The Long-lasting Effects of Propaganda on Financial Risk-Taking

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Abstract

We analyze the long-term effects of living under communism and its political propaganda in East Germany (former GDR) for financial risk-taking. Utilizing comprehensive German brokerage data, we show that, decades after reunification, East Germans still invest significantly less in the stock market. Consistent with communist friends-and-foes propaganda, they are more likely to hold stocks of companies in communist countries (China, Russia, Vietnam), and are particularly unlikely to invest in American companies or the financial industry. Effects are stronger for individuals for whom we expect stronger emotional priming, for example those living in communist "showcase cities" or cities of Olympic gold medalists. In contrast, East Germans with negative experiences invest more in the stock market today, e.g., those experiencing environmental pollution and suppression of religious beliefs and those without access to (Western) TV entertainment. Election years appear to have trigger effects inducing East Germans to reduce their stock-market investment further. We also provide evidence of negative welfare consequences, as indicated by investment in more expensive actively managed funds, less diversified portfolios, and lower risk-adjusted returns.

JEL-Classification Codes: D03, D14, D83, D84, E21, G11

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1 Introduction

Personal lifetime experiences have been found to be an important driver of financial risk taking. 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, Odean, and Barber (2011), Kaustia and Knüpfer (2008)), and an investor's local environment (e.g., Laudenbach, Loos, and Pirschel (2017), Kaustia and Knüpfer (2012)). Much of this research provides direct evidence of a beliefs channel, i.e., of a significant effect of lifetime experiences on stock-market expectations. A closely related literature in political economy and labor economics suggests that political and labor-market experiences have long-lasting effects through different channels, such as the formation of preferences and norms, or due to frictions in post-experience adjustment (Alesina and Fuchs-Schündeln (2007), Lichter, Löffler, and Siegloch (2016)). Fuchs-Schuendeln and Schuendeln (2015), for example, argue that the time a person has lived under a democratic system determines her political preferences for democracy.

In this study, we add an additional dimension to the conceptualization of "experience effects," which also helps to explain the dual beliefs and norms channel. Rather than focusing exclusively on the exposure to macroeconomic realizations, we ask how the ideological and emotional priming of lifetime experiences affects the intensity and even direction of experience effects. A large literature on affect and memory shows that emotions determine how strongly experiences are anchored in memory (Dolan (2002), LaBar and Cabeza (2006)). Here, we analyze the long-term effects of past experiences and their emotional coloring in a context that combines the thrust of the finance literature and the political economy literature on experience effects: We link the exposure to anti-capitalist (communist) propaganda to individuals' long-term willingness to invest in capital markets. As the literature on propaganda argues (Biddle, 1931), propaganda relies on techniques that aim to induce the individual to follow non-rational emotional drives. We ask whether we can detect a baseline

effect of living under communism and its anti-capitalism ideology on financial risk-taking, whether there is variation by the intensity of exposure, and whether we find variation in the direction depending on the positive or negative emotions triggered by propaganda.

Specifically, we analyze differences in financial risk-taking between East and West Germans decades after reunification. As emphasized in prior research (Alesina and Fuchs-Schündeln (2007)), Germany is a unique testing ground since it was formerly divided into two parts, a capitalist and a communist system, but reunified almost 30 years ago. People in the Western part have lived in a capitalist system, with the German Exchange in Frankfurt re-opened under American protectorate shortly after World war II, in 1945. People in East Germany (the former GDR), instead, lived in a socialist system and were excluded from stock-market participation. The communist doctrine strongly condemns capitalism, and in particular capital markets. Lenin (1919) remarked with respect to the stock market: *"The necessity for a relentless war on the capitalists is becoming clearer and clearer to the working class and that the stock exchange becomes the most prominent representative of capitalist production itself."* Similarly, Karl Marx formulated, *"If money is born with natural blood-stains on its cheek, then the capitalist's money is born covered with blood and filth from head to toe. (…) All surplus-value, in the particular form of profit, interest, returns, is in its essence unpaid labor."* (Marx (1867)). Growing up under a communist system thus ensured significant exposure to negative emotional priming regarding the stock market and we examine empirically whether individuals differ in their willingness to take financial risks depending on whether, how intensely, and how positively or negatively they have experienced an anti-capitalist (communist) system over the course of their lives.

We exploit a new and comprehensive data set on clients of an online brokerage augmented by several other data sources. To detect differences in financial risk-taking, we obtain investor data from the brokerage entity of a large German branch bank from 2004 to 2012. We show that East German investors who experienced the former GDR system express a lower willingness to take financial risk on the extensive and the intensive margin

even today when they are subject to the same investment universe and identical legal and regulatory framework as West German investors. Specifically, we find that they are 19.4 pp less likely to participate in the stock market, and conditional on participating, hold 7.2 pp less risky assets in their portfolios. We re-confirm this finding in both, statistical and economic terms, with a second data set obtained from a large private bank that also includes individuals' cash holdings and further wealth controls.

In addition, we find that East Germans invest less in more capitalist firms, namely financial institutions or firms located in the US, and more in firms located in communist countries, as well as formerly state-owned German companies. Results hold if we include proxies for trust, familiarity, and financial literacy. Our results are robust if we control for differences in risk attitudes and income on an individual and a regional basis and also hold for a subset of investors that have moved from the former GDR to West Germany after Reunification. Even though they now live under the same economic circumstances as their West German counterparts, they are still less likely to invest in the stock market. Similarly, we also find signifciant differences in participation for the (arguably more homogenous) subset of investors living in East vs. West Berlin. These findings should mitigate concerns that our main result is driven by differences in wealth and economic development across German counties.

To further establish the propaganda channel, we make use of cross-sectional differences in the exposure to communist propaganda of East German investors. The emphasis of our analysis lies not only on the exposure itself but on *how* the individual has experienced the communist system, i.e. whether positive or negative emotions are associated with it. In a first set of analyses, we show that differences between East and West Germans are larger for individuals who were more exposed to anti-capitalist GDR propaganda in general. These are investors older than 50 years, and those that live further away from the former border to West-Germany.

In the next step, we show that our results are stronger if political propaganda was consistent with East Germans' personal experiences and thus associated with positive emotions. We argue that this should have been the case for investors living in renamed cities, namely cities that obtained communist names when belonging to the GDR. The act of renaming a city was celebrated publicly and intensively and we conjecture that individuals living in one of these cities were strongly exposed to the anti-capitalist ideology of the communist regime. Furthermore, we expect propaganda to be associated with positive emotions for individuals living in the same city as an olympic (gold) medal winner. The GDR regime used sports, and particularly the olympic games, to evoke a feeling of "we" against "the enemy", and olympic winners were celebrated as national heroes. In line with our conjecture, we find that our baseline effect is indeed stronger for individuals living in renamed cities or in the same city as an olympic (gold) medal winner.

We also examine whether our main result is weaker for individuals who are likely to associate negative emotions with the communist system of the GDR. Propaganda may be less effective if it contradicts people's cultural values or their everyday experiences (McGuire, 1993). For example, Adena, Enikolopov, Petrova, Santarosa, and Zhuravskaya (2015) find that exposure to Nazi radio increased support for the regime, but only in places with historically high levels of anti-Semitism. In places with low levels of anti-Semitism, exposure to Nazi radio actually resulted in lower levels of support for the Nazi party. To test this conjecture in our context, we first exploit exogenous variation in access to West German TV. The previous literature has shown that resistance to the communist system was higher in regions of the GDR that did not have access to West TV, because they were living in areas (for example, in valleys) where TV signals from the West could not be received. According to Kern and Hainmueller (2009), West TV was a major source of entertainment for East Germans, the lack of which resulted in lower satisfaction with the GDR and hence a higher resistance to the political system.[1] Since access to West TV is exogenous to other

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[1]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 rates (Bönisch and Hyll, 2015), entrepreneurship (Slavtchev and Wyrwich, 2017), beliefs about the determinants of success (Hennighausen,

potentially cofounding variables, we follow Bursztyn and Cantoni (2016) and use it as a natural experiment to examine whether our main result is weaker for investors living in these areas. We find this to be the case.

Another common feature of the communist systems is that religion is interpreted as a tool used by the ruling classes to suppress people belonging to the working class. Thus, atheism was propagated in communist countries like the GDR from early on in schools. Therefore, we conjecture that religious people are likely to form negative views about the communist system and should hold more positive views about Western countries in which freedom of religion is much more respected. We show that differences between East and West German investors are indeed mitigated in counties with high levels of religiosity. Furthermore, we show that the stock market participation gap is more pronounced in areas that were highly polluted during GDR times. Environmental pollution directly contradicts the claim of the communist regime to protect the environment in the interest of peoples well-being.

We also test whether the effects of propaganda are stronger if they are in line with existing opinions and beliefs (Jowett and O'Donnell (2012) and Adena, Enikolopov, Petrova, Santarosa, and Zhuravskaya (2015)). We show that our baseline results are stronger for regions with a high voluntary support for the secret surveillance system (STASI) as measured by the number of unofficial state-security collaborators. In addition, we use data from a survey conducted in 2014 on how positive individuals view the former political GDR system and link the answers to our investors on a regional level. Again, we find lower levels of stock market participation in regions with a more positive attitudes towards the former GDR.

Finally, we also establish the propaganda channel by making use of time-series differences in the salience of propaganda experiences. We conjecture that our baseline effect should be stronger in election years, when public attention is focused on political topics and memories

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2015), and crime (Friehe, Müller, and Neumeier, 2017). Interestingly, exposure to West TV appears unrelated to post-reunification levels of consumption (Bursztyn and Cantoni, 2016) and to protest diffusion during the 1989 East German revolution (Kern, 2011).

regarding political propaganda should thus be more salient for East German investors. Our results support this view.

Overall, our findings suggest that experiences that connote strong positive or negative emotions are relevant for individuals' behavior even almost 30 years after they have been made. Evidence from cognitive psychology and neuroscience suggests that experiences made under strong emotional influence are particularly salient to individuals and a strong driver of behavior (Dolan (2002), Talarico, LaBar, and Rubin (2004), and LaBar and Cabeza (2006)). We show a long-lasting effect decades later increasing in the degree of exposure to communist teachings and propaganda. Individuals living in regions with pro-communism views are particularly averse to changing their investment behavior decades later, and pay a high price in terms of foregone wealth accumulation, lack of diversification, and excess fees.

Our paper contributes to the growing literature on experience effects cited above. It sheds further light on its deeper underlying debate on how experiences are weighted and which ones are most relevant for behavior.

In addition, we contribute to various strands of the literature on socioeconomic differences between East and West Germans. Rainer and Siedler (2009) and Heineck and Süssmuth (2013) show that trust levels are lower in East Germany compared to West Germany. Lichter, Löffler, and Siegloch (2016) show that higher levels of STASI surveillance led to lower levels of social capital as measured by interpersonal and institutional trust in post reunification Germany. They also show that higher spy density goes in line with lower self-employment rates, fewer patents per capita, higher unemployment rates and larger population losses throughout the 1990s and 2000s. There also is evidence that individuals in East and West Germany differ with regard to locus of control, neuroticism, conscientiousness, and openness: Friehe, Pannenberg, and Wedow (2015) identify local surveillance intensity as a key driver of the personality of former GDR citizens. Bucher-Koenen and Lamla (2014) show that there is a significant financial literacy gap between East and West Germany. We

contribute to this mostly survey-based literature by investigating empirical data and hence the actual investment decisions of individuals in East- and West Germany.

2 Data and summary statistics

2.1 Brokerage data

For our main analysis, we obtain holdings and transaction data on a representative sample of 299,923 retail investor accounts from a German brokerage associated with a large bank present in almost all counties of Germany. Figure 1 displays the distribution of investors in our sample across Germany. In line with population densities, there are more observations in highly populated areas, and the entire state of Germany is fairly represented in our data set.

Data are from June 2004 to December 2012 and comprise daily security transactions, monthly portfolio holdings, and demographic information. Summary statistics are displayed in Panel A of Table 1.

One major variable for this study is the ZIP code of an investor, which allows us to determine whether she lives in East Germany (i.e., the former GDR). This is the case for 20.4% of investors in our sample. Furthermore, our brokerage data comprise investor characteristics such as age, gender, marital status and information on the date the brokerage account was opened or closed (if applicable). There are 52.6% male investors in our sample, and the average investor is 60 years old. The majority of investors is married (58.2%) and their accounts are on average open since 6 years.

In addition to demographic information on investors, the brokerage data include dynamic administrative data on individual investors' portfolio holdings. In particular, we observe monthly security holdings as well as all daily executed security transactions. These portfolio holdings are available since June 2004 and contain security identifier (ISIN), volume, current

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price, and value (in Euro) of every security an investor holds. We aggregate these data on the yearly level to examine investors' annual portfolio holdings, their performance, as well as further portfolio characteristics such as, for example, diversification. We find that the average portfolio value in our sample is EUR 25,965. To examine differences in stock market participation between East and West German investors, we define a dummy variable which is equal to one if an investor holds stocks and/or equity funds in her portfolio, and zero otherwise. In our sample, the average stock market participation is 82%. This number is quite high because most brokerage accounts are opened with the purpose to trade stocks and/or to buy and hold equity in retirement savings plans. Similarly, the fraction of stocks held on average in investors' portfolios is 73%. We define all variables in detail in Appendix A.

Panel B of Table 1 reports univariate differences between East and West German investors in our sample. In spite of the high level of stock market participation in our brokerage data set, East Germans participate significantly less in the stock market than West Germans (61% vs. 87%). While the fraction of stocks is also significantly lower in East German investors' portfolios (49% vs. 72%), East German investors hold more bonds than West German investors (30% vs. 11%). We also observe that East and West German investors differ in characteristics that are related to stock market participation like overall wealth levels. Specifically, we find that West German investors hold significantly larger portfolios, live in counties with higher GDP per capita and higher real estate wealth, and receive higher income. These differences mandate to include proxies for investors' overall wealth as control variables in our regressions.

2.2   Bank data

Since our brokerage data only allows us to analyze stock market participation conditional on having a brokerage account (i.e., a portfolio), we use an additional data set of 6,903 randomly drawn clients from a larger German bank. This data set allows us to include a

broader set of investors in our regressions, i.e., those that have not opened a brokerage account and only hold cash on a regular savings account. The bank provided us with a data deduction of these clients' personal characteristics as stored in the bank system by August 2017. In addition, we have access to the respective monthly average account balances from January 2016 to August 2017. We use the annual average of these monthly account balance snapshots in our later analysis.

We define the same dummy variable as in our brokerage data set to measure stock market participation, i.e., a variable equal to one if an investor holds stocks and/or equity funds in her portfolio, and zero otherwise. Summary statistics on the bank data set are also provided in Panel A of Table 1. Overall, 18.4% of clients in this sample participate in the stock market. If clients participate in the stock market, they hold 46.8% stocks in their portfolios.[2] Compared to the brokerage data, clients in the bank data are younger (47 versus 60 years), and hold larger portfolios on average (69,532 Euro vs. 25,965 Euro).

Results in Panel B of Table 1 again show that East German investors are significantly less likely to participate in the stock market (14.8% vs. 19.2%). They also hold a lower fraction of stocks in their portfolios conditional on participating in the stock market (32.1% vs. 49.5%). In line with the brokerage data set, we observe that East German clients in the bank data set have significantly lower portfolio values and significantly lower savings.

For a subset of bank clients, we obtain additional data from a survey that was conducted by the bank at the beginning of 2017 with the original intention to assess clients' attitudes towards retirement savings. From this survey, we obtain further variables associated with stock market participation, such as investors' financial literacy and their familiarity with the stock market. Furthermore, the survey allows us to identify bank clients that have moved from the former GDR to West Germany after Reunification. A detailed description of all variables contained in the bank data set is provided in Appendix A.

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[2] We do not observe bond holdings in the bank data set.

2.3 Supplemental data

To control for other factors that have been shown to influence stock market participation, but are not available in our brokerage or bank data sets, we make use of various additional data sources. They are listed in detail in Appendix A. As these variables can not be linked to individual investors directly and are mostly available on the county level, we use investors' ZIP code information to merge these variables to investors in our sample. Thus, investors living in the same ZIP code area will be linked to the same geographical factors such as, for example, real estate wealth or GDP per capita.

We obtain data on local real estate wealth from the SAVE survey, which is a yearly household panel in Germany.[3] On average, the self-reported real estate wealth of households per county amounts to roughly 152,667 Euro (Panel A of Table 1). It is significantly larger in West Germany compared to East Germany (Panel B of Table 1). Data on regional GDP per capita, the fraction of inhabitants with a High-School degree, and the number of local firms are obtained from the German Federal Statistical Office. All of these variables are significantly larger in West Germany compared to East Germany (Panel B of Table 1).

To proxy for trust, we use a variable measuring trust in securities markets from the bank survey. The survey is based on 2,133 participants in Germany and includes the following statement: "I have confidence in securities markets." Answers were given on a seven-point Likert scale ranging from one ("I fully disagree") to seven ("I fully agree"). Our trust variable is computed as the average survey response for each county in our sample. We find that trust levels in securities markets are significantly lower in East Germany compared to West Germany (3.01 vs. 3.26).

Proxies for familiarity and financial literacy are obtained from responses to the survey data provided by our sample bank.[4] To compute county averages, we use not only survey

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[3]The first wave of SAVE was conducted in 2001 by the Mannheim Research Institute (now Munich Center) for the Economics of Aging (MEA). Detailed information about the scope, the design and results are provided by Boersch-Supan, Coppola, Essig, Eymann, and Schunk (2014).

[4]For the bank data set, we can directly link survey responses to client accounts.

answers of those clients we have account data on, but answers of the overall sample of 2,133 survey respondents. We find that familiarity is significantly higher in West Germany, while there is no significant difference in financial literacy between East and West German investors.

3   Differences in financial risk taking between East- and West-German investors

It is one characteristic feature of communist systems like the GDR to try to invoke strong emotions about issues that the system criticized and to manipulate individuals so that they would eventually form strongly negative affective attitudes towards these issues. With respect to the stock market, Lenin (1919) stated that "The necessity for a relentless war on the capitalists is becoming clearer and clearer to the working class and that the stock exchange becomes the most prominent representative of capitalist production itself." (see Figure 2). Similarly, according to Karl Marx "All surplus-value, in the particular form of profit, interest, returns, is in its essence unpaid labor." (Marx (1867)). Friehe, Pannenberg, and Wedow (2015) show that there are significant differences in personality between East and West Germans and explain this finding with the fact that especially the years up to adulthood are very important for personality development. In this section, we test whether individuals growing up in a communist system formed negative attitudes towards the stock market that may be engraved so deeply in their minds that they still affect investment behavior today.

3.1   Baseline results

To examine differences in stock market participation between East and West German investors, we run the following logit regression

$$(1) \qquad P(y_{it} = 1 | x_{it}, East_i, Year_t) = \Phi(\alpha + \beta East_i + \gamma x_{it} + Year_t),$$

where the binary indicator y_{it} equals 1 if investor i holds stocks and/or equity funds in her portfolios in year t, and x_{it} is a vector of control variables.[5] Our main independent variable, $East_i$, is a dummy variable equal to one if an investor lives in East Germany, and zero otherwise.[6] We control for investors' gender, age, and marital status, since all of these variables have been shown to influence stock market participation. We also control for the value of an investor's portfolio to account for differences in financial wealth. Further, we include the number of banks present in a given county to rule out that supply side effects drive our results. Finally, we include the number of people living in a given county to capture differences between urban and rural areas, and the number of months an account is open as it may take some time before investors purchase the first set of stocks after they have opened their accounts. The regression includes year fixed effects, robust standard errors are clustered by county (=Landkreis) level. Marginal effects evaluated at the mean investor are presented in column (1) of Table 2.

Results in column (1) show that the average East-German investor is 19.4pp less likely to participate in the stock market than a West-German investor. The difference is significant at the 1% level and economically meaningful: Given that the average stock market participation in our sample is 81.9%, living in East Germany is associated with a 24% lower probability to be invested in the stock market. With respect to our control variables, we find that female investors and older investors are less likely to participate in the stock market. We also find that investors with larger portfolio values are significantly less likely to participate in the stock market, which may seem counterintuitive. This result is driven by the fact that many

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[5]Results are very similar if stock market participation is defined as investors holding stocks (but not equity funds) in their portfolios.

[6]Note, that this information is only available for one point in time (when the account is opened at the bank). Only for a subset of investors, we observe whether they have moved from East to West Germany based on survey data.

investors in our sample opened an online brokerage account for retirement saving purposes, and usually invest small amounts of money according to a monthly savings plan in just one broadly diversified equity fund. If we drop small portfolio values below 5,000 Euro, the coefficient turns significantly positive. However, we decided to keep these observations in the sample since these investors also made an active decision to participate in the stock market and invest money in equity funds to save for retirement.[7] Furthermore, we find that the longer an account has been opened, the more likely the investor starts participating in the stock market. Comparing the economic significance of the variables included in this regression, being from East Germany is a stronger predictor of stock market participation than most of the other control variables such as gender or portfolio value.

In the next step, we examine investments in risky assets conditional on participating in the stock market. Specifically, we estimate the following OLS regression

$$y_{it} = \alpha + \beta East_i + \vec{\gamma} x_{it} + Year_t + \varepsilon_{it},$$

(2)

where y_{it} now refers to the fraction of stocks held in an investor's portfolio conditional on holding any stocks or equity funds in her portfolio. We include the same vector of control variables, x_{it}, as in equation 1 and also add year fixed effects. We find that, conditional on stock market participation, East German investors hold significantly fewer stocks in their portfolios than West German investors. In economic terms, results in column (2) of Table 2 show that East German investors hold about 7.2% less stocks than West German investors. This result is statistically significant at the 1% level.

Finally, we compute the fraction of bonds held in an investors' portfolio and use it as the dependent variable in equation 2. Results are reported in Column (3) of Table 2. We find

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[7]To mitigate concerns that our main result only holds for certain wealth levels, we split our sample in quartiles according to investors' portfolio value, and re-run our main regression for each quartile. Coefficients on the East dummy (not reported) are always negative and statistically significant at the 1% level.

that East-German investors hold significantly more bonds in their portfolios than West-German investors. We observe a positive and statistically significant coefficient on the East German dummy variable, indicating that East German investors hold about 16.0% more bonds in their portfolios than West German investors. This may be due to the fact that bonds have features like a fixed interest rate that are more similar to the assets that were available to investors in the former GDR.

In the next step, we restrict the sample to individuals living in Berlin, which was split in two parts after World War II. While East Berlin belonged to the GDR, West Berlin belonged to the Federal Republic of Germany. The two parts of the city were separated by the Berlin Wall, and inhabitants had no regular access to the other part of the city. Thus, the case of Berlin serves as a good testing laboratory for our main hypothesis, and at the same time may mitigate concerns regarding differences in economic development and wealth between counties influencing our results for the entire German population.

We define a new dummy variable, East Berlin, which is equal to one if an individual lives in East Berlin, and zero, if she lives in West Berlin. We then run the same regression as in Table 2, however, we can not include all control variables since they are not available on such a granular level. Specifically, we cannot include the number of banks, GDP per Capita, Real estate wealth and Highschool degree, since these variables are only available at the county level. At the same time, we are less concerned about these variables in the Berlin setting, since, for example, all inhabitants of the city should have regular access to a bank located close by. Results are reported in Table 3.

We re-confirm the stock market participation gap between East and West Germans also for the Berlin population. Specifically, individuals from East Berlin are 4.6pp less likely to participate in the stock market. Relative to the average stock market participation for the city of Berlin (90%), this difference amounts to 5.1%. Thus, the economic magnitude of the effect is less pronounced than for the entire country. This, however, may not be surprising given that particularly some parts of East Berlin (for example, Prenzlauer Berg

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and Friedrichshain) are inhabited by many West Germans, too.[8] We do not find that people in East Berlin hold smaller fractions of stocks conditional on participating in the stock market (column (2)), but they hold 2.3% more bonds in their portfolios.

Since our analyses are based on data from a brokerage firm, we only observe stock market participation conditional on having an online brokerage account. The gap in stock market participation may be different for the overall population including individuals who do not invest at all and only hold cash. The latter, however, would not be observable in our brokerage account data set. To address this concern, we perform a similar analysis for a sample of 6,903 bank clients. Specifically, we run a logit regression where the dependent variable is equal to one if an investor generally participates in the stock market (independent of having a opened a portfolio), and zero otherwise. Results are reported in Table 4 and confirm the findings from our main data set.

Column (1) of Table 4 shows that the average East-German investor is 3.5pp less likely to participate in the stock market than a West-German investor. The difference is significant at the 1% level and economically meaningful: Given an average stock market participation in our bank data sample of 18.4%, living in East Germany is associated with a 19% lower probability to be invested in the stock market. This magnitude is very similar to the one we observe in our main brokerage data set (i.e., 24%). In column (2), we use a specification which is directly comparable to our brokerage data. Conditional on having a portfolio, East German clients in this data set are 18 pp less likely to participate in the stock market, which corresponds to a 25% lower participation rate relative to the baseline probability of 72% in this sample. Finally, results in column (3) show that the fraction of stocks conditional on having a portfolio is 17% lower for clients living in East Germany compared to clients living in West Germany.

Taken together, in both data sets, we find pronounced differences in stock market participation between East and West Germans almost 30 years after reunification. Although we

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[8]In unreported results, we exclude these parts of Berlin and our main effect indeed becomes stronger.

include a large set of individual and county level control variables in these regressions, one remaining concern may be that the stock market participation gap between East and West Germans is driven by regional characteristics such as wealth and economic development. Therefore, we use survey data on a subset of investors allowing us to identify individuals who moved from East to West Germany after the fall of the Berlin Wall in 1989. More precisely, we are able to differentiate West Germans, who have never been exposed to the GDR system and West Germans who have lived in the GDR until 1989 and moved to West Germany before 2017.

Columns (1) to (4) in Table 5 show that East Germans who moved to West Germany after Reunification are still less likely to participate in the stock market. In column (1), we find that movers from East Germany are 12.6% less likely to invest in the stock market compared to West Germans. In Columns (3) and (4), we refine our mover variable and identify investors who have lived in West Germany for a minimum of ten or twenty years. We still find a stock market participation gap of 7.1 to 10.6%.

3.2 Alternative explanations and robustness

In this section, we examine alternative explanations for the East-West participation gap, such as differences in risk tolerance, income, familiarity, trust, and financial literacy. We show that these variables indeed have an impact on stock market participation at the extensive and intensive margin, as well as on the fraction of bonds in an investor's portfolio, but they do not fully explain the differences between East and West German investors.[9] Results are presented in Table 6.

Previous evidence from survey data suggests that East Germans are more risk averse than West Germans (e.g., Heineck and Süssmuth (2013), Fuchs-Schuendeln and Haliassos (2015)). This finding may be an essential driver of the differences in financial risk taking

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[9]As some of these variable are only available for a small subset of observations, we do not include them in our baseline regressions.

between East and West Germans that we document above. When clients open their account, the brokerage firm assesses their risk attitude on a scale ranging from 1 (conservative) to 3 (speculative). We obtain these data for a sub-sample of 48,123 investors. Univariate statistics in Panel B of Table 1 already reveal that West-German investors have a significantly higher risk tolerance as compared East-German investors (1.74 versus 1.49 on average). In column (1) of Table 6, we re-run our main regression from column (1) in Table 2, but additionally include investors' risk tolerance. Although the number of observations drops to 176,270 we still observe a significant stock market participation gap between East and West German investors of 22.7pp. We also still find that East German investors hold a lower fraction of stocks in their portfolios (Panel B), while they hold a higher fraction of bonds (Panel C). With respect to risk tolerance itself, we find that risk-loving investors are significantly more likely to participate in the stock market and hold a larger (smaller) fraction of stocks (bonds) in their portfolios.

Next, we examine whether income differentials explain the stock market participation gap between investors from East and West Germany. Similar to our measure on risk aversion, the brokerage firm assesses investors' net income at account openings on a scale ranging from 1 (below 1,000 Euro per month) to 4 (above 3,000 Euro per month) when they open an account. Univariate statistics in Panel B of Table 1 show that West Germans on average earn significantly higher incomes than East Germans. As higher income may predict stock market participation, in column (2) of Table 6, we add investors' income bracket as additional control variable. In line with our predictions, we find that investors with higher income are significantly more likely to participate in the stock market, and hold a higher (lower) fraction of stocks (bonds) in their portfolios. However, East German investors are still 26.4pp less likely to participate in the stock market than West German investors even after controlling for income differentials. They also hold 15.2pp fewer stocks in their portfolios, and 20.6pp more bonds.

Results in Panel B of Table 1 show that East Germans exhibit lower trust levels in securities markets than West Germans. Since the level of trust is positively associated with stock market participation (Guiso, Sapienza, and Zingales (2006) and Lichter, Löffler, and Siegloch (2016), we include it as an additional control variable in our baseline regression. Including the survey measure of trust in our estimation as an additional control variable (column (3)), we find that trust is indeed positively related to stock market participation. However, the stock market participation gap between East and West German investors remains significantly lower by –0.293pp. Conditional on participating in the stock market, East Germans hold 9.3pp fewer stocks in their portfolios (Panel B). At the same time, they hold 21.7pp more bonds.

People in East Germany were not exposed to financial markets for 40 years and thus were not familiar with most of the financial products offered to West German investors. This difference is reflected in a higher familiarity score for West Germans compared to East Germans in Panel B of Table 1. Closely related, differences in financial literacy between East and West Germany may contribute to the stock market participation gap. Therefore, in columns (4) and (5) of Table 6, we include a survey-based measures of familiarity ("The stock market is a closed book to me") and the basic financial literacy score of van Rooij, Lusardi, and Alessie (2011) as additional control variables. Familiariy and financial literacy are aggregated on the county level. While we do not find an impact of familiarity on stock market participation (neither at the extensive or intensive margin), non-familiarity with the stock market predicts a larger fraction of bonds in investors' portfolios. Further, we find that financial literacy is significantly positively related to stock-market participation at the extensive and intensive margin. Most importantly, we still observe a stock market participation gap of 25.9pp to 27pp between East and West German investors that is not explained by the addition of these variables. We also observe that East German investors still hold about 9pp fewer stocks and about 20pp more bonds in their portfolios.

Finally, in column (6) of Table 6, we include all additional control variables at the same time. Even though the resulting intersection of observations is rather small and drops to 64,553, we still obtain a significant stock market participation gap between East and West German investors at both, the extensive and intensive margin. We also observe that East German investors hold a higher fraction of bonds in their portfolios.

4   Political propaganda as emotional priming

4.1   Intensity of exposure

Our previous results suggest that even those experiences that were made a long time ago are still relevant for individuals' behavior today. If these results are caused by communist propaganda, they should be stronger for older investors who have lived in the GDR for a significant amount of time. In addition, we should see stronger effects for investors living in counties further away from "West influences", i.e., the former border to West Germany. We argue that these investors had more exposure to the communist system and are less likely to have relatives just across the border that could otherwise influence the way they were thinking about the different political systems in East and West Germany.

To test the influence of propaganda intensity on stock market participation, we first sort investors in age quintiles or deciles, respectively, and plot stock market participation in Figure 3.

We indeed find that the stock market participation gap increases with age and is most pronounced for the highest age quintile (decile). Interestingly, we also observe a larger participation gap for the first decile, which comprises the youngest individuals starting from 10 years of age (the youngest individual in our sample). For these individuals, their parents are likely to make the investment decision on behalf of their child, thus, parents' experiences might be driving the larger gap for the first decile.

We also examine cross-sectional differences in intensity of exposure to propaganda using our baseline regression model. In Column (1) of Table 7 we interact our East-German dummy variable with an indicator for investors older than 50 years. We find that our baseline effect is indeed more pronounced for older investors, who are 15.6% less likely to participate in the stock market than their counterparts from West Germany.[10] The difference in stock and bond holdings between East and West German investors (Panels B and C) is also more pronounced for older investors and amounts to 9pp for stock holdings, and 18pp for bond holdings, respectively.

In 1972, the GDR and the FRG signed a travel agreement "Kleiner Grenzverkehr", according to which West Germans from nearby areas were allowed to cross the border to the GDR for up to 30 days a year and 9 days a quarter, one day at a time. Traveling to the GDR was permitted to each resident of the FRG, who had his main residence in the cities and districts listed as "close to the border". Only those areas of the GDR could be visited, which were listed as belonging to the "border circle of the GDR". Travelers were allowed to visit relatives, but also purely touristic reasons were allowed. Living close to the former border to West Germany thus increased the likelihood, that East Germans were exposed to West German influences due to travelers (and maybe even relatives) visiting from the FRG. Therefore, we conjecture that living further away from the West German border should lead to a more intense exposure to GDR propaganda, as no countervailing signals casting doubt on the system were received.

To test whether our main result is stronger for investors living further away from the former border to West Germany, we interact our main dummy variable with the distance of an investor's place of living to the former West-German border. Results are presented in column (2) and show that our main results are indeed more pronounced for investors living further away from the West German border. Finally, once we include all interactions

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[10]In an alternative specification (not reported), we run our main regression separately for different age brackets. Coefficients on the East dummy are always negative and statistically significant. However, as suggested by Figure 3, the effect is economically larger for older investors and investors in the lowest age decile.

as well as the baseline variable differentiating between East and West German investors (column (3)), we find that our main results remain stronger for older investors and those living further away from the former border to West Germany.

4.2 Direction of exposure

GDR propaganda aimed at strengthening communist views and strongly criticized the economic system of capitalist countries such as the US. At the same time, positive views were conveyed about other communist countries such as Russia, China, or Vietnam. As displayed in Panel A of Figure 2, GDR authorities distributed propaganda posters that were supposed to demonstrate friendship with their communist allies. At the same time, these posters were used to criticize the US in general, and stock markets in particular (Panel B of Figure 2).

If this type of propaganda still affects stock picking behavior of East German investors today, we expect them hold more stocks of firms from formerly communist countries such as China, Russia and Vietnam. They should also prefer to buy stocks of (formerly) state-owned German companies, such as Deutsche Post or Deutsche Telekom. At the same time, they should be less likely to hold stocks of firms reflecting Western capitalism. As a proxy for the latter, we compute the fraction of stocks from financial companies in each investor's portfolio and, alternatively, the fraction of stocks from US companies. Appendix B lists the top 10 holdings of each category in investors portfolio. Not surprisingly, the top 10 US stocks are well-known companies like Microsoft or Apple. The top 10 stocks belonging to the financial industry are predominantly major German banks, financial advisory firms, as well as insurance companies.[11] With respect to Russian and Chinese firms, the top 10 holdings are predominantly stocks of state owned companies belonging to the Energy or

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[11]The Bank Internasional Indonesia might be among the top holdings since this bank only conducts business following the requirements of Shariah law, which makes the stock interesting for the Muslim population in Germany.

Basic Materials sector.[12] Overall, stocks of communist countries are held by 4,812 investors (3%) in our sample. Investments in stocks of firms in these countries are often conducted via American or Global Depositary Receipts (ADRs or GDRs). They are, in the case of ADRs, traded in the U.S., but represent a certain number of shares in a foreign firm. We regress the fraction of stocks held in (anti-) capitalist companies on the East German dummy variable and the same set of control variables as in Table 2. Results are reported in Table 8.

We find that, conditional on stock market participation, East German investors hold 7.3% less stocks of financial companies and 5.6% less stocks of US firms than investors from West Germany. At the same time, they hold 10.4% more stocks of firms located in Russia, China, or Vietnam, and 4.1% more stocks of formerly state-owned German companies. These differences are statistically significant at the 1% level.[13]

4.3 Consistency with personal experience: Positive emotions

According to Biddle (1931), propaganda relies upon techniques which induce the individual to follow non-rational emotional drives. Two of the important principles hereby are to (1) rely on emotions and (2) to cast propaganda into the pattern of "we" versus an "enemy". We use different measures capturing national pride and thus positive emotions towards the GDR that should amplify our baseline effect.

First, we measure whether an investor lives in a city that was renamed after important communist personalities. Until today, almost 30 years after reunification, streets in many villages in East Germany have names reminding of the communist system like "Rosa Luxemburg" street (a founding member of the communist movement), "Ernst Thälmann" Street (former head of the communist party), or "Street of Friendship" (referring to the

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[12]There is only one Vietnamese stock held by investors in our sample. It belongs to an asset management company that invests in previously state owned firms in Vietnam. This stock is held by 68 different customers in our sample.

[13]To mitigate concerns that differences in risk-aversion rather than exposure to propaganda drive our results, we re-estimate all regressions and include county-level risk aversion as an additional control variable. Results (not reported) are robust.

alliance between East Germany and Soviet Russia). When the communists came into power in East Germany, several squares, streets, football stadiums or iron works were renamed in order to immortalize communist heroes. One of the pushiest acts was to rename German cities. For example, the city of Chemnitz was renamed to "Karl Marx Stadt" in order to celebrate the 135th anniversary of Karl Marx. The selection of renamed city was conducted by a central committee of politicians. Originally, it was planned to give the name to the city of Eisenhüttenstadt. However, after the death of Stalin in 1953, Eisenhüttenstadt was spontaneously renamed into "Stalin"-stadt and Chemnitz was given the name "Karl Marx Stadt". The act of renaming a city was celebrated publicly with hundreds of thousands of workers participating in marches and getting together on the big squares of the city. We conjecture that individuals living in one of the five renamed cities had more positive emotional coloring of the GDR experience due to the expression of national pride and celebrations coming along with the act of renaming a city.[14]

Second, the GDRs political leadership regarded athletic prowess as an important propaganda tool in their efforts to prove their system's superiority to western liberalism and promote national pride. The general strategy to concentrate on specific disciplines proved successful since athletes form East Germany won a total of 192 gold medals between 1968 and 1989 compared to 67 for West Germany. We collect zip-code level data on the place of birth of all GDR winners of Olympic medals. We conjecture that people living in a place that produced an Olympic medal winner also formed particularly positive views and pride about the GDR. Data on Olympic medal winners are collected from Wikipedia. We then define a dummy variable equal to one if there is an Olympic (gold) medal winner in a given zip-code, and zero otherwise. We exclude the two largest cities of Dresden and Leipzig, because we expect the pride effect to form in smaller communities, where winning an Olympic medal was very special and made the respective inhabitant outstanding of the community.

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[14]These five cities are Chemnitz, Eisenhüttenstadt, Kriegsdorf, Neuhardenberg, and Werminghoff.

Results in columns (1) to (9) of Table 9 show that our main effects do get stronger for investors living in renamed cities or in an area which produced an Olympic medal winner. The magnitude of the effect gets even larger for gold medal winners.

4.4 Inconsistency with personal experience: Negative emotions

We examine resistance to propaganda using a natural experiment based on differential access of East Germans to West German television broadcasting during GDR times. Some regions in the former GDR were either too distant from the western border or West Berlin, or located in 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). Kern and Hainmueller (2009) show that individuals in areas without access to Western television programs were less satisfied with the political system of the GDR and hence showed a higher resistance to its propaganda. They argue that access to Western television *"offered them a vicarious escape from the scarcities, the queues, and the ideological indoctrination, making life under communism more bearable and the East German regime more tolerable"*. In addition, Meyen (2003) argues that exposure to Western TV may increase the awareness of the dark side of capitalism by making potential downsides of a capitalistic society like crime, homelessness or unemployment more salient.

One may have had the opposite hypothesis, i.e, that increased exposure to West TV would foster pro-West or anti-GDR sentiment. This might especially be true if West German TV was broadcasting pro-West propaganda to sympathetic viewers in the East. However, this does not seem to be consistent with the way in which East Germans watched TV. Using a combination of historical data and retrospective interviews, Meyen and Nawratil (2004) paint the following picture of East German attitudes towards West German television: *"Most of the viewers who were able to receive West German TV looked for entertainment on each channel, and they switched back and forth for the respective offerings. If GDR TV placed journalistic broadcasts in the prime time, the ratings were 5% or even below... That worked*

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also the other way around: information programs on the Western channels led to higher ratings of GDR TV." Television channels reportedly also recognized a higher demand for entertainment over news (Dittmar (2004) and Schubert and Stiehler (2004)).

Based on these findings on attitudes of East Germans towards Western television, we hypothesize that our main results are weaker in regions with no access to West TV. Based on signal strength calculations from Bursztyn and Cantoni (2016), we define a dummy variable reflecting counties in East Germany that did not receive signals from Western TV stations during GDR times, and interact it with our main East German dummy variable. Results are reported in Panel A of Table 10.

We find that having no access to Western television in GDR times indeed reduces the participation gap by 6.6 percentage points (column (1)). While there is no differential impact of access to West TV on the intensive margin (column (2)), we also find that the difference in the fraction of bonds in East and West German investors' portfolios is only half the size for East German investors living in counties without access to West TV.

In Panel B of Table 10, we examine the stock market participation gap for a more homogenous subsample of investors, i.e., those living in counties without access to West TV during GDR times, and those living in the same 3-digit zip code area but with access to West TV. By examining differences between geographically close neighbors, we implicitly control for other potentially cofounding factors. Our results are consistent with those from Panel A. We find that East Germans living in counties without access to West TV are 17pp more likely to participate in the stock market (column (1)). Relative to the average stock market participation for this subsample, this difference amounts to 25.5%. We again find no differential impact on the intensive margin (column (2)), but individuals in counties with no access to West TV hold 15.6% less bonds in their portfolios than those living close by but with access to West TV (column (3)).

McGuire (1993) investigated factors that induced resistance to propaganda and stated that people are more likely to defend themselves against persuasion, if they hold "cultural

truism" that is, beliefs one holds, that are so ingrained within the cultural milieu that they had never been attacked before. One common feature of communist systems is that they view religion as a tool used by the ruling classes to suppress people belonging to the working class. This view has already been articulated by Karl Marx who stated that "religion is opium of the people" (Marx (1843)). While religious groups are rarely completely outlawed in communist countries, religious property is frequently confiscated, believers are harassed, and atheism is propagated in schools. Therefore, we conjecture that religious people are likely to form negative views about the communist system and should hold more positive views about Western countries in which freedom of religion is much more respected.

To test whether our baseline results are weaker for individuals in East-Germany whose experiences with the GDR system went along with negative emotional coloring, i.e. religious individuals, we define different variables capturing religiosity. First, we define a dummy variable which is equal to one for all counties that maintained a high level of catholic religiosity during GDR times and are still very catholic today, according to the Konrad Adenauer Foundation.[15] Second, we obtain data from the 2011 census on the fraction of catholics, protestants, or both, on the zip-code level. We then run the same regressions as in Table 2, but interact our East German dummy variable with one of the proxies for religiosity. Results are reported in Table 11.

Results in column (1) show that East Germans are 19.7pp less likely to participate in the stock market. However, the effect is mitigated in counties with high catholic religiosity, with a remaining difference of only 13.2pp. Results are similar if we use the fraction of Catholics (column (2)), the fraction of protestants (column (3)), or the fraction of Catholics and protestants (column (4)), to form the interaction term, respectively.

We also conjecture that people living in areas that were heavily polluted during GDR times experienced the political system of the GDR with a more negative emotional coloring. According to the GDR Constitution, it was in "the interest of peoples well-being, (that)

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[15]These counties are Eichsfeld, thüringische Rhön and sorbische Oberlausitz.

the GDR takes care of protecting the environment". This statement directly contradicted reality for people living in polluted areas.

After the German reunification in 1990, the ministry of environmental affairs of West Germany defined 18 places in the GDR that needed immediate action to stop environmental pollution because of out-aged power plants, filter plants, or chemical plants. We define a dummy variable for all zip-codes belonging to these 18 places and interact it with our East German dummy variable.

Results in column (5) of Table 11 show that the stock market participation gap between East and West Germany is again mitigated for investors living in areas that were highly polluted during GDR times. This finding is in line with the view that negative emotional coloring of GDR experiences led to a faster adaption of Western habits such as stock market participation after the German Reunification.

4.5 Consistency with attitudes towards communism and the GDR

According to Jowett and O'Donnell (2012) effects of propaganda are greatest, when the message is in line with existing opinions, beliefs, and dispositions of the receivers. We use three different approaches to formally test whether our baseline results are stronger for individuals in East-Germany who had strongly positive views about the communist system of the GDR and hence negative attitudes towards the stock market.

First, we exploit cross-sectional variation in the number of voluntary state-security collaborators (spys) on the county level. We argue that the intensity of voluntary STASI activities proxies for positive attitudes towards the political system of the GDR. People living in areas where many inhabitants were willing to join the STASI should have formed particularly positive views about the GDR and negative attitudes towards West Germany, respectively. To test this conjecture, we interact the East German dummy variable with

the fraction of voluntary STASI collaborators, and perform the same set of regressions as before.

Results are presented in column (1) of Table 12. They show that East Germans living in regions with a higher fraction of inofficial, voluntary STASI collaborators are significantly less likely to participate in the stock market at both, the extensive (Panel A) and intensive (Panel B) margin. At the same time, they hold a higher fraction of bonds (Panel C). As a second measure of positive attitudes towards the GDR, we examine regional variations in responses to a 2014 survey conducted by the German polling institute "Infratest" asking 2000 individuals about the GDR's political strengths compared to today's political conditions in Germany.[16] We interact the measure for positive attitudes towards the former political system of the GDR with our east dummy and find that differences in stock market participation are stronger for investors living in regions with positive views on the former GDR system at both, the extensive and intensive margin (column (2), Panels A and B). Also, East Germans with more positive attitudes towards the former political system of the GDR hold a larger fraction of bonds (column (2), Panel C).

Finally, we use fraction of votes for the Party of Democratic Socialism (PDS) as a proxy for positive attitudes towards the communist system. We obtain data on the voting results for the PDS in Germany's federal elections on the county level. We then interact our East German dummy variable with the fraction of votes for the PDS in a given county. Results in column (3) of Table 12 show that East Germans living in regions with above median votes for the PDS are also less likely to participate in the stock market.

4.6 Trigger points: Election years

Political attitudes should be particularly salient in election years when public attention is devoted to who should govern and run the country. In these years, experiences of East

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[16]The exact questions was: "If you compare today's social and political conditions to those in the former GDR - Do you think the the GDR had special strength with regard to the political system?" Answering possibilities were "yes", "no" or "I do not know".

Germans with the communist system of the GDR and its associated political propaganda may be recalled even stronger than in a regular year.

To test whether our baseline result on the stock market participation gap between East and West Germans is stronger in election years, we interact our main East German dummy variable with an indicator reflecting election years in our sample (i.e., 2005 and 2009). We then run the same regression as in Table 2, but additionally include this interaction term. Result are reported in Table 13. They show that our baseline effect is indeed amplified in election years, with the interaction term being statistically significant at the 1% level for stock market participation and bond holdings, respectively.

5 Financial implications: Portfolio returns, fees, and diversification

Finally, we investigate whether East German investors' exposure to a communist system and their corresponding reluctance to invest in the stock market is costly to them. A lower life-time investment in the stock market should generally lead to lower financial wealth in East Germany, because East German investors forgo the equity risk premium. Thus, the differences regarding financial risk taking on the micro level we document may partly explain why we still observe large wealth differences between East and West Germans on the macro level, with East Germans' total wealth being less than half that of West Germans (Grabka (2014)).

East German investors may, due to their lack of experience with capital markets, have lower stock picking skills than West German investors. To test this conjecture, we compare monthly returns of East and West German investors' portfolios. We obtain monthly total return data including dividends from Thomson Reuters Datastream. We then compute monthly portfolio returns on holdings derived from the monthly position statements on a security-by-security level for each investor. For each month in our sample, we form equal or

value weighted returns across all investors belonging to the East or West German portfolio, respectively. We then compute the difference return of a portfolio that is long in the East German portfolio and short in the West German portfolio less the risk-free rate and regress it on the excess market return, the Fama and French (1993b) 3-Factor model and the Carhart (1997a) 4-Factor model. In our regressions, we either include German risk factors provided by the Center of Financial Research in Cologne (CFR), or the global risk factors obtained from Kenneth French's data library.[17]

Results based on the German risk factors are presented in Panel A of Table 14. We find that East German investors earn significantly lower returns than their West German counterparts. Monthly performance alphas of the return difference portfolio range between –0.07% and –0.11%. This translates into an annual return difference between 0.8 and 1.3 percentage points, which is also economically meaningful.

In Panel B, results are based on the global risk factors. We again observe that East Germans earn significantly lower returns than West Germans, irrespective of whether portfolios are equal- or value weighted.

In the next step, we examine whether other portfolio characteristics of East German investors are also inferior to those of West German investors. First, we analyze whether an investor holds passive investments, i.e., index funds and/or ETFs in her portfolio, 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. Third, we calculate the average fund fees an investors pays for all equity funds in her portfolio in a given year. We use equity funds only, as those are generally more expensive than bond funds and we do not want our results to be driven by different risk attitudes (higher share of bond funds in eastern portfolios). To further capture the extent of portfolio diversification, we compute the Herfindahl index of all stock holdings in a given portfolio. Finally, we compute

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[17]More details on the German risk factors can be found in Artmann, Finter, Kempf, Koch, and Theissen (2012). The global risk factors can be obtained here: `http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/index.html`

the fraction of bank-owned products included in an investor's portfolio. We then run the same regressions as before and use one of these portfolio characteristics as the dependent variable. Results are presented in Panel C of Table 14.

We find that East German investors are significantly less likely to hold index fund or exchange trades funds (column (1) in Panel C of Table 14). In economic terms, East German investors are 26.32% less likely to hold passive investments. We also find that, relative to the average number of assets in our sample, East Germans hold 33.07% fewer assets in their portfolios (column (2)). In addition, East German investors hold more expensive funds: Relative to the mean fee in our sample (1.375%), they pay 3.71% higher fees on their equity funds (column (3)). With respect to portfolio diversification, we find that the Herfindahl index for stock holdings is significantly higher for East German investors' portfolios, indicating that these portfolios are less diversified (column (4)). Finally, we find that investors in East Germany are 7.45% more likely to hold bank-owned products than investors in West Germany.

6 Conclusion

We show that long-term experiences of a communist system lead to a lower willingness of East German individuals to take financial risk, even almost 30 years after Reunification. Results are stronger (weaker) for individuals whose experiences with the communist system of the GDR are associated with positive (negative) emotional coloring. We propose that even long-term experiences gain impact on individuals' behavior today, if they are colored by emotions which facilitate their memory retrieval and enhance their relative importance for the individual. Even if these memories may not be relevant from an objective point of view, emotional tagging motivates individuals to put more subjective weight on these memories.

We also show that the impact of experiences with a communist system are costly even decades later: East German investors earn lower returns, hold less diversified portfolios, more expensive equity funds, and fewer passively managed assets. Our results provide a micro-level foundation for macroeconomic growth differentials between East and West Germany.

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Figure 1: Distribution of investors across Germany

This figure shows the number of investors per zip-code area in our brokerage sample across Germany. The sample period covers June 2004 to December 2012.
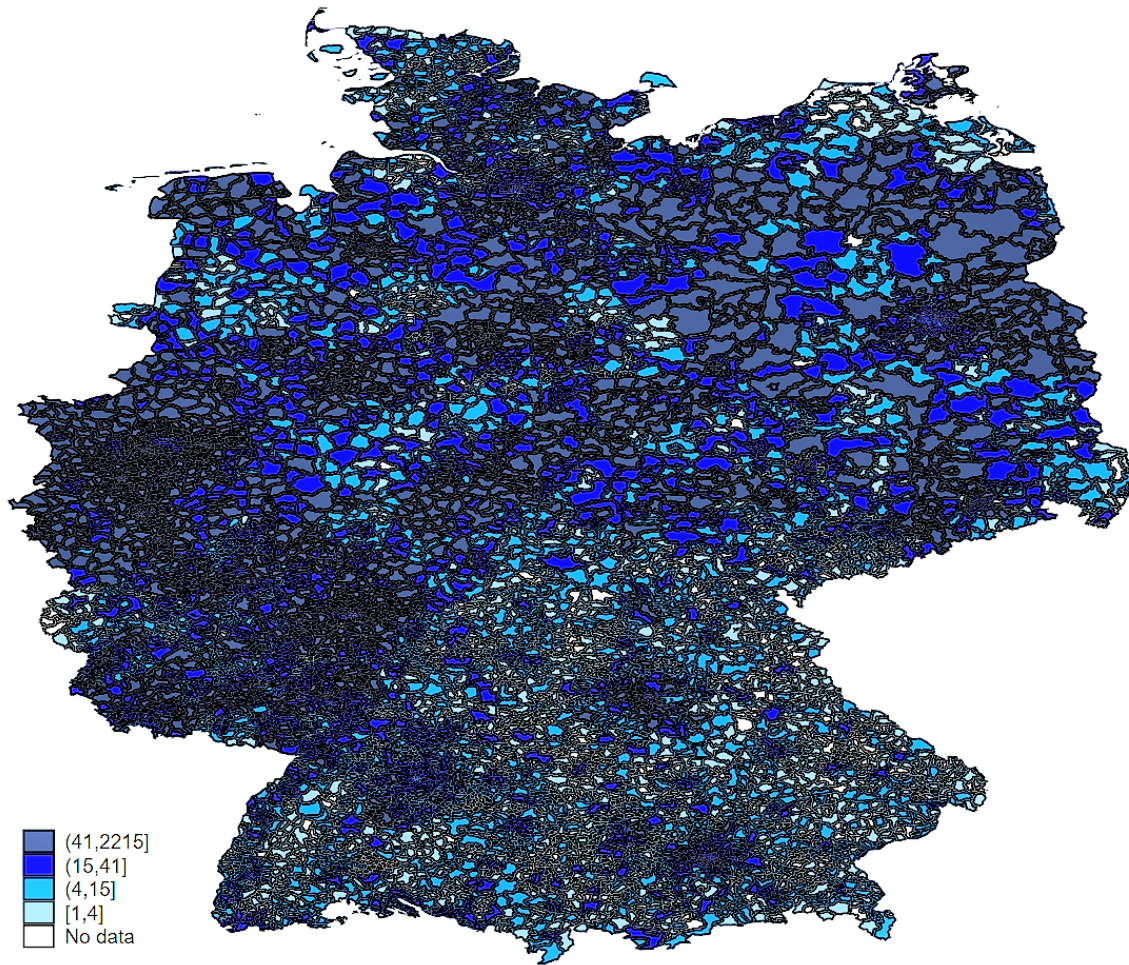
Figure 2: The art of propaganda

This figure shows propaganda posters that were used by the communist regimes of the Soviet union (Panel A) and the GDR (Panel B) to promote anti-capitalist and anti-American attitudes, as well as pro-Russian and pro-Vietnamese attitudes.

Panel A: Communist propaganda pro allies

Source: Landesarchiv Baden Wrttemberg, Deutsche Historisches Museum, Stadtgeschichtliches Museum Leipzig

Panel B: Communist propaganda against the stock market

Source: V. Ivanov, Vigilance is our weapon, Moscow 1953.
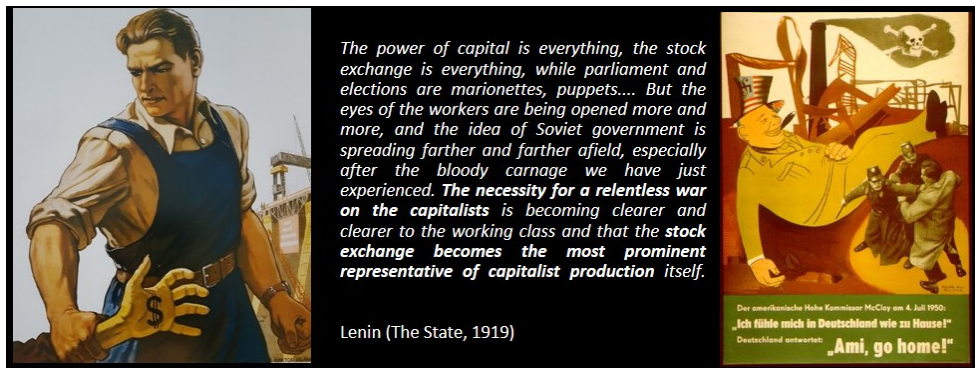
Figure 3: Stock market participation by age

This figure shows the average percentage of East and West German investors' stock holdings for different age quintiles in Panel A and for different age deciles in Panel B, respectively.

Panel A: Age quintiles
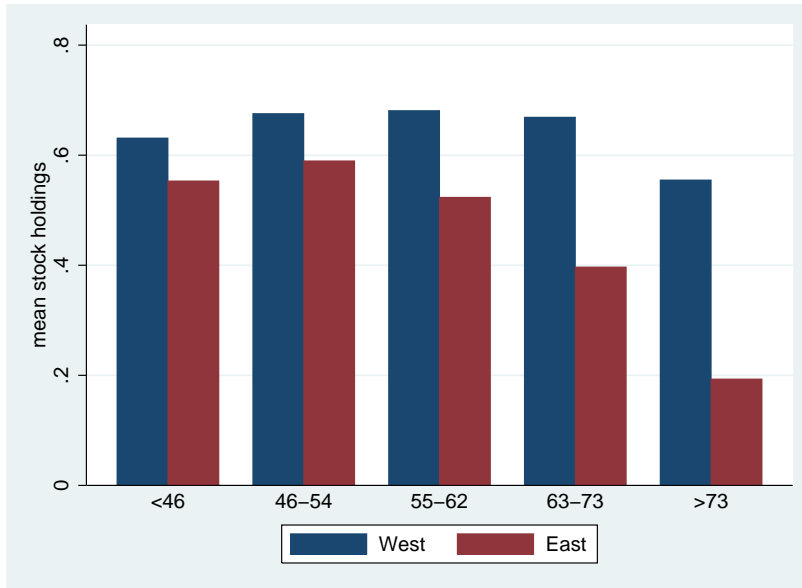
Panel B: Age deciles
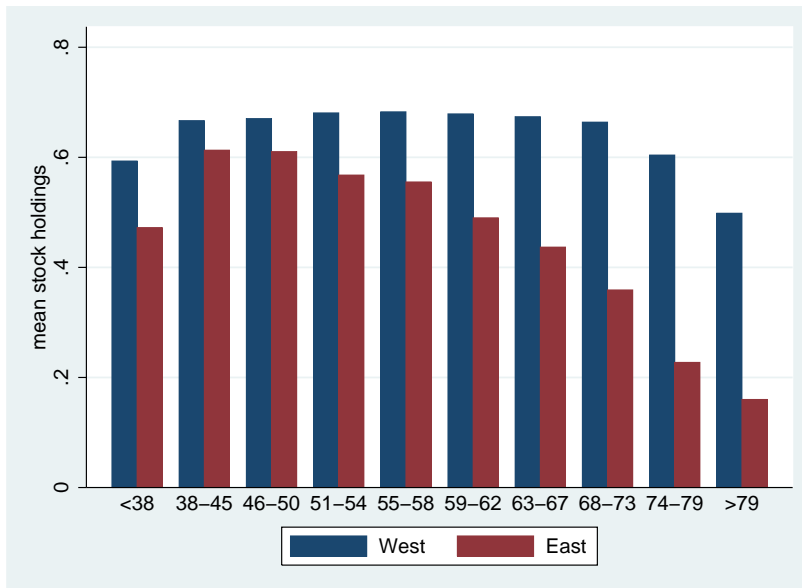
Table 1: Summary statistics

Panel A of this table shows summary statistics (number of observations (Obs.), mean, standard deviation (sd), median (p50), 1st percentile (p1), and 99th percentile (p99)) of all variables in our sample. Brokerage account data are from 2004 to 2012. Bank data are from 2016 to 2017. Panel B of this table shows differences between East and West German investors. All variables are defined in detail in Appendix A.

| Panel A: Summary statistics	Obs.	Mean	sd	p50	p1	p99
Brokerage account data						
East	839,680	0.204	0.403	0.000	0.000	1.000
Investor age (in years)	839,680	59.562	15.644	59.000	23.000	94.000
Gender (1=male)	839,680	0.526	0.499	1.000	0.000	1.000
Married (1=yes)	839,680	0.582	0.493	1.000	0.000	1.000
Time account is open (in months)	839,680	74.223	32.576	74.000	7.000	137.000
Stock market participation (dummy)	839,680	0.819	0.385	1.000	0.000	1.000
Stocks (dummy)	839,680	0.728	0.445	1.000	0.000	1.000
Fraction of stocks if participating	687,464	0.725	0.391	1.000	0.000	1.000
Fraction of bonds	839,272	0.147	0.328	0.000	1.000	0.000
Income (1=low, 4=high)	170,824	2.399	0.929	2.000	1.000	4.000
Risk tolerance (1=low, 3=high)	176,270	1.683	0.557	2.000	1.000	3.000
Portfolio value (in Euro)	839,643	25,965	132,268	4,923.47	0.000	304,837
Passive investments	515,856	0.038	0.192	0.000	0.000	1.000
# of assets in portfolio	839,680	4.442	6.921	2.000	1.000	31.000
Fund fees (in %)	60,690	1.375	0.495	1.500	0.070	2.400
Portfolio concentration (Herfindahl)	622,777	0.689	0.331	0.815	0.070	1.000
Fraction of bank owned products	90,215	0.416	0.375	0.285	0.000	1.000
Bank data						
Stock market participation (dummy)	6,903	0.184	0.388	0	0	1
Fraction of stocks if participating	1,340	0.468	0.444	0.360	0	1
Stocks (dummy)	6,903	0.125	0.331	0	0	1
Portfolio (dummy)	6,903	0.209	0.407	0	0	1
Male (dummy)	6,903	0.556	0.497	0	1	1
Investor age	6,903	47,259	15,921	47	11	87
Married (dummy)	6,903	0.420	0.494	0	0	1
Employed (dummy)	6,903	0.411	0.492	0	0	1
Trainee (dummy)	6,903	0.094	0.292	0	0	1
Retiree (dummy)	6,903	0.061	0.239	0	0	1
Online Banking (dummy)	6,903	0.675	0.468	0	0	1
Mortgage (dummy)	6,903	0.078	0.269	0	0	1
Relationship (years)	6,903	15,280	10,564	13	1	46
Credit Score (Default Probability)	6,903	0.006	0.021	0.001	0	0.070
Income	6,903	6,811	83,169	1,326	0	77,489
Savings	6,903	11,789	71,527	1,630	0	141,956
Conditional Portfolio Value	1,445	69,532	189,483	13,294	0	1
Risk Attitude (1-7)	276	3,333	1,999	3	1	7
Financial Literacy (0-3)	2,646	274	0.676	3	0	3
Real Estate (dummy)	276	0.496	0.501	0	0	1
County level data						
Real estate wealth	839,680	152,667	153,658	132,772.8	0.000	767,912.8
Number of local banks	839,680	95.067	54.157	87.000	25.000	330.000
Total population (by Zip Code)	839,680	125,257.9	231,428.8	32,468	1,105	1,353,186
GDP per capita	839,680	26,927.21	11,031.20	23,919.00	14,649.00	69,566.00
Number of local firms	839,680	906.577	620.185	779.000	55.000	2,866
Highschool degree_2011	839,680	0.160	0.060	0.146	0.076	0.363
Trust (1=low, 7=high)	684,441	3.221	0.710	3.143	1.500	5.500
Familiarity (1=high, 7=low)	699,126	3.583	1.161	3.438	1.000	7.000
Financial literacy (0=low, 3=high)	698,373	2.679	0.327	2.750	1.000	3.000
Left party votes	839,272,	0.053	0.069	0.019	0.009	0.219

Table 1: Summary statistics: cont'd

Panel B: Differences	East-German	West-German	Difference	p-value
Brokerage account data				
Investor age (in years)	62.532	56.348	6.184	0.000
Gender (1=male)	.395	.587	-.191	0.000
Married (1=yes)	.573	.525	.048	0.004
Account time open	47.638	53.105	-5.467	0.000
Income (1=low, 4=high)	2.109	2.516	-.407	0.000
Risk tolerance (1=low, 3=high)	1.494	1.744	-.249	0.000
Portfolio value	20,218.354	25,495.737	-5,277.384	0.000
Stock market participation	0.609	0.873	-0.264	0.000
Stocks (dummy)	0.487	0.721	-0.234	0.000
Fraction of stocks if participating	0.671	0.735	-0.063	0.000
Fraction of bonds	0.304	0.107	0.197	0.000
Passive investments	0.018	0.043	-0.025	0.000
# of assets in portfolio	3.185	4.764	-1.579	0.000
Fund fees (in %)	1.450	1.363	0.087	0.000
Portfolio concentration (Herfindahl)	0.738	0.681	0.057	0.000
Fraction of bank owned products	0.450	0.416	0.034	0.009
Bank data				
Stocks (dummy)	0.080	0.135	-0.055	0.000
Stock market participation	0.148	0.192	-0.044	0.000
Portfolio (dummy)	0.186	0.214	-0.028	0.025
Fraction of stocks if participating	0.321	0.495	-0.174	0.000
Male (dummy)	0.512	0.564	-0.052	0.005
Investor age	47.28	47.25	0.030	0.961
Married (dummy)	0.400	0.424	-0.024	0.115
Employed (dummy)	0.411	0.411	0.000	0.999
Trainee (dummy)	0.079	0.098	-0.019	0.038
Retiree (dummy)	0.066	0.059	0.007	0.377
Online Banking (dummy)	0.659	0.678	-0.019	0.206
Mortgage (dummy)	0.069	0.080	-0.011	0.19
Relationship (years)	14.93	15.36	-0.430	0.201
Credit Score (Default Probability)	0.006	0.006	0.000	0.976
Retirement Account (dummy)	0.162	0.170	-0.008	0.454
Income	3897	7450	-3553	0.173
Savings	8225	12571	-4346	0.052
Portfolio Value	10273	13772	-3499	0.008
Risk Attitude (1-7)	2,511	3,485	-974	0.000
Financial Literacy (0-3)	2.61	2.66	-0.050	0.672
Real Estate (dummy)	0.447	0.528	-0.081	0.313
County level data				
Real estate wealth	92,850.15	168,012.30	-75,162.17	0.000
GDP per capita	19,698.93	28,933.56	-9,234.63	0.000
Highschool degree_2011	0.137	0.165	-0.028	0.000
Number of local firms	949.47	893.18	56.29	0.480
Trust (1=low, 7=high)	3.005	3.260	−0.255	0.000
Familiarity (1=high, 7=low)	3.783	3.546	0.237	0.020
Financial literacy (0=low, 3=high)	2.609	2.692	-0.083	0.237
Left party votes	0.187	0.018	0.169	0.000

Table 2: Stock market participation and investments in stocks and bonds (Brokerage Data)

Column (1) of this table presents results from a logit regression with stock market participation as the dependent variable. Stock market participation is equal to one, if an investor holds stocks and/or equity funds in her portfolio in a given year, and zero otherwise. Results in column (1) report marginal effects evaluated at the mean investor. z-stats based on standard errors clustered by county are presented in parentheses. Results in columns (2) and (3) are from pooled OLS regressions, where the dependent variable is the fraction of stocks in an investor's portfolio conditional on stock market participation (column (2)), or the fraction of bonds in an investors' portfolio (column (3)). t-stats based on standard errors clustered by county are presented in parentheses in columns (2) and (3). The main independent variable, East, is equal to one if an investor lives in East Germany, and zero if an investor lives in West Germany. All other variables are described in detail in Appendix A. Regressions are based on the brokerage data set. The sample is from June 2004 to December 2012.

	Stock market participation (1)	% stocks in portfolio (2)	%bonds in portfolio (3)
East	−0.194***	−0.072***	0.160***
	(−10.28)	(−7.80)	(9.77)
Gender (1=male)	0.070***	0.051***	−0.081***
	(19.54)	(16.08)	(−22.14)
Investor age	−0.104***	0.029***	0.141***
	(−17.43)	(3.25)	(15.71)
Ln(Portfolio value)	−0.011***	0.042***	0.034***
	(−8.07)	(33.83)	(21.92)
Married (1=yes)	0.040***	0.026***	−0.041***
	(17.70)	(8.14)	(−12.79)
Ln(Number of local banks)	0.007	−0.019**	0.020**
	(0.81)	(−2.56)	(2.43)
Ln(Total population)	0.007	0.005	−0.010***
	(1.64)	(1.64)	(−2.85)
Time account is open	0.116***	−0.021***	−0.096***
	(30.84)	(−6.84)	(−19.01)
Ln(Real estate wealth)	−0.009***	−0.002	0.003***
	(−6.51)	(−1.47)	(3.55)
High school degree	0.125	0.013	−0.232***
	(1.23)	(0.22)	(−2.61)
Ln(GDP per capita)	0.028*	−0.014	0.023
	(1.90)	(−1.08)	(1.62)
Ln(Number of local firms)	0.004	−0.006*	−0.004
	(0.83)	(−1.74)	(−0.79)
Year FE	yes 43	yes	yes
Pseudo/Adj. R^2	0.19	0.09	0.25
Observations	839,680	687,464	839,272

Table 3: Differences between East and West Berlin

Column (1) of this table presents results from a logit regression with stock market participation as the dependent variable. Stock market participation is equal to one, if an investor holds stocks and/or equity funds in her portfolio in a given year, and zero otherwise. Results in column (1) report marginal effects evaluated at the mean investor. z-stats based on standard errors clustered by investor are presented in parentheses. Results in columns (2) and (3) are from pooled OLS regressions, where the dependent variable is the fraction of stocks in an investor's portfolio conditional on stock market participation (column (2)), or the fraction of bonds in an investors' portfolio (column (3)). t-stats based on standard errors clustered by investor are presented in parentheses in columns (2) and (3). The main independent variable, East Berlin, is equal to one if an investor lives in a zip-code area belonging to the former GDR, i.e., East Berlin, before Reunification, and zero if an investor lives in West Berlin. All other variables are described in detail in Appendix A. Regressions are based on the brokerage data set. Observations are restricted to individuals living in Berlin. The sample is from June 2004 to December 2012.

	Stock market participation (1)	% stocks in portfolio (2)	%bonds in portfolio (3)
East Berlin	−0.046***	0.006	0.023***
	(−5.76)	(0.45)	(3.27)
Gender (1=male)	0.030***	0.012	−0.059***
	(3.67)	(0.92)	(−7.80)
Investor age	−0.035*	0.044	0.047**
	(−1.89)	(1.42)	(2.11)
Portfolio value	−0.006***	−0.036***	0.019***
	(−3.74)	(−16.59)	(15.59)
Married (1=yes)	0.025***	0.011	−0.013*
	(3.21)	(0.80)	(−1.88)
Time account is open	0.077***	0.012	−0.069***
	(13.03)	(0.94)	(−9.39)
Ln(Number of firms)	0.003	−0.024*	−0.008
	(0.36)	(−1.82)	(−1.08)
Year FE	yes	yes	yes
Pseudo/Adj. R^2	0.14	0.13	0.14
Observations	16,207	14,595	16,204

Table 4: Stock market participation and investments in stocks and bonds (Bank Data)

Column (1) of this table presents results from a logit regression with stock market participation as the dependent variable. Stock market participation is equal to one, if an investor holds stocks and/or equity funds in her portfolio in a given year, and zero otherwise. Results in column (1) report marginal effects evaluated at the mean investor. z-stats based on standard errors clustered by county are presented in parentheses. Results in columns (2) and (3) are from pooled OLS regressions, where the dependent variable is the fraction of stocks in an investor's portfolio conditional on stock market participation (column (2), or the fraction of bonds in an investors' portfolio (column (3)). t-stats based on standard errors clustered by county are presented in parentheses in columns (2) and (3). The main independent variable, East, is equal to one if an investor lives in East Germany, and zero if an investor lives in West Germany. All other variables are described in detail in Appendix A. Regressions are based on the bank data set and are purely cross-sectional using data from 2017.

	Stock market participation (1)	Participation if portfolio (2)	% Stocks in portfolio (3)
East	-0.035***	-0.181***	-0.171***
	(-4.92)	(-3.97)	(-5.06)
Male	0.054***	0.155***	0.163***
	(8.85)	(4.35)	(5.99)
Age	0.005***	0.020***	0.016***
	(3.36)	(3.70)	(3.58)
Age2	-0.000**	-0.000***	-0.000***
	(-2.54)	(-4.51)	(-3.12)
Married	-0.003	-0.020	-0.012
	(-0.46)	(-0.61)	(-0.45)
Employed	0.010*	-0.021	-0.013
	(1.68)	(-0.62)	(-0.51)
Trainee	-0.033***	-0.035	-0.044
	(-3.07)	(-0.71)	(-0.82)
Retiree	-0.016	0.072***	-0.055
	(-1.26)	(-0.96)	(-1.04)
Online banking	0.090***	0.223	0.171***
	(12.96)	(0.043)	(4.60)
Mortgage	-0.022**	-0.129**	-0.113**
	(-2.35)	(-2.23)	(-2.52)
Relationship (Years)	-0.000	-0.005***	-0.005***
	(-1.63)	(-2.86)	(-4.21)
Credit Score	-1.849***	-2.10	-2.73
	(-3.45)	(-2.01)	(-1.48)
Ln(Income)	-0.010***	-0.000	-0.008**
	(-9.51)	(0.919)	(-2.27)
Ln(Savings)	0.019***	0.005	-0.000
	(15.09)	(0.76)	(-0.05)
Ln(Portfolio Value)		0.047***	-0.039***
		(8.51)	(-6.77)
Pseudo/Adj. R^2	0.157	0.143	0.148
Observations	6,903	1,445	1,340

Table 5: Stock market participation of investors who moved from East to West Germany

This table presents results from logit regressions with stock market participation as the dependent variable. Stock market participation is equal to one, if an investor holds stocks and/or equity funds in her portfolio in a given year, and zero otherwise. In all columns, marginal effects evaluated at the mean investor are reported. z-stats based on standard errors clustered by county are presented in parentheses. The main independent variable, East, is equal to one if an investor lives in East Germany, and zero if an investor lives in West Germany. Mover is a dummy variable equal to one if an investor has moved from East to West Germany. Mover10Y (Mover20Y) is a dummy variable equal to one if an investor has moved from East to West Germany at least 10 (20) years ago. All other variables are described in detail in Appendix A. Regressions are based on the bank data set and survey results obtained from the same bank.

	All observations	Only West Germans		
	(1)	(2)	(3)	(4)
East	-0.080***			
	(-3.27)			
Mover	-0.046*	-0.072**		
	(-1.94)	(-2.14)		
Mover 10Y			-0.071*	
			(-1.76)	
Mover 20Y				-0.106***
				(-3.01)
Risk Attitude (1-7)	0.034***	0.053***	0.058***	0.059***
	(3.30)	(4.08)	(4.09)	(3.90)
Male	0.076**	0.111***	0.123***	0.132***
	(2.41)	(2.76)	(2.70)	(2.70)
Age	-0.04	-0.006	-0.007	-0.005
	(-0.65)	(-0.78)	(-0.73)	(-0.44)
Age2	0.000	0.000	0.000	0.000
	(0.91)	(1.05)	(1.06)	(0.88)
Married	0.002	-0.007	-0.020	-0.058
	(0.07)	(-0.15)	(-0.39)	(-1.24)
Employed	-0.004	-0.014	-0.013	-0.037
	(-0.16)	(-0.40)	(-0.34)	(-0.94)
Trainee	-0.013	-0.027	-0.026	-0.025
	(-0.26)	(-0.37)	(-0.31)	(-0.28)
Retiree	-0.044	-0.075*	-0.082*	-0.085
	(-1.54)	(-1.95)	(-1.90)	(-2.17)
Mortgage	0.003**	-0.029	-0.042	-0.051
	(0.07)	(-0.65)	(-0.85)	(-1.02)
Financial Literacy (0-3)	0.040	0.058	0.063	0.050
	(1.30)	(1.36)	(1.37)	(0.95)
Relationship (Years)	0.002	0.002	0.002	0.002
	(1.12)	(1.17)	(0.93)	(0.83)
Credit Score	-0.732	-1.72	-1.39	-1.14
	(-0.57)	(-0.77)	(-0.43)	(-0.36)
Ln(Income)	-0.000	0.001	0.002	0.003
	(-0.05)	(0.14)	(0.20)	(0.30)
Ln(Savings)	0.003	0.010	0.012	0.008
	(0.32)	(0.68)	(0.71)	(0.46)
Real Estate (dummy)	0.007	0.012	0.014	0.026
	(0.19)	(0.21)	(0.23)	(0.39)
Pseudo R^2	0.354	0.333	0.329	0.327
Observations	241	198	187	175

Table 6: Alternative explanations

Panel A of this table presents results from logit regressions with stock market participation as the dependent variable. Stock market participation is equal to one, if an investor holds stocks and/or equity funds in her portfolio in a given year, and zero otherwise. We report marginal effects evaluated at the mean investor. z-stats based on standard errors clustered by county are presented in parentheses. Results in Panels (B) and (C) are from pooled OLS regressions, where the dependent variable is the fraction of stocks in an investor's portfolio conditional on stock market participation (Panel B), or the fraction of bonds in an investors' portfolio (Panel C). t-stats based on standard errors clustered by county are presented in parentheses. The main independent variable, East, is equal to one if an investor lives in East Germany, and zero if an investor lives in West Germany. Regressions include the same set of control variables as in Table 2. In column (1), we additionally control for investors' risk tolerance measured on a scale from 1 (conservative) to 3 (speculative). In column (2), we add investors' income ranging from 1 (below 1,000 Euro per month) to 4 (above 3,000 Euro per month). In column (3), we include a survey based measure for investors' trust in the stock market ranging from 1 (low) to 7 (high). In column (4), investors' familiarity with the stock market is added ranging from 1 (high) to 7 (low). Column (5) additionally includes investors' financial literacy ranging from 0 (low) to 3 (high). Risk and income are measured at the investor level, trust, familiarity, and financial literacy are measured at the level of an investor's county. All other variables are described in detail in Appendix A. Regressions are based on the brokerage data set. The sample is from June 2004 to December 2012.

Table 6: Alternative explanations cont'd

Panel A: Stock market participation	Risk tolerance (1)	Income (2)	Trust (3)	Familiarity (4)	Financial literacy (5)	All variables (6)
East	−0.227***	−0.264***	−0.293***	−0.270***	−0.259***	−0.174***
	(−9.21)	(−9.64)	(−9.90)	(−9.29)	(−9.12)	(−5.50)
Risk tolerance (1=low, 3=high)	0.408***					0.407***
	(40.64)					(37.09)
Income (1=low, 4=high)		0.084***				0.063***
		(19.46)				(11.96)
Trust (1=low, 7=high)			0.015**			0.090***
			(2.12)			(3.55)
Familiarity (1=high, 7=low)				−0.008		0.062***
				(−1.54)		(4.43)
Financial literacy (0=low, 3=high)					0.049***	0.171***
					(4.04)	(5.13)
Control variables	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes
Pseudo R^2	0.20	0.10	0.21	0.20	0.21	0.22
Observations	176,270	170,824	684,441	699,126	698,373	117,288

Panel B: % stocks in portfolio	Risk tolerance (1)	Income (2)	Trust (3)	Familiarity (4)	Financial literacy (5)	All variables (6)
East	−0.145***	−0.152***	−0.093***	−0.094***	−0.091***	−0.164***
	(−8.53)	(−8.30)	(−6.11)	(−6.51)	(−6.39)	(−8.17)
Risk tolerance (1=low, 3=high)	0.164***					0.156***
	(23.02)					(17.68)
Income (1=low, 4=high)		0.018***				0.009**
		(5.62)				(2.36)
Trust (1=low, 7=high)			−0.001			0.037***
			(−0.15)			(3.17)
Familiarity (1=high, 7=low)				0.001		0.028***
				(0.21)		(3.93)
Financial literacy (0=low, 3=high)					0.021***	0.022
					(2.60)	(0.90)
Control variables	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes
Adj. R^2	0.34	0.32	0.09	0.09	0.09	0.35
Observations	95,317	93,145	565,122	577,823	577,148	61,196

Panel C: % bonds in portfolio	Risk tolerance (1)	Income (2)	Trust (3)	Familiarity (4)	Financial literacy (5)	All variables (6)
East	0.167***	0.206***	0.217***	0.205***	0.201***	0.178***
	(6.45)	(7.70)	(9.92)	(9.92)	(9.53)	(6.22)
Risk tolerance (1=low, 3=high)	−0.245***					−0.234***
	(−23.93)					(−30.24)
Income (1=low, 4=high)		−0.056***				−0.031***
		(−14.50)				(−7.81)
Trust (1=low, 7=high)			0.008*			−0.002
			(1.87)			(−0.16)
Familiarity (1=high, 7=low)				−0.008**		−0.064***
				(−2.09)		(−7.24)
Financial literacy (0=low, 3=high)					−0.034***	−0.081***
					(−3.00)	(−3.14)
Control variables	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes
Adj. R^2	0.27	0.20	0.24	0.24	0.24	0.28
Observations	176,026	172,256	684,099	698,774	698,021	117,099

Table 7: Exposure to propaganda: Intensity

Panel A of this table presents results from logit regressions with stock market participation as the dependent variable. Stock market participation is equal to one, if an investor holds stocks and/or equity funds in her portfolio in a given year, and zero otherwise. We report marginal effects evaluated at the mean investor. z-stats based on standard errors clustered by county are presented in parentheses. Results in Panels (B) and (C) are from pooled OLS regressions, where the dependent variable is the fraction of stocks in an investor's portfolio conditional on stock market participation (Panel B), or the fraction of bonds in an investors' portfolio (Panel C). t-stats based on standard errors clustered by county are presented in parentheses. The main independent variable, East, is equal to one if an investor lives in East Germany, and zero if an investor lives in West Germany. Regressions include the same set of control variables as in Table 2. In column (1), we interact our East German dummy variable with a dummy variable which is equal to one if investors are 50 years of age or above, and zero otherwise. In column (2), we interact our East German dummy variable with a variable measuring the shortest distance between a respective East German county and the former border to West-Germany. Regressions are based on the brokerage data set. The sample is from June 2004 to December 2012.

Table 7: Exposure to propaganda: Intensity cont'd

Panel A: Stock market participation	Age interaction (1)	Distance interaction (2)	All variables (3)
East	−0.103***	−0.048	0.010
	(−6.66)	(−1.50)	(0.40)
East × above 50	−0.089***		−0.084***
	(−9.45)		(−9.50)
East × distance		−0.023***	−0.023***
		(−3.76)	(−3.78)
Above 50	0.036***		0.035***
	(7.38)		(7.49)
Control variables	yes	yes	yes
Year FE	yes	yes	yes
Pseudo R^2	0.19	0.20	0.20
Observations	839,680	839,680	839,680

Panel B: % stocks in portfolio	Age interaction (1)	Distance interaction (2)	All variables (3)
East	−0.021**	−0.016	0.029
	(−2.39)	(−0.86)	(1.59)
East × above 50	−0.069***		−0.067***
	(−6.46)		(−6.47)
East × distance		−0.014***	−0.012***
		(−3.17)	(−3.00)
Above 50	0.032***		0.032***
	(6.55)		(6.55)
Adj.R^2	0.093	0.092	0.093
Observations	687,464	687,464	687,464

Panel C: % bonds in portfolio	Age interaction (1)	Distance interaction (2)	All variables (3)
East	0.086***	0.025	−0.037
	(7.92)	(0.91)	(−0.69)
East × above 50	0.094***		0.087***
	(8.03)		(4.27)
East × distance		0.031***	0.030*
		(4.28)	(1.89)
Above 50	−0.024***		−0.023***
	(−5.58)		(−2.98)
Control variables	yes	yes	yes
Year FE	yes	yes	yes
Adj.R^2	0.251	0.253	0.255
Observations	839,272	839,272	839,272

Table 8: Stock holdings of (anti-) capitalist firms

This table presents results from tobit regressions where the dependent variable is the fraction of (anti-)capitalist (columns (1) and (2)) or pro-communist (columns (3) and (4)) stocks in an investor's portfolio. In column (1), the dependent variable is the fraction of financial companies in an investor's portfolio. In column (2), the dependent variable is the fraction of US companies in an investor's portfolio. In column (3), the dependent variable is the fraction of Chinese, Russian, or Vietnamese companies in an investor's portfolio. In column (4), the dependent variable is the fraction of (formerly) state-owned companies in an investor's portfolio. We include the same control variables as in Table 2. All variables are described in detail in Appendix A. Robust t-stats are presented in parentheses. Standard errors are clustered by county level. Regressions are based on the brokerage data set. The sample is from June 2004 to December 2012.

	Companies of financial ndustry (1)	US companies (2)	Chinese, Russian, or Vietnamese companies (3)	State owned companies (4)
East	−0.076***	−0.048***	0.104***	0.041***
	(−4.74)	(−2.71)	(4.21)	(3.11)
Gender (1=male)	0.083***	0.125***	0.143***	−0.047***
	(14.47)	(18.56)	(9.40)	(−14.37)
Investor age	−0.279***	−0.265***	−0.190***	0.066***
	(−22.49)	(−15.93)	(−6.52)	(8.08)
Portfolio value	0.119***	0.066***	0.137***	0.002**
	(59.71)	(27.16)	(35.63)	(1.96)
Married (1=yes)	0.024***	−0.002	−0.003	−0.001
	(4.11)	(−0.31)	(−0.21)	(−0.34)
Ln(Number of local banks)	0.002	0.015	−0.008	−0.022***
	(0.16)	(1.40)	(−0.46)	(−3.27)
Ln(Total population)	0.004	−0.006	0.007	−0.006**
	(0.99)	(−1.21)	(1.00)	(−2.30)
Time account is open	−0.034***	0.097***	0.060***	−0.040***
	(−7.49)	(14.27)	(4.56)	(−13.28)
Ln(Real estate wealth per county)	−0.003	−0.005***	−0.005*	0.003*
	(−1.10)	(−2.69)	(−1.65)	(1.84)
% High school degree in county	0.198**	0.028	−0.371**	0.034
	(2.16)	(0.27)	(−2.08)	(0.46)
Ln(GDP per capita)	0.004	0.067***	0.095***	−0.040**
	(0.18)	(3.06)	(2.82)	(−2.51)
Ln(Number of local firms)	0.023***	0.012*	0.002	−0.001
	(4.15)	(1.85)	(0.18)	(−0.39)
Year FE	yes	yes	yes	yes
Pseudo R^2	0.096	0.036	0.088	0.019
Observations	622,777	622,777	622,777	551,624

Table 9: Consistency with personal experience: Positive emotions

Columns (1) to (3) of this table report marginal effects from logit regressions where the dependent variable is equal to one, if an investor holds stocks and/or equity funds in her portfolio in a given year, and zero otherwise. Columns (4) to (9) report results from pooled OLS regressions. In columns (4) to (6), the dependent variable is the fraction of stocks in an investor's portfolio conditional on stock market participation. In columns (7) to (9), the dependent variable is the fraction of bonds in an investor's portfolio. We include the same control variables as in Table 2. All variables are described in detail in Appendix A. In columns (1) to (3) ((4) to (9)), z-stats (t-stats) based on standard errors clustered by county are presented in parentheses. In columns (1), (4), and (7), we interact our East German dummy variable with an indicator which is equal to one if an investor lives in a city that was renamed during the GDR regime. Renamed cities include Chemnitz (Karl-Marx-Stadt), Kriegsdorf (Friedensdorf), Neuhardenberg (Marxwalde), Werminghoff (Knappenrode), and Eisenhüttenstadt (Stalinstadt). In columns (2), (5), and (8), we interact our East German dummy variable with an indicator which is equal to one if there was at least one Olympic medal winner in the same zip-code area than a given investor, and zero otherwise. In columns (3), (6), and (9), we interact the East-German dummy variable with an indicator which is equal to one if here was at least one Olympic gold medal winner in the same zip-code area than the investor, and zero otherwise. Regressions are based on the brokerage data set. The sample is from June 2004 to December 2012.

| | Stock market part. | | | % stocks in PF | | | %bonds in PF | | |
| | Renamed city | Any medal | Gold medal | Renamed city | Any medal | Gold medal | Renamed city | Any medal | Gold medal |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
East	−0.186***	−0.189***	−0.185***	−0.0690***	−0.066***	−0.067***	0.152***	0.148***	0.147***
	(−10.57)	(−4.67)	(−4.59)	(−7.66)	(−3.77)	(−3.76)	(9.90)	(3.67)	(3.64)
East × renamed city	−0.181***			−0.112**			0.192***		
	(−2.90)			(−2.41)			(3.46)		
East × any olympic medal		−0.014			−0.023*			0.048*	
		(−0.74)			(−1.69)			(1.79)	
East × olympic gold medal			−0.034			−0.027*			0.070**
			(−1.32)			(−1.86)			(2.28)
Control variables	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes	yes	yes	yes
Pseudo/Adj. R^2	0.19	0.19	0.19	0.092	0.092	0.092	0.252	0.250	0.250
Observations	839,680	839,680	839,680	687,464	687,464	687,464	839,272	839,272	839,272

Table 10: A natural experiment: Access to West TV

Column (1) of this table presents results from a logit regression with stock market participation as the dependent variable. Stock market participation is equal to one, if an investor holds stocks and/or equity funds in her portfolio in a given year, and zero otherwise. Results in column (1) report marginal effects evaluated at the mean investor. z-stats based on standard errors clustered by county are presented in parentheses. Results in columns (2) and (3) are from pooled OLS regressions, where the dependent variable is the fraction of stocks in an investor's portfolio conditional on stock market participation (column (2), or the fraction of bonds in an investors' portfolio (column (3)). t-stats based on standard errors clustered by county are presented in parentheses in columns (2) and (3). The main independent variable, East, is equal to one if an investor lives in East Germany, and zero if an investor lives in West Germany. All other variables are described in detail in Appendix A. In Panel A, we interact our main East German dummy variable with a dummy variable which is equal to one for counties in the former GDR that did not receive TV signals from West Germany, and zero otherwise. In Panel B, we only include a dummy variable reflecting counties in the former GDR without access to West TV, and restrict the sample to all individuals living in the same three-digit zip-code area than those without access to West TV. Counties with no access to West TV are defined in Appendix A. Regressions are based on the brokerage data set. The sample is from June 2004 to December 2012.

Table 10: A natural experiment: Access to West TV cont'd

Panel A: Full sample	Stock market participation (1)	% stocks in portfolio (2)	%bonds in portfolio (3)
East	−0.198***	−0.070***	0.163***
	(−10.19)	(−7.31)	(9.67)
East × No West TV	0.066***	0.013	−0.088***
	(4.67)	(0.08)	(−3.42)
Control variables	yes	yes	yes
Year FE	yes	yes	yes
Pseudo/Adj. R^2	0.19	0.09	0.25
Observations	839,680	687,464	839,272
Panel B: Within East Germany	Stock market participation (1)	% stocks in portfolio (2)	%bonds in portfolio (3)
No West TV	0.170***	−0.031	−0.156***
	(4.08)	(−0.89)	(−4.90)
Control variables	yes	yes	yes
Year FE	yes	yes	yes
Pseudo/Adj. R^2	0.21	0.10	0.31
Observations	13,185	10,062	13,178

Table 11: Inconsistency with personal experience: Negative emotions

This table presents results from logit regressions where the dependent variable is equal to one, if an investor holds stocks and/or equity funds in her portfolio in a given year, and zero otherwise. Results in this table report marginal effects evaluated at the mean investor. emphz-stats based on standard errors clustered by county are presented in parentheses. The main independent variable, East, is equal to one if an investor lives in East Germany, and zero if an investor lives in West Germany. Regressions include the same set of control variables as in Table 2. In addition, we add variables reflecting religiosity and the extent of environmental pollution, respectively, at a given investor's county. In column (1), we interact the East German dummy variable with an indicator equal to one if an investor is from a county where the catholic church was particularly strong in GDR times (i.e., Eichsfeld, thüringische Rhön, and sorbische Oberlausitz). In column (2) ((3)), we interact the East German dummy variable with the fraction of members of the catholic (protestant) church in a given investor's county according to the 2011 census, respectively. In column (4), we interact the East German dummy variable with the fraction of catholics and protestants in a given investor's county according to the 2011 census. In column (5), we interact the East German dummy with an indicator reflecting the most environmentally polluted counties in the GDR. According to a report from the German ministry of environmental affairs published in 1990, there were 16 counties that needed immediate action because of pollution. These areas are listed in Appendix B. Regressions are based on the brokerage data set. The sample is from June 2004 to December 2012.

Table 11: Inconsistency with personal experience: Negative emotions cont'd

	Catholic area in GDR (1)	% catholics 2011 census (2)	% protestants 2011 census (3)	% catholics & protestants (4)	Environmental pollution
East	−0.197***	−0.214***	−0.383***	−0.398***	−0.204***
	(−10.25)	(−10.27)	(−5.23)	(−5.75)	(−10.24)
East × catholic place GDR	0.065***				
	(3.13)				
East × Fraction of Catholics 2011		0.003***			
		(3.12)			
East × Fraction of Protestants 2011			0.006***		
			(3.31)		
East × Fraction of Cath & Prot 2011				0.005***	
				(3.68)	
East × Env. pollution					0.052**
					(2.51)
Gender (1=male)	0.070***	0.070***	0.069***	0.069***	0.070***
	(19.47)	(19.67)	(19.69)	(19.85)	(19.66)
Investor age	−0.103***	−0.102***	−0.102***	−0.100***	−0.104***
	(−17.37)	(−17.45)	(−17.62)	(−17.60)	(−17.57)
Ln(Portfolio value)	−0.011***	−0.010***	−0.011***	−0.010***	−0.010***
	(−8.06)	(−8.08)	(−8.11)	(−8.11)	(−8.04)
Married (1=yes)	0.040***	0.040***	0.040***	0.039***	0.040***
	(17.61)	(17.51)	(17.44)	(17.24)	(17.76)
Ln(Number of local banks)	0.007	0.007	0.000	0.002	0.005
	(0.86)	(0.92)	(0.05)	(0.28)	(0.66)
Ln(Total population)	0.008*	0.008*	0.009**	0.009**	0.007
	(1.70)	(1.69)	(1.99)	(2.01)	(1.53)
Time account is open	0.116***	0.116***	0.116***	0.116***	0.117***
	(30.77)	(30.91)	(30.60)	(30.83)	(30.82)
Ln(Real estate wealth)	−0.009***	−0.009***	−0.009***	−0.009***	−0.009***
	(−6.57)	(−6.69)	(−5.75)	(−6.05)	(−6.75)
High school degree	0.136	0.131	0.220*	0.219*	0.123
	(1.33)	(1.30)	(1.83)	(1.90)	(1.20)
Ln(GDP per capita)	0.026*	0.026*	0.013	0.013	0.024*
	(1.83)	(1.82)	(0.86)	(0.85)	(1.73)
Ln(Number of local firms)	0.004	0.004	0.002	0.002	0.004
	(0.83)	(0.81)	(0.52)	(0.54)	(0.77)
Year FE	yes	yes	yes	yes	
Pseudo R²	0.19	0.19	0.19	0.20	0.19
Observations	839,680	839,680	839,680	839,680	839,680

Table 12: Consistency with attitudes towards communism

Panel A of this table presents results from logit regressions with stock market participation as the dependent variable. Stock market participation is equal to one, if an investor holds stocks and/or equity funds in her portfolio in a given year, and zero otherwise. We report marginal effects evaluated at the mean investor. z-stats based on standard errors clustered by county are presented in parentheses. Results in Panels (B) and (C) are from pooled OLS regressions, where the dependent variable is the fraction of stocks in an investor's portfolio conditional on stock market participation (Panel B), or the fraction of bonds in an investors' portfolio (Panel C). t-stats based on standard errors clustered by county are presented in parentheses. The main independent variable, East, is equal to one if an investor lives in East Germany, and zero if an investor lives in West Germany. Regressions include the same set of control variables as in Table 2. In column (1), we interact our East German dummy variable with the fraction of voluntary secret police (STASI) spies who lived in an investor's county during the GDR regime. In column (2), we interact our East German dummy variable with the fraction of survey respondents in an investor's county who state that the former political system of the GDR had many positive aspects. In column (3), we interact our East-German dummy variable with the fraction of votes for the former communist party (PDS) in an investor's county. Regressions are based on the brokerage data set. The sample is from June 2004 to December 2012.

Table 12: Consistency with attitudes towards communism cont'd

Panel A: Stock market participation	Stasi volunteers (1)	Liked GDR politics (2)	Votes for left party (3)
East	−0.143***	−0.116***	0.038
	(−6.05)	(−6.37)	(1.47)
East × Stasi	−0.081**		
	(−2.51)		
East × liked GDR politics		−0.219***	
		(−5.65)	
East × left party votes			−0.499***
			(−2.76)
Left party votes			−0.304*
			(−1.80)
Control variables	yes	yes	yes
Year FE	yes	yes	yes
Pseudo R^2	0.194	0.196	0.211
Observations	839,680	839,461	213,973

Panel B: % stocks in portfolio	Stasi volunteers (1)	Liked GDR politics (2)	Votes for left party (3)
East	−0.056***	−0.029**	0.057
	(−4.65)	(−2.45)	(0.85)
East × Stasi	−0.044*		
	(−1.69)		
East × liked GDR politics		−0.198***	
		(−4.46)	
East × left party votes			−0.748*
			(−1.90)
Left party votes			0.061
			(0.60)
Control variables	yes	yes	yes
Year FE	yes	yes	yes
Adj.R^2	0.092	0.093	0.113
Observations	687,464	687,291	175,937

Panel C: % bonds in portfolio	Stasi volunteers (1)	Liked GDR politics (2)	Votes for left party (3)
East	0.128***	0.060***	0.142
	(6.42)	(3.12)	(1.25)
East × Stasi	0.081*		
	(1.66)		
East × liked GDR politics		0.426***	
		(5.72)	
East × left party votes			−0.416
			(−0.64)
Left party votes			0.560***
			(3.87)
Control variables	yes	yes	yes
Year FE	yes	yes	yes
Adj.R^2	0.250	0.258	0.261
Observations	839,272	839,053	213,877

Table 13: Trigger points: Election years

Column (1) of this table presents results from a logit regression with stock market participation as the dependent variable. Stock market participation is equal to one, if an investor holds stocks and/or equity funds in her portfolio in a given year, and zero otherwise. Results in column (1) report marginal effects evaluated at the mean investor. z-stats based on standard errors clustered by county are presented in parentheses. Results in columns (2) and (3) are from pooled OLS regressions, where the dependent variable is the fraction of stocks in an investor's portfolio conditional on stock market participation (column (2), or the fraction of bonds in an investors' portfolio (column (3)). t-stats based on standard errors clustered by county are presented in parentheses in columns (2) and (3). The main independent variable, East, is equal to one if an investor lives in East Germany, and zero if an investor lives in West Germany. All other variables are described in detail in Appendix A. In this table, we interact our East German Dummy variable with a dummy variable which is equal to one for federal election years in our sample, and zero otherwise. Federal elections during our sample period took place in 2005 and 2009. Regressions are based on the brokerage data set. The sample is from June 2004 to December 2012.

	Stock market participation (1)	% stocks in portfolio (2)	%bonds in portfolio (3)
East	–0.186***	–0.073***	0.153***
	(–10.03)	(–8.00)	(9.47)
East × election years	–0.019***	0.004	0.025***
	(–7.56)	(0.92)	(4.96)
Control variables	yes	yes	yes
Pseudo/Adj. R^2	0.19	0.09	0.25
Observations	839,680	687,464	839,272

Table 14: Are anti-capitalist attitudes costly?

In Panels A and B of this table, we show results from a regression with the equal or value weighted return, respectively, of a difference portfolio that is long in East German investors' stock holdings and short in West German investors' stock holdings as dependent variable. To obtain performance alphas, in Panel A (B), difference returns are regressed on the German (Global) CAPM market factor in columns (1) and (4), on the German (Global) 3 Fama and French (1993a) factors in columns (2) and (5) and on the the German (Global) Carhart (1997b) 4-factor model in columns (3) and (6). German risk factors are computed as described in Artmann, Finter, Kempf, Koch, and Theissen (2012), global risk factors are obtained from Kenneth French's website. In Panel C, column (1) shows marginal effects from a logit regression where the dependent variable is equal to one if an investor holds index funds and/or ETFs in her portfolio in a given year, and zero otherwise. Column (2) shows results from an OLS regression where the dependent variable is the number of assets in an investor's portfolio in a given year. Column (3) shows results from an OLS regression where the dependent variable is the average fund fees an investor pays for all equity funds in her portfolio in a given year. Column (4) shows results from an OLS regression with the Herfindahl index of an investor's stock holdings in a given year as dependent variable. In column (5), the dependent variable is the fraction of bank-owned products an investor holds in her portfolio. We regress the dependent variable on the East-German dummy variable and the same set of control variables as in Table 2. Robust t-stats are presented in parentheses. Standard errors are clustered by county level. Regressions are based on the brokerage data set. The sample is from June 2004 to December 2012.

Table 14: Are anti-capitalist attitudes costly? cont'd

Panel A: German risk factors

| | CAPM$_t^{E-W}$ (1) | Equal weighted | | CAPM$_t^{E-W}$ (4) | Value weighted | |
		3-Factor$_t^{E-W}$ (2)	4-Factor$_t^{E-W}$ (3)		3-Factor$_t^{E-W}$ (5)	4-Factor$_t^{E-W}$ (6)
Performance alpha$_t^{East-West}$	-0.080**	-0.070*	-0.097**	-0.109**	-0.098**	-0.089**
	(-2.00)	(-1.80)	(-2.45)	(-2.40)	(-2.37)	(-2.08)
MKTRF^{German}	-0.024***	-0.031***	-0.023***	0.014*	0.007	0.004
	(-4.04)	(-4.45)	(-3.03)	(1.81)	(0.91)	(0.48)
SMB^{German}		-0.034**	-0.026*		-0.037***	-0.040***
		(-2.46)	(-1.85)		(-2.64)	(-2.65)
HML^{German}		-0.016	-0.013		-0.016	-0.017
		(-1.24)	(-0.99)		(-0.84)	(-0.86)
WML^{German}			0.023***			-0.007
			(3.24)			(-0.65)
Adj. R^2	0.110	0.163	0.193	0.023	0.072	0.065
Observations	92	92	92	92	92	92

Panel B: International risk factors

| | CAPM$_t^{E-W}$ (1) | Equal weighted | | CAPM$_t^{E-W}$ (4) | Value weighted | |
		3-Factor$_t^{E-W}$ (2)	4-Factor$_t^{E-W}$ (3)		3-Factor$_t^{E-W}$ (5)	4-Factor$_t^{E-W}$ (6)
Performance alpha$_t^{East-West}$	-0.080**	-0.073**	-0.076**	-0.109**	-0.107**	-0.101**
	(-2.04)	(-2.00)	(-2.08)	(-2.36)	(-2.32)	(-2.18)
MKTRF^{Global}	-0.030***	-0.023***	-0.022***	0.018*	0.020*	0.017
	(-4.59)	(-4.03)	(-3.77)	(1.79)	(1.98)	(1.57)
SMB^{Global}		-0.086***	-0.087***		-0.033	-0.031
		(-3.41)	(-3.49)		(-1.19)	(-1.10)
HML^{Global}		-0.026	-0.022		-0.004	-0.011
		(-1.34)	(-1.08)		(-0.10)	(-0.31)
WML^{Global}			0.008			-0.014
			(0.91)			(-1.04)
Adj. R^2	0.133	0.216	0.212	0.032	0.023	0.025
Observations	92	92	92	92	92	92

Table 14: Are anti-capitalist attitudes costly? cont'd

Panel B: Other costs	Passive investments (1)	# of assets (2)	Fund fees (3)	Herfindahl index (4)	Bank owned products (5)
East	−0.010***	−1.509***	0.051***	0.038***	0.031*
	(−5.25)	(−4.74)	(4.71)	(2.72)	(1.73)
Gender (1=male)	0.009***	1.023***	−0.002	−0.036***	−0.060***
	(14.08)	(15.61)	(−0.38)	(−14.28)	(−12.93)
Investor age	−0.029***	−0.196	0.059***	0.043***	0.045***
	(−23.05)	(−1.01)	(4.13)	(4.77)	(4.35)
Ln(Portfolio value)	0.007***	1.137***	−0.011***	−0.075***	−0.090***
	(25.50)	(31.79)	(−6.44)	(−80.25)	(−72.80)
Married (1=yes)	0.004***	0.314***	−0.002	−0.003	−0.025***
	(6.21)	(5.41)	(−0.28)	(−1.33)	(−5.65)
Ln(Number of local banks)	0.003**	0.239	−0.017**	−0.003	0.010
	(2.18)	(1.44)	(−2.42)	(−0.50)	(1.10)
Ln(Total population)	−0.000	0.059	0.000	−0.002	0.003
	(−0.27)	(1.06)	(0.15)	(−1.09)	(0.98)
Time account is open	0.005***	1.798***	−0.000	−0.050***	−0.122***
	(6.24)	(17.41)	(−0.03)	(−13.20)	(−16.91)
Ln(Real estate wealth)	−0.001***	−0.073***	0.003*	0.002*	−0.002
	(−3.72)	(−3.13)	(1.89)	(1.69)	(−1.36)
High school degree	0.040***	2.149	−0.207**	−0.019	−0.087
	(2.82)	(1.16)	(−2.54)	(−0.31)	(−0.86)
Ln(GDP per capita)	0.008***	0.524**	−0.011	−0.010	−0.012
	(2.85)	(2.22)	(−0.68)	(−0.90)	(−0.53)
Ln(Number of local firms)	0.002***	0.157*	−0.012***	−0.005	0.002
	(3.02)	(1.85)	(−2.66)	(−1.53)	(0.43)
Year FE	yes	yes	yes	yes	yes
Pseudo/Adj. R^2	0.11	0.20	0.08	0.34	0.36
Observations	515,856	839,680	60,690	622,777	90,215

Appendix A: Brief definitions and sources of main variables

This table briefly defines the main variables used in the empirical analysis. The data sources are:

  (i) BRO: Brokerage data , 300,000 retail investors, personal characteristics as stored in the system by December 2012, daily transactions and monthly holdings from June 2004 - December 2012,

 (ii) BAC: Bank account data: 6,903 clients, personal characteristics as stored in the bank system by August 2017, account balances are monthly averages over the time period from January 2016 to August 2017,

(iii) BS: Bank survey, 2,133 respondents, conducted in the first quarter of 2017,

 (iv) GFSO: German Federal Statistic Office,

  (v) ECB: European Central Bank,

 (vi) MC: Manually collected,

(vii) Wiki: Wikipedia,

(viii) KAF: Konrad Adenauer Foundation, http://www.kas.de/wf/de/71.6604/,

 (ix) GMEA: German Ministry of Environmental Affairs,

  (x) MS: Morningstar,

 (xi) CFR: Center for Financial Research, Cologne,

(xii) DB: Deutsche Bundesbank,

(xiii) SAVE: SAVE 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,

(xiv) ID: Infratest dimap, 1,022 respondents across East German, survey conducted by the polling institute in 2014

 (xv) BC: Bursztyn and Cantoni (2016),

(xvi) DPW: D'Acunto, Prokopczuk, and Weber (2017), 1,000 respondents, data were collected via Click-Worker, an online platform, where a stratified sample of the German population answered the survey for a specified compensation,

(xvii) DS: Datastream.

Appendix A cont'd

Variable name	Description	Source
# of assets in portfolio	The number of assets in an investor's portfolio in a given year.	BRO
Above 50	An indicator variable equal to one if investors are 50 years of age or above, and zero otherwise.	BRO, BAC
Any Olympic medal	Indicator variable equal to one if there was at least one Olympic medal winner in the same zip-code area than a given investor, and zero otherwise	MC, Wiki
Catholic Place GDR	An indicator variable equal to one if an investor is from a county where the catholic church was particularly strong in GDR times (i.e., Eichsfeld, thueringische Rhoen, and sorbische Oberlausitz).	KAF
Chinese, Russian, or Vietnamese firms	Fraction of Chinese, Russian, or Vietnamese companies in an investor's portfolio.	BRO, DS
Credit Score	The clients default probability as calculated by the banks internal scoring system.	BAC
Distance	The shortest distance between a respective East German county and the former border to West-Germany in kilometers.	MC
East	An indicator variable that equals one if an individual lives in the East of Germany (i.e., Brandenburg, Mecklenburg-Western Pomerania, Saxony, Saxony-Anhalt, Thuringia), and zero otherwise.	GFSO
East Berlin	An indicator variable that equals one if an individual lives in East Berlin, which belonged to the GDR before Reunification (i.e., Friedrichshain, Lichtenberg, Marzahn-Hellersdorf, Mitte, Pankow, Treptow-Köpenick), and zero if an individual lives in West Berlin.	MC
Election years	An indicator variable equal to one for federal election years in our sample, and zero otherwise. Federal elections during our sample period took place in 2005 and 2009.	MC
Employed	An indicator variable that equals one if the client is employed and zero otherwise.	BAC
Environmental Pollution	An indicator equal to one for the most environmentally polluted counties in the GDR. The 16 counties are listed in Appendix B.	GMEA
Familiarity	County level average of responses to bank survey question on how much individuals agree with the following statement The stock market is a closed book to me. Answers are given on a 7 point Likert scale (7=I fully agree).	BS

Appendix A cont'd

Variable name	Description	Source
Financial Literacy	County level average of basic financial literacy score following van Rooij, Lusardi, and Alessie (2011). It is based on three quiz-like questions covering the understanding of inflation, interest rates as well as risk diversification. The score counts the number of correct answer ranging from 0 (low literacy) to 3 (high literacy).	BS
Firms of Financial Industry	Fraction of financial companies in an investor's portfolio. Single stock holdings were classified using the ICBIC industry code 8000 for financials.	BRO, DS
Fraction of bank owned products	Fraction of bank-owned products (funds) an investor holds in her portfolio.	BRO, MS
Fraction of bonds	Fraction of bonds in an investor's portfolio	BRO
Fraction of Cath & Prot 2011	Fraction of Catholics and Protestants in a given investor's county according to the 2011 census.	GFSO
Fraction of Catholics 2011	Fraction of members of the catholic church in a given investor's county according to the 2011 census	GFSO
Fraction of Protestants 2011	Fraction of members of the protestant church in a given investor's county according to the 2011 census	GFSO
Fraction of stocks if participating	Fraction of stocks in an investor's portfolio conditional on Stocks & equity funds being equal to one.	BRO, BAC
Fund Fees	Average fund fees (total expense ratios) an investor pays for all equity funds in her portfolio in a given year	BRO, MS
GDP per Capita	GDP per Capita on the county level.	GFSO
Gender	An indicator variable that equals one if the client is male and zero if female.	BRO, BAC
High school degree in county	Share of inhabitants in a county with a high school degree.	GFSO
HML	The monthly Fama French value factor for the German stock market.	CFR
Income	Self-reported income of broker client ranging from 1 (low) to 4 (high).	BRO
Investor age	The age of the client in years.	BRO, BAC
Left party votes	Fraction of votes for the former communist party (PDS) in an investor's county.	GFSO
Liked GDR politics	Fraction of survey respondents in an investor's county who state that the former political system of the GDR had many positive aspects.	ID
Ln(Income)	Logarithm of the clients income as proxied by the bank based on regular monthly inflows to the current account.	BAC

Appendix A cont'd

Variable name	Description	Source
Ln(Savings)	Logarithm of the clients average positive balance on a savings account.	BAC
Married	An indicator variable that equals one if the client is married, and zero otherwise.	BRO, BAC
MKTRF	The monthly market factor (value-weighted CDAX performance) less the risk-free rate (one-month money-market rate) for the German capital market.	CFR
Mortgage	An indicator variable that equals one if the client holds a mortgage with the bank.	BAC
Mover	An indicator variable that equals one if the client has moved from East to West Germany after the fall of the Berlin Wall in 1989. Clients have been asked whether and when they have lived in East Germany during their lifetime.	BS
Mover10Y	An indicator variable equal to one if an investor has moved from East at least 10 years ago	BS
Mover20Y	An indicator variable equal to one if an investor has moved from East at least 20 years ago	BS
No West TV	An indicator variable equal to one for counties in the former GDR that did not receive TV signals from West Germany, and zero otherwise. Counties with no access to West TV comprise: 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
Number of local banks	Number of local bank branches by county.	DB
Number of local firms	Logarithm of the number of registered firms for each county and year-end.	GFSO
Olympic gold medal	An indicator variable equal to one if there was at least one Olympic Gold medal winner in the same zip-code area than the investor, and zero otherwise.	MC, Wiki
Online Banking	An indicator variable that equals one if the client has access to online banking, and zero otherwise.	BAC
Passive Investments	An indicator equal to one if an investor hold index funds or ETFs in her portfolio in a given year, and zero otherwise.	Broker, MS
Portfolio concentration	Herfindahl index of an investor's stock holdings in a given year. It is a measure for portfolio diversification entailing numbers and weights of portfolio compontents.	BRO
Portfolio Value	The total value of a client's portfolio in the end of a given year (in Euro).	BRO, BAC
Real Estate	An indicator variable that equals one if the client owns a house.	BS

Appendix A cont'd

Variable name	Description	Source
Real Estate Wealth	The average self-reported wealth in real estate elicited by the SAVE household survey. Responses are aggreagted (mean values) per county.	SAVE
Relationship	Number of years, the client has a business relation with the bank.	BAC
Renamed City	An indicator variable equal to one if an investor lives in a city that was renamed during the GDR regime. Renamed cities include Chemnitz (Karl-Marx-Stadt), Kriegsdorf (Friedensdorf), Neuhardenberg (Marxwalde), Werminghof (Knappenrode), and Eisenhuettenstadt (Stalinstadt).	Wiki
Retiree	An indicator variable that equals one if the client is retireed and zero otherwise.	BAC
Risk Attitude	Answer to the question how much participants agree with the following statement "I do not mind taking risk regarding investments" on a 1 to 7 scale (7="I fully agree").	BS
Risk Tolerance	Self-reported individual risk tolerance on a scale ranging from 1 (low) to 3 (high) assessed when account is opened.	BRO
SMB	The monthly Fama-French size factor for the German stock market.	CFR
Stasi	Fraction of voluntary secret police (STASI) spies who lived in an investor's county during the GDR regime.	ECB
State owned companies	Largest formerly state-owned companies in Germany: Deutsche Telekom, Deutsche Lufthansa, Deutsche Post, Deutsche Postbank, and Fraport.	MC
Stocks	Dummy variable equal to one if an investor holds stocks in her portfolio, and zero otherwise.	BRO, BAC
Stock market participation	Dummy variable equal to one if an investor holds either stocks or equity funds in her portfolio, and zero otherwise.	BRO
Time account is open	Number of months passed since account was opened with online broker.	BRO
Total population	The average number of inhabitants per zip-code area.	GFSO
Trainee	An indicator variable that equals one if the client is a trainee and zero otherwise.	BAC
Trust	The county level average answer to the statement: I have confidence in securities markets. Measured on a 1-7 scale (7= I fully agree).	BS
US firms	Fraction of US companies in an investor's portfolio.	BRO, DS
WML	The monthly the Momentum factor for the German stock market.	CFR

Appendix B: Top 10 holdings of (anti-) capitalist stocks

Panel A of this Table contains the Top 10 holdings of stocks belonging to the financial industry or stocks of US companies, respectively, in investors' portfolios. Panel B of this table contains the Top 10 holdings of Russian, and Chinese firms, as well as the top holding of Vietnamese firms. We also add a description on the main business field of these companies and whether they are state-owned or not.

Panel A: Financial industry and US stocks	
Financial industry	US stocks
DEUTSCHE BANK	CISCO SYSTEMS
COMMERZBANK	MICROSOFT
ALLIANZ	GENERAL ELECTRIC
MUENCHENER RUCK.	INTEL
DEUTSCHE POSTBANK	EMC
WCM BETEILIGUNG UND GRUNDBESITZ	PFIZER
MLP	WORLDCOM (delisted)
COMDIRECT BANK	YAHOO
HYPO REAL ESTATE HLDG. (delisted)	COMMERCE ONE (delisted)
DEUTSCHE BOERSE	DELL

Panel B: Stocks of formerly communist countries	
Russia	Description
OAO GAZPROM	State owned, Industry: Energy, Oil and Gas
LUKOIL OAO	Industry: Energy, Oil and Gas
ROSNEFT	State owned, Industry: Energy, Oil and Gas
ROSTELECOM	Industry: Communication Services, Telecom Services
NORILSK NICKEL	Industry: Basic Materials, Industrial Metal & Minerals

Appendix B: Top 10 holdings of (anti-) capitalist stocks cont'd

Panel B (cont'd): Stocks of formerly communist countries

Russia	Description
Yukos Oil (delisted)	Industry: Energy, Oil and Gas
GAZPROM NEFT	Maj. Shareholder: Gazprom (state owned), Industry: Energy, Oil and Gas
MOSENERGO	Maj. Shareholder: Gazprom (state owned), Industry: Utilities - Independent Power Producers
TRADE HOUSE GUM	Industry: Consumer Cyclical
SURGUTNEFTEGAZ	Industry: Energy, Oil and Gas

China	Description
PETROCHINA	Industry: Energy, Oil and Gas
BYD	Industry: Consumer Cyclical, Auto Manufacturers
CHINA LIFE INSURANCE	State owned, Industry: Financial Services, Insurance-Life
CHINA PETROLEUM CHEMCIAL	Maj. Shareholder: Sinopec (state owned), Industry: Energy, Oil and Gas
ICBC	Financial Services, Banks Global
CHINA TELECOM	Maj. Shareholder: China Telecommunication Corp. (state owned), Industry: Communication Services, Telecom Services
TSINGTAO BREWERY	State as Min. SH, Sector/Industry: Consumer Defensive, Beverages Brewers
CHINA CONSTRUCTION BANK	Maj. Shareholder:SH Central Huijin Investment (state-owned), Industry: Financial Services, Banks Global
BANK OF CHINA	Maj. Shareholder:SH Central Huijin Investment (state-owned), Industry: Financial Services, Banks Global
CHINA COSCO SHIPPING	State owned, Industry: Industrials, Shipping & Ports

Vietnam	Description
Vietnam Holding	Industry: Financials, Asset Management; Firm operates a closed end fund investing in former state-owned enterprises and private enterprises in Vietnam