for the Economics of Aging, a department of the Max Planck Institute for Social Law and Social Policy, wave of 2009 with 2,222 respondents across Germany

(xii) ID: Survey conducted by the polling institute Infratest dimap in 2014 with 1,022 respondents across East Germany

(xiii) BC: Bursztyn and Cantoni (2016), Appendix-Table A.2.

(xiv) SCI: Facebook Social Connectedness Index for Germany (Bailey et al. (2018)), downloaded from https://data.humdata.org/dataset/social-connectedness-index



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**Appendix-Table A1: cont'd**

List of Variable Definitions

| Variable name | Description | Data source |
|---|---|---|
| Chinese firms | Fraction of Chinese companies (stocks) in an investor's portfolio identified via the datastream geography code for the home or listing country of a security. In the survey, we asked whether respondents would buy stocks of firms located in China. Response options were (1) yes, (2) rather yes, (3) rather no, and (4) no. | BIL, BAC, BRO, DS |
| Client age | Age in years of the survey respondent. | BAC |
| Consumer credit | Indicator equal to one if the client has a consumer loan. | BAC |
| County GDP per capita | Natural logarithm of GDP per capita on the municipality level. | GFSO |
| Credit card | Indicator equal to one if the client owns a credit card. | BAC |
| East | Indicator equal to one if an individual lives in East Germany (i. e., Brandenburg, Mecklenburg-Western Pomerania, Saxony, Saxony-Anhalt, Thuringia). | BIL, BAC, BRO |
| East Europe firms | Fraction of East European companies in an investor's portfolio identified via the datastream geography code, specifying the home or listing country of a security. For the broker dataset the countries included are Croatia, Czech Republic, Hungary, Poland, Slovakia, Ukraine, Russian Federation. For the bank data set, we use the Morningstar region code 'Eastern Europe'. In the survey, we asked whether respondents would buy stocks of firms located 'East Europe ex Russia'. Response options were (1) yes, (2) rather yes, (3) rather no, and (4) no. | BIL, BAC, BRO |
| Education | Survey respondents' education is categorized as 1=no degree or "Hauptschule," 2="Realschule," 3=High-school diploma, 4=university degree. | BIL |
| Employed | An indicator equal to one if a bank client or survey respondent is full or part-time employed. | BIL, BAC |
| Equity | A dummy variable equal to one if a bank client holds equity (single stocks or equity funds) in her portfolio. | BAC |
| Familiarity with stocks | An indicator equal to one if survey respondents *dis*agree with the statement "The stock-market is a closed book for me." Answers were elicited on a 4-point Likert scale, ranging from (1) "I completely agree", (2) "I rather agree", (3) "I rather disagree", to (4) "I completely disagree.". We define a dummy variable, familiarity, which is equal to one if respondents indicate "I completely agree", or "I rather agree", and zero otherwise. | BIL |



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**Appendix-Table A1: cont'd**

| Variable name | Description | Data source |
|---|---|---|
| Financial firms | Fraction of financial-industry firms in an investor's portfolio. Single stock holdings were classified using ICBIC industry code "8000" for financials. In the survey, we asked whether respondents would buy stocks of firms belonging to the financial industry. Response options were (1) yes, (2) rather yes, (3) rather no, and (4) no. We define a dummy variable, financial firms, which is equal to one if respondents indicated "yes" or "rather yes", and zero otherwise. | BIL, BRO, DS |
| Financial literacy | County-level average of financial-literacy scores. To construct the score, we elicit answers to the three questions of van Rooij, Lusardi, and Alessie (2011) on inflation, interest rates, and risk diversification. The score counts the number of correct answers, going from 0 (low) to 3 (high literacy). | BIL |
| Fraction of bank-owned products | Share of funds in mutual fund holdings that is issued by the broker bank's own investment company. | BRO |
| Fund fees | Average fund fee (total expense ratio) an investor pays for all-equity funds in her portfolio in a given year in percent. | BRO, MS |
| GDP per capita | GDP per capita on the municipality level. | GFSO |
| High-school degree | Share of high-school graduates in a municipality according to the 2011 census. | GFSO |
| High socio economic status | The proxy is based on the bank's categorization of households according to their education and income, which is obtained from an external data provider for credit score calculations. The proxy predicts the status based on clients' addresses, taking into account not only the zip code but also the exact street information. The variable is an indicator equal to one if the prediction is higher than the median status. | BAC |
| Historical city | An indicator equal to one for Wikipedia's most popular West German historical cities, Bad Mergentheim, Baden-Baden, Freiburg, Freudenstadt, Konstanz, Meersburg, Neckargemünd, Ravensburg, Schiltach, Schwäbisch Gmünd, Tübingen, and Villingen-Schwenningen; cf. `https://de.wikipedia.org/wiki/Liste_von_St%C3%A4dten_mit_historischem_Stadtkern_in_Deutschland`. | Wiki |
| Income | A bank client's income as proxied by the bank based on regular monthly inflows to the current account. | MC, Wiki |
| Investor age | Age in years of the bank or broker client. | BRO |
| Male | Indicator equal to one if a client is male. | BIL, BAC, BRO |



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**Appendix-Table A1: cont'd**

| Variable name | Description | Data source |
|---|---|---|
| Married | Indicator equal to one if a broker client is married. | BRO |
| Married or in partnership | Indicator equal to one if a survey respondent or bank client is married or in a partnership. | BIL, BAC |
| Monthly income | Survey respondents' monthly income, using the following brackets: (1) below 1,300 Euro, (2) 1,300 up to 2,600 Euro, (3) 2,600 up to 3,600 Euro, (4) 3,600 up to 5,000 Euro, (5) 5,000 up to 7,000 Euro, (6) 7,000 Euro and more. | BIL |
| Mortgage | Indicator equal to one if client holds a mortgage with the bank. | BAC |
| Mover | Indicator equal to one if a survey respondent or a bank client participating in the bank survey has moved from East to West Germany after the fall of the Berlin Wall in 1989. | BIL, BS |
| N. of consultations | Number of meetings a client has had with a financial advisor of the bank during the last 12 months. | BAC |
| N. of assets in portfolio | Number of assets in an investor's portfolio in a given year. | BRO |
| No West-TV | Indicator equal to one for the GDR municipalities that did not receive West German TV signals: Dresden Stadt, Altentreptow, Niesky, Anklam, Ribnitz-Damgarten, Malchin, Bautzen, Neubrandenburg Stadt, Ueckermuende, Teterow, Lobau, Pirna, Greifswald Land, Demmin, Goerlitz Land, Grimmen, Wolgast, Greifswald Stadt, Zittau, Goerlitz Stadt, Stralsund Land, Stralsund Stadt, Ruegen. | BC |
| N. of local banks | Natural logarithm of the number of local bank branches in a given municipality and year. | PRS |
| N. of local firms | Natural logarithm of the number of registered firms in a given municipality and year. | GFSO |
| Olympic gold | Indicator equal to one if an Olympic gold medal winner is from the same municipality as an East German broker client or, in our placebo analysis, as a West German client. Olympic gold medal winners are defined according to Wikipedia's lists for the best German athletes in summer games (`https://de.wikipedia.org/wiki/Liste_der_erfolgreichsten_Sommerolympioniken`) and winter games (`https://de.wikipedia.org/wiki/Liste_der_erfolgreichsten_Winterolympioniken`). We only consider athletes who started for the GDR in Table 7, and athletes who started for the FRG in Appendix-Table A15. | MC, Wiki |
| Passive investments | Indicator equal to one if an investor holds index funds or ETFs in her portfolio in a given year. | Broker, MS |



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**Appendix-Table A1: cont'd**

| Variable name | Description | Data source |
|---|---|---|
| Peers invest | Indicator equal to one if survey respondents know family members or friends who invest in the stock market. Answers were elicited on a 4-point Likert scale, from (1) "I completely agree" to (4) "I completely disagree." We define a dummy variable equal to one if respondents indicate "yes" or "rather yes", and zero otherwise. | BIL |
| Pollution | Indicator equal to one for the most polluted municipalities in the GDR according to a press release of the German Ministry of Environmental Affairs (1990): Bad Blankenburg, Bad Dürrenberg, Bitterfeld, Buna, Dessau, Dresden, Dresden-Kaditz, Erfurt-Kühnhausen, Freiberg, Grossrosenburg, Leuna, Magdeburg, Röblingen, Schmilka, Thierbach, Wittenberg, Wittenberg/Piesteritz, Zehren. | GMEA |
| Pollution West | Indicator equal to one for the most polluted West German municipalities measured by sulfur dioxide in the FRG according to the German Ministry of Environmental Affairs (2022) report: Duisburg, Bottrop, Hamburg, Datteln, Dillingen, Essen, Mannheim, Bremen, Biringen, Völklingen, Eggenstein, Saarbrücken, Worms, Lauterbach, Ludwigshafen, Höchst, Wörth. | GMEA |
| Portfolio concentration | Herfindahl index of an investor's stock holdings in a given year. | BRO |
| Portfolio value | Natural logarithm of total end-of-year value of a client's portfolio (in Euro). End-of-year values are first winsorized at the top and bottom 1%. | BRO |
| Real-estate wealth | Natural logarithm of average self-reported real-estate wealth in a municipality, elicited by the SAVE household survey. | SAVE |
| Religiosity | Precentage of Catholics and Protestants in an investor's municipality according to the 2011 census. | GFSO |
| Renamed city | Indicator equal to one if an investor lives in one of the cities renamed during the GDR regime: Chemnitz (Karl-Marx-Stadt), Kriegsdorf (Friedensdorf), Neuhardenberg (Marxwalde), Werminghof (Knappenrode), and Eisenhuettenstadt (Stalinstadt). | Wiki |
| Respondent age | Age of the survey respondent in years. | BIL |
| Retired | Indicator equal to one if the client is retired. | BAC |
| Retirement savings plan | Indicator equal to one if the client has a retirement savings plan with the bank. | BAC |
| Return expectation | Survey respondents' answer to the question "What average return (in percent) do you think the German stock market index DAX will deliver over the upcoming 12 months? Return refers to the percentage change of an investment in the German stock index over the next 12 months. A positive number means that the value of the DAX has increased, a negative number means that the value has decreased." | BIL |



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**Appendix-Table A1: cont'd**

| Variable name | Description | Data source |
|---|---|---|
| Risk tolerance | Survey respondents' or bank clients' individual risk tolerance on a scale from 1 (low) to 7 (high). | BIL, BAC |
| Savings plan | Indicator equal to one if a client has a savings plan with the bank. | BAC |
| Single stocks | Indicator equal to one if an investor holds single stocks. | BAC |
| Social capital [organizations] | Number of survey respondent's memberships out of 12 different organizations, ranging from religious organizations to labor unions, political parties, and NGOs. | BIL |
| Social capital [election] | Indicator equal to one if survey respondent answered "yes" to the question: "If there were federal elections next week, would you go and vote?" | BIL |
| Social connectedness | Facebook social connectedness index on the NUTS3 level as described in Bailey et al. (2018). We scale the SCI by 1,000. | SCI |
| STASI volunteers | Percentage of voluntary collaborators (Informelle Mitarbeiter, IM) of the secret police (Staatssicherheit, STASI) in an investor's municipality during the GDR regime. | ECB |
| Stock-market participation | A dummy variable equal to one if a survey respondent holds stocks, equity funds, or ETFs. For the broker data (BRO), stock-market participation is equal to one if a client holds stocks or equity funds.) | BIL, BRO |
| Time account is open | Number of months since a broker account is opened. | BRO |
| Total household wealth | Survey respondents' total household wealth, using the following brackets: (1) 0-50,000 Euro, (2) 51,000-200,000 Euro, (3) 201,000-450,000 Euro, (4) 451,000-700,000 Euro, (5) 701,000-950,000 Euro, (6) 951,000-1,200,000 Euro, (7) 1,201,000-3,000,000, (8) more than 3,000,000 Euro. | BIL |
| Total population | The natural logarithm of the number of inhabitants in a municipality. | GFSO |
| Trust | Indicator equal to one if survey respondents chose the answer "Most people can be trusted" to the question "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?", and zero if they chose the answer "You can't be careful enough" or "I don't know." | BIL |



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**Appendix-Table A1: cont'd**

| Variable name | Description | Data source |
|---|---|---|
| US firms | Fraction of US companies in an investor's portfolio identified via the datastream geography code, specifying the home or listing country of a security. In the survey, we asked whether respondents would buy stocks of firms located in the United States. Response options were (1) yes, (2) rather yes, (3) rather no, and (4) no. We define a dummy variable, US firms, which is equal to one if respondents indicated "yes" or "rather yes", and zero otherwise. | BRO, DS |
| Wealth | Wealth is the sum of the balances on clients' savings account and the portfolio value in September 2019. | BAC |



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## Appendix-Table A2: Cross Correlations (survey data)

This table displays pairwise correlations between all variables from the survey data. $p$-values are shown in parentheses.

| Variables | S-m part. | Resp. age | Male | Mar-ried | HH wlth | Mon. inc. | Emp. | Edu. | Trust | Risk tol. | Stock fam. | Peers inv. | Fin. lit. | Soc. cap. (org.) | Soc. cap. (el.) | Ret. exp. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-m part. | 1.00 | | | | | | | | | | | | | | | |
| Resp. age | -0.13 | 1.00 | | | | | | | | | | | | | | |
| | (0.00) | | | | | | | | | | | | | | | |
| Male | 0.16 | 0.13 | 1.00 | | | | | | | | | | | | | |
| | (0.00) | (0.00) | | | | | | | | | | | | | | |
| Married | 0.13 | -0.05 | 0.06 | 1.00 | | | | | | | | | | | | |
| | (0.00) | (0.00) | (0.00) | | | | | | | | | | | | | |
| HH wealth | 0.34 | -0.02 | 0.10 | 0.22 | 1.00 | | | | | | | | | | | |
| | (0.00) | (0.04) | (0.00) | (0.00) | | | | | | | | | | | | |
| Mon. inc. | 0.33 | -0.22 | 0.10 | 0.47 | 0.53 | 1.00 | | | | | | | | | | |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | | | | | | | | | | | |
| Employed | 0.17 | -0.56 | -0.03 | 0.09 | 0.10 | 0.35 | 1.00 | | | | | | | | | |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | | | | | | | | | | |
| Education | 0.25 | -0.11 | 0.08 | 0.09 | 0.24 | 0.32 | 0.13 | 1.00 | | | | | | | | |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | | | | | | | | | |
| Trust | 0.12 | 0.05 | 0.06 | 0.05 | 0.13 | 0.13 | 0.02 | 0.14 | 1.00 | | | | | | | |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.13) | (0.00) | | | | | | | | |
| Risk tol. | 0.48 | -0.17 | 0.25 | 0.09 | 0.28 | 0.29 | 0.19 | 0.21 | 0.12 | 1.00 | | | | | | |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | | | | | | | |
| Fam. w. stocks | 0.42 | -0.00 | 0.27 | 0.07 | 0.27 | 0.23 | 0.08 | 0.23 | 0.12 | 0.43 | 1.00 | | | | | |
| | (0.00) | (0.87) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | | | | | | |
| Peers inv. | 0.25 | -0.22 | 0.04 | 0.06 | 0.21 | 0.19 | 0.16 | 0.16 | 0.07 | 0.23 | 0.15 | 1.00 | | | | |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | | | | | |
| Fin. lit. | 0.28 | 0.08 | 0.26 | 0.08 | 0.20 | 0.20 | 0.03 | 0.24 | 0.17 | 0.21 | 0.30 | 0.06 | 1.00 | | | |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | | | | |
| Soc. cap. (org.) | 0.19 | -0.11 | 0.07 | 0.10 | 0.23 | 0.22 | 0.13 | 0.20 | 0.12 | 0.24 | 0.13 | 0.20 | 0.05 | 1.00 | | |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | | | |
| Soc. cap. (el.) | 0.11 | 0.04 | 0.06 | 0.07 | 0.10 | 0.13 | 0.02 | 0.08 | 0.12 | 0.07 | 0.07 | 0.04 | 0.14 | 0.09 | 1.00 | |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.06) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | | |
| Ret. exp. | 0.00 | -0.10 | -0.06 | 0.01 | 0.01 | -0.00 | 0.03 | -0.07 | -0.03 | 0.10 | -0.01 | 0.06 | -0.16 | 0.10 | -0.06 | 1.00 |
| | (0.67) | (0.00) | (0.00) | (0.18) | (0.37) | (0.76) | (0.00) | (0.00) | (0.00) | (0.00) | (0.35) | (0.00) | (0.00) | (0.00) | (0.00) | |



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**Appendix-Table A3: The Stock-market Participation Gap - Survey data (Logit)**

Estimations in this table use the survey data from 2023. The coefficients are average marginal effects from logit regressions. East is an indicator equal to one if a survey respondent lives in East Germany. Control variables are the same as in Panel A, columns (2)-(4) of Table 3. All variables are described in detail in Appendix-Table A1. Standard errors clustered by municipality are presented in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% level.

| *Dependent Variable*: | Stock-market participation | | Future participation | Ever invested in the past |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| East | –0.085*** | –0.026*** | –0.027*** | –0.028** |
| | (0.012) | (0.009) | (0.008) | (0.011) |
| Respondent age | | –0.001*** | –0.005*** | 0.006*** |
| | | (0.000) | (0.000) | (0.000) |
| Male | | –0.019** | 0.001 | –0.016 |
| | | (0.009) | (0.008) | (0.010) |
| Married or in partnership | | 0.016 | –0.016* | –0.006 |
| | | (0.010) | (0.009) | (0.012) |
| Total household wealth | | 0.028*** | 0.007** | 0.027*** |
| | | (0.004) | (0.003) | (0.005) |
| Monthly income | | 0.024*** | 0.026*** | 0.009* |
| | | (0.004) | (0.004) | (0.005) |
| Employed | | 0.021* | 0.020** | 0.018 |
| | | (0.011) | (0.009) | (0.013) |
| Education | | 0.020*** | 0.019*** | 0.014** |
| | | (0.005) | (0.004) | (0.006) |
| Number of local firms | | 0.005 | –0.007 | –0.005 |
| | | (0.006) | (0.005) | (0.007) |
| Trust | | 0.002 | 0.022*** | 0.003 |
| | | (0.008) | (0.008) | (0.010) |
| Risk tolerance | | 0.072*** | 0.073*** | 0.034*** |
| | | (0.003) | (0.003) | (0.004) |
| Familiarity with stocks | | 0.134*** | 0.117*** | 0.133*** |
| | | (0.007) | (0.007) | (0.010) |
| Peers invest | | 0.090*** | 0.069*** | 0.106*** |
| | | (0.012) | (0.010) | (0.015) |
| Financial literacy | | 0.072*** | 0.029*** | 0.066*** |
| | | (0.006) | (0.005) | (0.007) |
| Social capital (organizations) | | 0.005 | 0.013*** | 0.011** |
| | | (0.004) | (0.003) | (0.005) |
| Social capital (election) | | 0.066*** | 0.087*** | –0.011 |
| | | (0.015) | (0.014) | (0.016) |
| Return expectation | | –0.000 | 0.001 | –0.001** |
| | | (0.001) | (0.000) | (0.001) |
| Pseudo $R^2$ | 0.007 | 0.328 | 0.345 | 0.175 |
| Observations | 9,695 | 9,695 | 9,695 | 6,711 |



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**Appendix-Table A4: The Stock-market Participation Gap - Bank data (Logit)**

All estimations use the bank data from 2019. The coefficients are average marginal effects from logit regressions. Control variables are the same as in Panel C, columns (2)-(4), of Table 3. Standard errors are clustered by municipality. The dependent variable is an indicator equal to one if a bank client participates in the stock market (Columns 1–3) or holds single stocks (Column 4). East is an indicator equal to one if a bank client lives in East Germany. All variables are described in detail in Appendix-Table A1. Standard errors clustered by municipality are in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% level.

| | All equity holders | | Equity (active accounts) | Single-stock holders |
|---|---|---|---|---|
| East | –0.023*** | –0.007*** | –0.007*** | –0.017*** |
| | (0.004) | (0.001) | (0.001) | (0.002) |
| Client age | | –0.000*** | –0.000*** | 0.000** |
| | | (0.000) | (0.000) | (0.000) |
| Male | | 0.016*** | 0.016*** | 0.021*** |
| | | (0.001) | (0.001) | (0.001) |
| Married | | 0.007*** | 0.008*** | 0.009*** |
| | | (0.001) | (0.001) | (0.001) |
| Risk tolerance | | 0.034*** | 0.035*** | 0.030*** |
| | | (0.000) | (0.000) | (0.000) |
| $ln$(income) | | –0.005*** | –0.008*** | –0.004*** |
| | | (0.000) | (0.000) | (0.000) |
| $ln$(wealth) | | 0.017*** | 0.018*** | 0.014*** |
| | | (0.000) | (0.000) | (0.000) |
| Employed | | 0.000 | 0.001 | –0.000 |
| | | (0.001) | (0.001) | (0.001) |
| Retired | | –0.015*** | –0.015*** | –0.017*** |
| | | (0.002) | (0.002) | (0.002) |
| High socioeconomic status | | 0.007*** | 0.007*** | 0.007*** |
| | | (0.001) | (0.001) | (0.001) |
| Consumer credit | | –0.009*** | –0.009*** | –0.017*** |
| | | (0.001) | (0.001) | (0.001) |
| Retirement savings plan | | –0.010*** | –0.009*** | –0.017*** |
| | | (0.001) | (0.001) | (0.001) |
| Credit card | | –0.011*** | –0.009*** | –0.011*** |
| | | (0.001) | (0.001) | (0.001) |
| Mortgage | | –0.005*** | 0.000 | –0.005*** |
| | | (0.001) | (0.002) | (0.001) |
| Savings plan | | –0.010*** | –0.009*** | –0.012*** |
| | | (0.001) | (0.001) | (0.001) |
| N. of consultations | | –0.000*** | –0.000*** | –0.000*** |
| | | (0.000) | (0.000) | (0.000) |
| Social connectedness | | –0.000 | –0.000 | –0.000 |
| | | (0.000) | (0.000) | (0.000) |
| Pseudo $R^2$ | 0.001 | 0.590 | 0.586 | 0.531 |
| Observations | 326,437 | 326,437 | 300,866 | 326,437 |



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**Appendix-Table A5: The Stock-market Participation Gap - Broker data (Logit)**

All estimations use the broker account data from June 2004 to December 2012. The coefficients are average marginal effects from logit regressions. Control variables are the same as in Panel B of Table 3. Standard errors are in parentheses and are clustered by broker client in columns (1) to (3). The dependent variable is an indicator equal to one if a broker client participates in the stock market. In Column (3), the sample is restricted to broker clients living in East or West Berlin. In Column (3), the sample is restricted to broker clients living in one of the two matched cities, Bad Hersfeld and Eisenach, and robust standard errors are in parentheses. East is an indicator equal to one if a broker client lives in East Germany. All variables are described in detail in Appendix-Table A1. ***, ** and * denote statistical significance at the 1%, 5%, and 10% level.

| | All Germans | | Berlin only | Matched cities |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| East | –0.203*** | –0.156*** | –0.054*** | –0.129*** |
| | (0.002) | (0.002) | (0.009) | (0.024) |
| Male | | 0.073*** | 0.035*** | 0.096*** |
| | | (0.001) | (0.009) | (0.023) |
| Investor age | | –0.110*** | –0.042* | –0.036 |
| | | (0.003) | (0.022) | (0.033) |
| Portfolio value | | –0.011*** | –0.007*** | –0.007 |
| | | (0.000) | (0.002) | (0.005) |
| Married | | 0.042*** | 0.030*** | 0.022 |
| | | (0.002) | (0.010) | (0.027) |
| Time account is open | | 0.124*** | 0.092*** | 0.130*** |
| | | (0.001) | (0.006) | (0.021) |
| Number of local firms | | 0.004*** | 0.003 | –0.078** |
| | | (0.001) | (0.009) | (0.032) |
| Number of banks | | 0.009*** | | |
| | | (0.002) | | |
| Total population | | 0.008*** | | |
| | | (0.001) | | |
| Real estate wealth per county | | –0.009*** | | |
| | | (0.000) | | |
| % High school degree in county | | 0.147*** | | |
| | | (0.018) | | |
| County GDP per capita | | 0.029*** | | |
| | | (0.004) | | |
| Social connectedness | | 0.001*** | | |
| | | (0.000) | | |
| Pseudo $R^2$ | 0.070 | 0.192 | 0.137 | 0.351 |
| Observations | 839,292 | 839,292 | 16,207 | 574 |



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**Appendix-Table A6: The Stock-market Participation Gap - Survey data (Conley corr.)**

Estimations in this table use the survey data from 2023. Coefficients are estimates from linear probability models. East is an indicator equal to one if a survey respondent lives in East Germany. Control variables are the same as in Panel A, column (2), of Table 3. All variables are described in detail in Appendix-Table A1. Conley spatial HAC standard errors with a distance cut-off of 50 kilometers and a time lag of zero are presented in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% level.

| *Dependent Variable*: | Stock-market participation | | Future participation | Ever invested in the past |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| East | –0.086*** | –0.025*** | –0.025*** | –0.029*** |
| | (0.016) | (0.010) | (0.010) | (0.010) |
| Respondent age | | –0.001*** | –0.005*** | 0.006*** |
| | | (0.000) | (0.000) | (0.001) |
| Male | | –0.012 | 0.010 | –0.014 |
| | | (0.008) | (0.008) | (0.014) |
| Married or in partnership | | 0.004 | –0.031*** | –0.006 |
| | | (0.009) | (0.009) | (0.011) |
| Total household wealth | | 0.037*** | 0.013*** | 0.036*** |
| | | (0.004) | (0.004) | (0.007) |
| Monthly income | | 0.027*** | 0.032*** | 0.008 |
| | | (0.005) | (0.004) | (0.006) |
| Employed | | 0.016* | 0.010 | 0.013 |
| | | (0.010) | (0.008) | (0.012) |
| Education | | 0.021*** | 0.019*** | 0.016** |
| | | (0.005) | (0.005) | (0.007) |
| Number of local firms | | 0.005 | –0.007 | –0.005 |
| | | (0.007) | (0.005) | (0.007) |
| Trust | | 0.003 | 0.021*** | 0.005 |
| | | (0.007) | (0.007) | (0.012) |
| Risk tolerance | | 0.083*** | 0.086*** | 0.037*** |
| | | (0.003) | (0.003) | (0.005) |
| Stock familiarity | | 0.187*** | 0.150*** | 0.182*** |
| | | (0.010) | (0.011) | (0.014) |
| Family or friends invest | | 0.123*** | 0.117*** | 0.122*** |
| | | (0.016) | (0.014) | (0.017) |
| Financial literacy | | 0.054*** | 0.018*** | 0.053*** |
| | | (0.005) | (0.004) | (0.004) |
| Social capital (organizations) | | 0.005* | 0.015*** | 0.013* |
| | | (0.003) | (0.003) | (0.007) |
| Social capital (election) | | 0.046*** | 0.064*** | –0.015 |
| | | (0.011) | (0.012) | (0.013) |
| Return expectation | | –0.001 | 0.000 | –0.001*** |
| | | (0.000) | (0.000) | (0.000) |
| Centered $R^2$ | 0.009 | 0.355 | 0.354 | 0.175 |
| Observations | 9,695 | 9,695 | 9,695 | 6,711 |



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**Appendix-Table A7: The Stock-market Participation Gap - Bank data (Conley corr.)**
All estimations use the bank data from September 2019. The coefficients are from linear probability models. Control variables are the same as in Panel B, column (2), of Table 3 and defined in Appendix-Table A1. The dependent variable is an indicator equal to one if a bank client participates in the stock market (col. 1–3) or holds single stocks (col. 4). Conley spatial HAC standard errors are estimated with a distance cut-off of 50 kilometers and a time lag of two years, and are presented in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% level.

| | All equity holders | | Equity (active accounts) | Single-stock holders |
|---|---|---|---|---|
| East | –0.022*** | –0.011*** | –0.010*** | –0.020*** |
| | (0.008) | (0.004) | (0.003) | (0.004) |
| Age | | 0.000*** | 0.000** | 0.000*** |
| | | (0.000) | (0.000) | (0.000) |
| Male | | 0.018*** | 0.018*** | 0.023*** |
| | | (0.003) | (0.002) | (0.003) |
| Married | | 0.010*** | 0.010*** | 0.012*** |
| | | (0.002) | (0.002) | (0.002) |
| Risk tolerance | | 0.105*** | 0.104*** | 0.085*** |
| | | (0.002) | (0.002) | (0.003) |
| Ln (Income) | | –0.008*** | –0.010*** | –0.006*** |
| | | (0.001) | (0.001) | (0.001) |
| Ln (Wealth) | | 0.012*** | 0.011*** | 0.010*** |
| | | (0.001) | (0.001) | (0.001) |
| Employed | | –0.005*** | –0.004*** | –0.005*** |
| | | (0.001) | (0.001) | (0.001) |
| Retired | | –0.036*** | –0.034*** | –0.036*** |
| | | (0.005) | (0.005) | (0.006) |
| High SES | | 0.009*** | 0.010*** | 0.009*** |
| | | (0.002) | (0.002) | (0.002) |
| Consumer credit | | –0.022*** | –0.021*** | –0.014*** |
| | | (0.001) | (0.001) | (0.001) |
| Retirement savings plan | | –0.022*** | –0.019*** | –0.035*** |
| | | (0.003) | (0.003) | (0.003) |
| Credit card | | –0.015*** | –0.012*** | –0.016*** |
| | | (0.002) | (0.002) | (0.002) |
| Mortgage | | –0.020*** | –0.007* | –0.020*** |
| | | (0.004) | (0.004) | (0.004) |
| Savings plan | | –0.033*** | –0.031*** | –0.031*** |
| | | (0.002) | (0.002) | (0.003) |
| N. of consultations | | 0.003*** | 0.003*** | 0.001*** |
| | | (0.000) | (0.000) | (0.000) |
| Social connectedness | | 0.000 | –0.000 | 0.000 |
| | | (0.000) | (0.000) | (0.000) |
| Centered $R^2$ | 0.001 | 0.466 | 0.455 | 0.372 |
| Observations | 326,437 | 326,437 | 326,437 | 326,437 |



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**Appendix-Table A8: The Stock-market Participation Gap - Broker data (Conley corr.)**

All estimations use the broker data from June 2004 to December 2012. The coefficients are from linear probability models. Control variables are the same as in Panel B, column (2) of Table 3. The dependent variable is an indicator equal to one if a broker client participates in the stock market. In Column (3), the sample is restricted to broker clients living in East or West Berlin. In Column (4), the sample is restricted to broker clients living in one of the two matched cities, Bad Hersfeld and Eisenach. East is an indicator equal to one if a broker client lives in East Germany. All variables are described in detail in Appendix-Table A1. Conley spatial HAC standard errors are estimated with a distance cut-off of 50 kilometers and a time lag of two years and presented in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% level.

| | All Germans | | Berlin only | Matched cities |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| East | –0.264*** | –0.214*** | –0.054*** | –0.163*** |
| | (0.027) | (0.021) | (0.009) | (0.046) |
| Male | | 0.076*** | 0.037*** | 0.095** |
| | | (0.006) | (0.006) | (0.039) |
| Investor age | | –0.158*** | –0.076*** | –0.070 |
| | | (0.009) | (0.026) | (0.072) |
| Portfolio value | | –0.009*** | –0.006*** | –0.014*** |
| | | (0.002) | (0.002) | (0.005) |
| Married | | 0.050*** | 0.033*** | 0.016 |
| | | (0.003) | (0.006) | (0.032) |
| Time account is open | | 0.151*** | 0.145*** | 0.159*** |
| | | (0.009) | (0.035) | (0.039) |
| Number of local firms | | 0.005 | 0.003 | –0.078*** |
| | | (0.003) | (0.006) | (0.019) |
| Number of banks | | 0.005 | | |
| | | (0.008) | | |
| Total population | | 0.009*** | | |
| | | (0.002) | | |
| Real estate wealth per county | | –0.006*** | | |
| | | (0.001) | | |
| % High school degree in county | | 0.084 | | |
| | | (0.094) | | |
| County GDP per capita | | 0.017 | | |
| | | (0.013) | | |
| Social connectedness | | 0.000 | | |
| | | (0.001) | | |
| Year FE | no | yes | yes | yes |
| Adj. $R^2$ | 0.09 | 0.85 | 0.10 | 0.21 |
| Observations | 839,292 | 839,292 | 16,207 | 574 |



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**Appendix-Table A9: Non-linear Income and Wealth Controls**

All estimations use the cross-sectional bank data from September 2019. The table reports coefficients from linear probability models. Equity holder is an indicator equal to one if an investor holds stocks and/ or equity funds in her portfolio. East is an indicator equal to one if a bank client lives in East Germany. We include the same set of control variables as in Panel B, column (2), of Table 3. Additionally, we include income, and wealth to the power of two and three to capture a potential non-linear impact of wealth on stock-market participation. All variables are described in detail in Appendix-Table A1. Standard errors clustered by municipality are presented in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% level.

| *Sample*: | Bank Sample | | |
|---|---|---|---|
| *Dependent Variable*: | Equity Holder | | |
| East | –0.007*** | –0.007*** | –0.007*** |
| | (0.001) | (0.001) | (0.001) |
| Ln(Income) | –0.005*** | –0.003*** | 0.015*** |
| | (0.000) | (0.001) | (0.002) |
| $\text{Ln(Income)}^2$ | | –0.000*** | –0.004*** |
| | | (0.000) | (0.000) |
| $\text{Ln(Income)}^3$ | | | 0.000*** |
| | | | (0.000) |
| Ln(Wealth) | 0.017*** | 0.019*** | 0.038*** |
| | (0.000) | (0.001) | (0.004) |
| $\text{Ln(Wealth}^2$ | | –0.000 | –0.003*** |
| | | (0.000) | (0.000) |
| $\text{Ln(Wealth)}^3$ | | | 0.000*** |
| | | | (0.000) |
| Control variables | yes | yes | yes |
| Pseudo $R^2$ | 0.590 | 0.590 | 0.592 |
| Observations | 326,437 | 326,437 | 326,437 |



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**Appendix-Table A10: Wording of Survey Questions in Figure 3 and Tables 6, and 8**

This table contains the English translation of our survey statements regarding capitalism, socialism, and the stock market (in Panel A) and about experiences in and memories of the GDR (in Panel B), which were included in our 2023 survey conducted by Bilendi and employed in Figure 3, Tables 6 and 8, and Appendix-Table A11. The German original is available upon request. If not indicated otherwise below, agreement with the statement was indicated on a four-point scale with 1="I completely agree," 2="I rather agree," 3="I rather disagree," and 4="I completely disagree." In the main paper, agreement to a statement is then defined as a dummy variable equal to one if respondents rather agreed or completely agreed to a statement, and zero otherwise.

Panel A: Figure 3 and Tables 6 and A11

| Question Abbreviation | Wording |
|---|---|
| Stock markets reflect the capitalist system | "I don't want to invest in stocks, because they reflect the capitalist system." |
| Investing in stocks is immoral | "Investing in the stock market is immoral." |
| I generally reject stocks | "I generally reject stocks." |
| Capitalism should be abolished | "Capitalism should be abolished." |
| Capitalism creates inequality | "Capitalism is responsible for the rise of social inequality." |
| Capitalism creates coldness | "Capitalism creates coldness between people and thus needs to be restricted." |
| Socialism is preferable | "If it was possible to map socialist ideology to reality, I would prefer it." (1=Absolutely correct, 4=Absolutely wrong.). We define a dummy variable equal to one for respondents who answer "rather correct" or "absolutely correct", and zero otherwise. |
| Everyone is better off under capitalism | "Although there are large differences in income and wealth in a capitalistic system, everybody is better off." |
| Capitalism is the better economic system | "The economy only works properly if it is based on a system of rules. Which one would you prefer?" (1=definitely capitalism, 4=definitely socialism). We define a dummy variable equal to one for respondents who answer "rather capitalism" or "definitely capitalism", and zero otherwise. |
| Capitalism rewards the hard-working | "In a capitalistic system, the diligent and hard-working are rewarded because they deserve more." |



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**Appendix-Table A10: cont'd**

Panel B: Table 8

| Question Abbreviation | Wording |
|---|---|
| High life standard in GDR | "How would you assess the life standard of your family in GDR times relative to the total population of the GDR?" (1 very high ... 5 very low) |
| Wishing GDR back | "Do you sometimes wish back the life of the GDR?" (1 very often ... 5 never) |
| Positive GDR experience | "If you think back to the time of the GDR, how were your experiences with the GDR?" (1 very positive ... 5 very negative) |
| Positive GDR memories | "For the following topics, do you have (1) mostly positive (2) mostly negative, or (3) no memories of the GDR?" The topics are: social cohesion, sports, economic system, environmental protection, culture and religion, honoring important people, security of civilians against crime, social security (for example unemployment), equal opportunities for men and women, and child care |



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**Appendix-Table A11: Communist vs. Capitalist ideology in East and West Germany**

This table presents the fraction of East Germans (column 1) and the fraction of West Germans (column 2) agreeing to various statements on capitalism and communism, elicited with a 4-point Likert scale. Agreement is a dummy variable equal to one, if respondents indicate that they "completely agree" or "rather agree" with a given statement, and zero if respondents indicate that they "rather disagree" or "completely disagree" with a statement. Results are based on a survey of 9,695 Germans (4,409 West Germans and 5,286 East Germans) conducted by the opinion-poll institute Bilendi in 2023. Column (3) shows differences in opinions between East and West Germans, and column (4) provides the corresponding $t$-statistics. Results from this Table are also presented as a graph in Figure 3.

| | Fraction of East Germans who agree (1) | Fraction of West Germans who agree (2) | Difference (E-W) (3) | $t$-statistic (4) |
|---|---|---|---|---|
| Stock markets reflect the capitalist system | 0.280 | 0.232 | 0.048 | 5.41 |
| Investing in stocks is immoral | 0.170 | 0.143 | 0.027 | 3.64 |
| I generally reject stocks | 0.504 | 0.402 | 0.102 | 10.10 |
| Capitalism should be abolished | 0.491 | 0.374 | 0.117 | 11.69 |
| Capitalism creates inequality | 0.766 | 0.660 | 0.106 | 11.53 |
| Capitalism creates coldness | 0.747 | 0.630 | 0.117 | 12.45 |
| Socialism is preferable | 0.651 | 0.449 | 0.202 | 20.26 |
| Everyone is better off under capitalism | 0.403 | 0.498 | -0.094 | -9.34 |
| Capitalism is the better economic system | 0.596 | 0.741 | -0.146 | -15.42 |
| Capitalism rewards the hard-working | 0.434 | 0.571 | -0.137 | -13.59 |



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**Appendix-Table A12: Top 10 Holdings of "Capitalist" and "Communist" Stocks - Bank Data**

Panel A contains the Top 10 holdings of "capitalist" stocks belonging to the financial industry or to US companies in bank clients' portfolios. Panel B contains the Top 10 holdings of "communist" stocks, i.e. Chinese or East-European companies (including Russia).

| Panel A: "Capitalist" stocks<br>Financial industry | US stocks |
|---|---|
| Deutsche Bank | Amazon |
| Allianz | Cisco Systems |
| Visa | Microsoft |
| JPMorgan Chase | Visa |
| Muenchener Rueck | The Home Depot |
| Axa | Walt Disney |
| Swiss Re | Palo Alto Networks |
| Deutsche Boerse | JPMorgan Chase |
| Goldman Sachs | Honeywell |
| BNP Paribas | Chevron Corporation |
| Panel B: "Communist" stocks<br>China | East Europe |
| BYD | Gazprom |
| Petrochina | Rosneft |
| China Life Insurance | Sberbank |
| Ping An Insurance | Mosenergo |
| Weichai Power | Rostelekom |
| Bank of China | Chernogorneft |
| ICBC | Mobile TeleSystems |
| Tsingtao Brewery | VTB Bank |
| China Petroleum Chemical | CEZ |
| China Construction Bank | Surgutneftegas |



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**Appendix-Table A13: Top 10 Holdings of "Capitalist" and "Communist" Stocks - Broker Data**

Panel A contains the Top 10 holdings of "capitalist" stocks belonging to the financial industry or to US companies in broker clients' portfolios. Panel B contains the Top 10 holdings of "communist" stocks, i.e. Chinese or East-European companies (including Russia).

| Panel A: "Capitalist" stocks<br>Financial industry | <br>US stocks |
|---|---|
| Deutsche Bank | Cisco Systems |
| Commerzbank | Mircosoft |
| Allianz | General Electric |
| Munich Re | Intel |
| Deutsche Postbank | EMC |
| WCM Beteiligungs und Grundbesitz | Pfizer |
| MLP | Worldcom (delisted) |
| Comdirect Bank | Yahoo |
| Hypo Real Estate Hldg. (delisted) | Commerce One (delisted) |
| Deutsche Boerse | Dell |
| Panel B: "Communist" stocks<br>China | <br>East Europe |
| Petrochina | Yukos |
| BYD | Rostelecom |
| China Life Insurance | Rosneft |
| China Petroleum Chemical | Lukoil |
| ICBC | Norlisk Nickel |
| China Telecom | Gazprom |
| Tsingtao Brewery | Mosenergo |
| China Construction Bank | Magyar Telekom |
| Bank of China | CEZ |
| China Cosco Shipping | Torgoviy Dom |



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**Appendix-Table A14: Correlations between Geographic Proxies for Experience with Communist Ideology**

This table shows correlations of all geographic proxies for experiencing communism positively or negatively. All variables are described in detail in Appendix-Table A1. * denotes a $p$-value$<0.05$.

| *Variables* | Pollution | Religion | No West TV | Renamed city | STASI | Olympic gold | Employment | GDP p. cap. |
|---|---|---|---|---|---|---|---|---|
| Pollution | 1.00 | | | | | | | |
| Religion | -0.2937* | 1.00 | | | | | | |
| No West TV | 0.2264* | -0.1778* | 1.00 | | | | | |
| Renamed city | -0.0101 | -0.1732* | -0.0071 | 1.00 | | | | |
| STASI | 0.2079* | -0.6780* | -0.0154 | 0.1545* | 1.00 | | | |
| Olympic gold | -0.0251 | -0.3269* | 0.1527* | 0.1939* | 0.1885* | 1.00 | | |
| Employment | -0.0444 | -0.0836 | 0.0201 | 0.0336 | 0.0130 | 0.0425 | 1.00 | |
| GDP per capita | -0.0273 | 0.1307* | -0.0890 | -0.0344 | -0.2858* | -0.1779* | -0.0457 | 1.00 |



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**Appendix-Table A15: Placebo Test: West Germans' Experiences (Geographic Variation)**

All estimations use the broker account data, restricted to West German clients, from June 2004 to December 2012. The coefficients are average marginal effects from logit models, with stock-market participation as the dependent variable. Stock-market participation is an indicator equal to one if an investor holds stocks or equity funds in her portfolio in a given year. The sample is restricted to West German broker clients. In addition to the full set of control variables from Panel B in Table 3, we include different proxies for negative (columns 1 and 2) or positive (columns 3 and 4) experiences with the FRG. These proxies are: an indicator for heavily polluted West German municipalities according to the 2022 report of the Federal Environment Agency (column 1), the fraction of Catholics and Protestants in a municipality according to the 2011 census (column 2), an indicator equal to one for Wikipedia's most popular West German historical cities, Bad Mergentheim, Baden-Baden, Freiburg, Freudenstadt, Konstanz, Meersburg, Neckargemünd, Ravensburg, Schiltach, Schwäbisch Gmünd, Tübingen, and Villingen-Schwenningen (column 3); and an indicator equal to one if an Olympic medal winner as of the Wikipedia list of the FRG's best summer and winter Olympic champions was born in the same municipality than a West German investor (column 4). All variables are described in detail in Appendix-Table A1. Standard errors in parentheses. ***, ** and * denote statistical significance at the 1%, 5%, and 10% level.

| *Dependent Variable*: | Negative Experience Stock-market participation | | | Positive Experience Stock-market participation | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Pollution West | 0.025 | | 0.024 | | | |
| | (0.017) | | (0.017) | | | |
| Religiosity | | –0.001 | –0.001 | | | |
| | | (0.001) | (0.001) | | | |
| Historical City | | | | –0.025* | | –0.025* |
| | | | | (0.015) | | (0.015) |
| Olympic Champion | | | | | 0.013 | 0.012 |
| | | | | | (0.026) | (0.026) |
| Control variables | yes | yes | yes | yes | yes | yes |
| Year FE | yes | yes | yes | yes | yes | yes |
| Pseudo $R^2$ | 0.121 | 0.121 | 0.121 | 0.121 | 0.121 | 0.121 |
| Observations | 436,810 | 436,810 | 436,810 | 436,810 | 436,810 | 436,810 |



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**Appendix-Table A16: Correlations between Survey Proxies for Subjective Experiences with Communist Ideology**

This table shows correlations of all direct (survey based) and indirect (geography based) proxies for emotional tagging of experiencing communism. All variables are described in detail in Appendix-Table A1. * denotes a $p$-value$<0.05$.

| | Negative tagging | | | Positive tagging | | |
|---|---|---|---|---|---|---|
| | Pollution | Religion | No West-TV | Renamed City | STASI vol. | Olympic gold |
| Direct (survey based) proxies | | | | | | |
| High life standard in GDR | -0.0140 | 0.0253 | -0.0373* | -0.0213 | 0.0274* | -0.0201 |
| Disappointed in FRD | -0.0462* | -0.0126 | 0.0137 | 0.0411* | 0.0177 | 0.0209 |
| Wishing GDR back | -0.1361* | -0.0002 | -0.0111 | 0.0066 | 0.0258 | 0.0114 |
| Positive GDR experience | -0.1624* | -0.0860* | -0.0096 | 0.0247 | 0.0373* | 0.0197 |
| Positive GDR memories | -0.5605* | -0.0492* | 0.0530* | 0.0285 | 0.1819* | 0.0593* |



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