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Economic systems and risk preferences: evidence from East and West Germany

Michael Neugart*

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Abstract

For standard economic models it is typically assumed that preferences are given and stable. But do economic systems shape individuals' risk preferences? Using the reunification of East and West Germany as a natural experiment I evaluate differences in financial risk taking comparing Eastern and Western German households for almost two decades after the fall of the Berlin Wall. Controlling for a large set of socio-economic variables East Germans having been "treated" by a command economy were more prone to taking financial risk than West German citizens. The differences were quantitatively relevant after the fall of the Iron Curtain and almost vanished by 2008.

Keywords: economic systems, endogenous risk preferences, Germany, reunification

JEL-classification: D03, D14, G11, P50

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1 Introduction

Standard economic models assume that preferences are given and stable. Exchange of endowments through markets and a price mechanism does not alter the valuation of goods. However, it is increasingly questioned that preferences actually are independent from social and societal influences (Fehr and Hoff, 2011). In particular, may it be the case that people have different risk preferences depending on whether they interact in a market or in a command economy?

Peoples' attitudes towards risky behavior is important. It substantially determines economic decision making in many domains. Typically, savings decisions have to be made under uncertainty so that risk attitudes may not only affect individuals' wealth accumulation. On a larger scale, more risky behavior by a populace may also be constitutive for the stability of financial markets. Besides savings decisions there are numerous other domains where uncertainty is a crucial feature: educational investments, occupational choices, or real estate purchases. Moreover, the topic bears considerable policy relevance. Without taking into account preference endogeneity policy evaluations will be biased. If preferences are endogenous it becomes important to distinguish between the changes that policies have on the choice set and the behavioral changes that come about by altered preferences.

A recent literature suggests that culture and the political environment affect people's preferences for redistribution (Corneo, 2004; Alesina and Fuchs-Schündeln, 2007), attitudes toward democracy (Fuchs-Schündeln and Schündeln, 2015), solidarity (Ockenfels and Weimann, 1999), moral standards (Falk

and Szech, 2013), conspicuous consumption (Friehe and Mechtel, 2014), or financial risk taking (Osili and Paulson, 2008). It is, however, inherently difficult to meaningfully measure a causal effect of markets on people's preferences because preferences and institutions very likely co-evolve. The after World War II split of Germany constitutes an exceptional possibility to analyze the effect of markets versus a command economy on people's risk preferences. From 1949 to 1990 Germany was divided into a market oriented Federal Republic of Germany (FRG) and a communist German Democratic Republic (GDR) which installed a command economy. Before World War II Germany was a unified and rather homogeneous country. Comparing the risk preferences for East and West German citizens after the former having lived for up to four decades in a command economy might be insightful.

I use the post cold war four waves (1993, 1998, 2003, 2008) of the German income and consumption survey ("Einkommens- und Verbraucherstichprobe", EVS) in order to investigate whether East German citizens differ from West German Citizens with respect to the riskiness of their wealth positions and savings decisions, controlling for a large set of socio-economic variables including households' incomes and wealth. I conjecture that having been socialized in a market economy as opposed to a command economy might be relevant for shaping peoples' risk preferences.

What determines risk attitudes is not so well understood and astonishingly results vary from study to study quite substantially. Drawing on survey data Donkers et al. (2001), Dohmen et al. (2011), or Dohmen et al. (2012), for example, show that socio-economic variables such as gender, age, height, or parental background have an effect on the willingness to take risks whereas

Guiso and Paiella (2008) find that households' attributes are of little help in predicting risk aversion. Black et al. (2015b) analyze the stock market participation of Swedish adoptees and relate it to the investment behavior of their biological and adoptive parents finding that a substantial proportion of risk-attitudes is environmentally determined. Their result, however, goes against the findings in Barnea et al. (2010) and Cesarini et al. (2010) who compare the investment behavior of identical and fraternal twins. Their findings suggest that parental influences play little role beyond the genetic influence. Using a compulsory school reform in Sweden as an exogenous variation in education, Black et al. (2015a) derive evidence for an effect of education on risky behavior which they measure in terms of stock market participation and risky asset holdings. Such an effect seems, however, to only hold for men and not for women.

It is not obvious how and to which extent a command economy shapes peoples' risk preferences differently from a market economy. In a very insightful survey on endogenous preferences Bowles (1998, p.98) conjectures that economic institutions may shape preferences by influencing the tasks that we perform. Many of the financial market products to which westerners had access did not exist in the GDR and, consequently, risk preferences may have been shaped differently on the two sides of the iron curtain. But whether such a differential treatment should have led to more or less risk taking by East German citizens is an open issue. A recent literature has been analyzing whether personal macroeconomic experiences over the course of the lifetime affect individuals' willingness to take financial risks (Malmendier and Nagel, 2011; Guiso et al., 2013). If the role of personal experience mat-

ters, one could expect that subjects not having the opportunity to collect any experience will behave differently as access to financial market products is opened up. One could, moreover, conjecture that lacking the experience of bad outcomes, East Germans should have been more prone to making risky savings decisions.

2 Identification and data

A successful identification comparing East and West German households after the fall of the iron curtain relies on, both control and treatment groups, being fairly identical before the introduction of the command economy in the GDR and an appropriate measurement of the behavior after the wall came down. Germany was separated after the Second World War in 1945. The borders were determined by the Allies. Citizens preferences were not taken into account making the separation very likely exogenous to peoples' risk attitudes. In 1949 the FRG and the GDR were founded.

It occurs that East and West Germany were similar in many respects before the separation. According to Alesina and Fuchs-Schündeln (2007) East and West Germany did not show any systematic differences in terms of per capita incomes or sectoral employment before World War II. The period of the Weimarer Republic from 1918 to 1933 and the Nazi regime which followed, very likely contributed to conformity between German regions. Moreover, destruction of Germany during the Second World War was large and universal making initial conditions for the reconstruction of Germany alike.

Yet, identification could be confounded by migration during the separa-

tion of Germany and after re-unification. Before the building of the Berlin Wall in August 1961 around three million people emigrated to West Germany (see, e.g., Heidemeyer, 1994; Hubert, 1998). It could be the case that the emigrating people consistently differed from those staying in the GDR. If so and if, in particular, the difference related to risk preferences, identification would be blurred. After 1961 there was essentially no migration occurring during the treatment period except for political refugees coming to West Germany at very low numbers. The EVS data does unfortunately not inform on where people lived when the wall came down in 1989. Only current information on residence is revealed which makes migration between formerly divided East and West Germany an issue. In the analysis some of the household members which are going to be classified as West German were raised in East Germany and vice versa. The question has to be asked to which extent this may distort identification. Evaluating data on migration flows between East and West Germany¹ reveals that from 1989 onwards cumulative migration from east to west in relation to the western population was 1.3% in 1990, 2.7% in 1995, 4.0% in 2000 and 5.5% in 2005. Relating the cumulative numbers of westerners having moved to East Germany to the stock of population in the east gives shares of 0.2% in 1990, 3.6% in 1995, 7.9% in 2000, and 12.2% in 2005. Those shares should, however, be interpreted as an upper bound of incorrect assignments of residences, as it is very likely that return migration took place.

Another concern with respect to identification could be that East and

¹See German Statistical Office “Fachserie 1, Reihe 1.2, Reihe 1.3”, <https://www.destatis.de/>, own calculations.

West Germans received different treatments in terms of having access to financial advice and products. Regional data on branches of banks by the German Bundesbank² suggests that immediately after the fall of the iron curtain bank branches of West German and European banks opened up in Eastern Germany. While the intensity of banking measured as branches in relation to population seems to be somewhat lower in East Germany, East Germans who wanted advice and were willing to invest into the stock market should have been able to do so.

The analysis draws on data from the income and consumption statistics of the German Statistical Office. It is a representative household survey conducted every five years. In 1993 East German households were interviewed for the first time. I use the waves of 1993, 1998, 2003, and 2008 to construct a repeated cross section with up to 176,781 observations and a share of 21.5% stemming from Eastern Germany as shown in Table 1 on the summary statistics. I primarily draw on information on the socio-economic background of the households and information collected in a book of household accounts in which participating households keep track of their income and expenditures for three months. All income, wealth and expenditure variables are converted in Euros, and are given in prices of 2010 using the consumer price index of the German Statistical Office. Based on information on households' wealth and expenditures, I construct four different risk variables. Two of which are related to wealth measures and follow closely the work by Malmendier and Nagel (2011). The other two are flow measures based on quarterly expendi-

²See the Bankstellenstatistik of the German Bundesbank, various issues at <http://www.bundesbank.de/Redaktion/DE/Standardartikel/Aufgaben/Bankenaufsicht/bankstellenberichte.html>.

tures. The first measure is defined as the share of risky liquid wealth held by households. To this extend all liquid assets of a household are summed up. Those include stock holdings, bonds, savings on money accounts, the payback value of insurances, building savings agreements, private loans, and other securities such as funds. The share of risky liquid assets is calculated by dividing the sum of stock wealth and securities that may contain stocks by the sum of all liquid assets. The second variable measures participation in the stock market as an indicator variable which turns one if a household has invested a positive sum in the stock market or securities that may contain stocks. For the third measure a ratio is built of the sum of expenditures on stock purchases and securities that may contain stocks within a quarter, and the sum of all expenditures of the household in the respective quarter. Finally, a fourth measure is defined as an indicator variable taking the value of one if a household puts a positive amount of its quarterly expenditures into risky assets. On average 37% of the households hold some stocks whereas the average share of the value of stock holdings in relation to total liquid wealth is 11.8%. As it is not known for all households that invest in risky assets how much they invest the number of available observations drops to 167,550. The share of households that put money into risky assets is 16.7%, and 8.9% of the quarterly household expenditures go into the purchase of risky assets. As some households do not save out of their quarterly expenditures at all there are fewer observations for the share of risky quarterly expenditures available.

3 Results

3.1 Basic regressions

Table 2 reports the estimated coefficients and robust standard errors in parenthesis of the basic regressions. Results are shown for the four risk variables defined earlier. Models (1) and (3) where the dependent variable is an indicator variable are estimated as Probit models, whereas (2) and (4) are Tobit models with the dependent variable being defined as a share between zero and one. The explanatory variables of most importance are those in the first four lines. For all four risk variables I find that living in the east increases the financial risk taking. Converting the estimated parameters into marginal effects informs that the probability of participating in the stock market is 10 percentage points higher in the year 1993 for citizens in East Germany (Model 1), and that the share of holding risky liquid assets is 13 percentage points higher (Model 2). Moreover, East Germans were 12.5 percentage points more likely to put a non-zero amount of their quarterly expenditures into risky assets (Model 3) in 1993, and their share of risky savings was 24.9 percentage point higher in that year (Model 4). The interaction variables of the year dummies with the indicator variable on living in East Germany reveal that convergence of risky behavior occurred over time. For the likelihood of participating in the stock market, the percentage point difference between easterners and westerners was only 6 percentage points in 1998, 1.2 percentage points in 2003, and not statistically significantly different from zero in 2008 anymore. Similar patterns can be observed for the other three dependent variables but with the flow variables still showing a small and

statistically different behavior between East and West German citizens in 2008.

Households having higher incomes have a higher probability of participating in the stock market and more so the higher their income is. The same is true for the share of risky assets invested. Equivalent patterns with respect to household income can be observed for the regressions with risky expenditures as the dependent variable. As in Vissing-Jorgensen (2004) also wealth matters for the riskiness of investments. The wealthier households invest more risky. Overall it occurs, that even after controlling for wealth and income effects and further household characteristics Eastern Germans were taking higher risks after the fall of the Berlin Wall, and behavior adapted afterwards.

3.2 Robustness

Results are robust to various alternative specifications. Given that single states in East Germany received equal treatment of a command economy, and given that the treatment for the West German states with a market economy was also homogenous, one should observe that single state effects among eastern and western states do not vary a lot, respectively.

For the results shown in Table 3 I re-ran the four basic regressions and substituted the “east” dummy with indicator variables for the five eastern states. Analogously, in Table 4 indicator variables for all western states substitute the “east” dummy. Results shown in both tables corroborate the previous findings. For the eastern states I get, as the basic regression sug-

gested, a positive sign on all indicators which are statistically significant for all four models. Even the size of the estimated coefficients across the states is similar. What is more, the convergence pattern between East and West German households is confirmed. I get equally confirming results for the western states. As was already suggested by the basic regression, western households are behaving less risky and moreover convergence between eastern and western households can also be observed.

One may also wonder if the treatment dose matters for the risky behavior when comparing Eastern and Western Germans after the fall of the Berlin Wall. A test of this conjecture involves splitting the sample into a cohort that was born before the end of World War II and another one born afterwards. Then, the cohort dummy and its interaction with “east” in Table 5 can be interpreted as to which extend those fully socialized in the GDR differ from those having been born before the end of World War II in relation to the Western Germans. As before, Eastern German residents show riskier behavior. Moreover, the cohort born before the end of the second world war is taking larger risks in both parts of Germany. Those two parameter estimates as well as the interaction effect (third row) of belonging to the older cohort and being in Eastern Germany are statistically significantly different from zero for all risk measures. Then deriving the marginal effects for Model (1), and similarly for the other estimated models, one gets that there is hardly any difference in the predicted stock market participation between the cohort born before the end of World War II and those afterwards for the Eastern German citizens. For the Western German citizens members of the older cohort are 3.7 percentage points more likely to hold risky assets. Taking the

difference between the two differences gives an estimate statistically significantly different from zero and line with an interpretation that those being treated to a smaller degree by a command economy show less risky behavior.

4 Conclusions

In standard economic models it is typically assumed that preferences are given and stable. But may it be the case that how people evaluate risks is endogenous to the type of economic system along which the allocation of scarce resources is organized? I try to shed light on this question by comparing investment decisions of East and West German households after German re-unification. The case of Germany constitutes a natural experiment which allows for a plausible test to which extent market as opposed to command economies shape people's attitudes toward risky behavior. From the end of World War II up to the year 1990 Germany was split into two parts: the West organized along the principles of a market economy and the East as a command economy. German re-unification came with a re-organization of the former GDR along the principles of a market economy which entailed that East German households became access to the same savings devices as West Germans.

Comparing the investment behavior of the East Germans with the West Germans provides evidence for more risky behavior of those households that have been raised in a command economy. In 1993, the first year for which data exists after the fall of the Iron Curtain, Eastern Germans were 10 percentage points more likely to participate in the stock market, had a 13 per-

centage point higher share of liquid wealth invested in risky assets, were 12.5 percentage points more likely to put a non-zero amount of their quarterly expenditures into risky assets, and had a 24.9 percentage point higher share of risky quarterly savings. My findings also suggest that the difference in risky financial investments between East and West German households disappeared over time and had almost vanished by 2008. An observation which is also consistent with risk preferences being endogenous with respect to how economic systems are organized.

Overall, the results provide evidence for the hypothesis of endogenous preferences being shaped by the type of the economic system in which agents interact. For theoretical work endogenous preferences pose important challenges not only in terms of setting up appropriate models but also in terms of welfare assessments. From a public policy point of view it has to be taken into account that policies may not only alter the restrictions under which agents make decisions but preferences may change simultaneously. If not taken into account properly, policy evaluations will be biased.

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Table 1: Summary statistics

Variable	Num. Obs.	Mean	Std. Dev.	Min.	Max.
Share risky assets	167550	0.118	0.219	0	1
Participation stock market	176781	0.37	0.483	0	1
Share risky expenditures	159166	0.089	0.225	0	1
Participation risky expenditures	176781	0.197	0.398	0	1
East	176781	0.215	0.411	0	1
Household income (quarterly)	176781	17892.15	18693.88	943.21	721843.81
Liquid wealth	176781	48897.57	87518.48	0	4237096.50
Household size	176781	2.472	1.26	1	8
Household type (shares in %)					
Single with kids	3.78				
Couple with kids	27.58				
Other	68.63				
Characteristics household head					
Gender (male=1, female=2)	176781	1.31	0.46	1	2
Age	176781	49.95	14.853	20	85
Citizenship (german=0)	176781	0.016	0.124	0	1
Education (shares in %)					
No education	5.28				
Secondary education	62.39				
Tertiary education	32.32				
Social status (shares in %)					
Employed	66.24				
Unemployed	4.17				
Retired	26.10				
Other out of labor force	3.50				

Notes: Data is from “FDZ (Forschungsdatenzentrum) der statistischen Ämter des Bundes und der Länder, Einkommens- und Verbraucherstichprobe 1993, 1998, 2003, und 2008”, own calculations.

Table 2: Risky savings decisions

VARIABLES	(1)	(2)	(3)	(4)
	Probit Part. stock mkt.	Tobit Sh. risky assets	Probit Part. risky exp.	Tobit Sh. risky exp.
east	0.356*** (0.0184)	0.130*** (0.00722)	0.407*** (0.0179)	0.249*** (0.0107)
east#1998.year	-0.159*** (0.0236)	-0.0591*** (0.00917)	-0.0628** (0.0244)	-0.0409*** (0.0154)
east#2003.year	-0.319*** (0.0245)	-0.102*** (0.00939)	-0.215*** (0.0262)	-0.132*** (0.0164)
east#2008.year	-0.368*** (0.0241)	-0.128*** (0.00929)	-0.290*** (0.0254)	-0.191*** (0.0158)
1998.year	0.239*** (0.0110)	0.0923*** (0.00398)	-0.478*** (0.0113)	-0.226*** (0.00702)
2003.year	0.607*** (0.0114)	0.214*** (0.00407)	-0.433*** (0.0119)	-0.237*** (0.00733)
2008.year	0.446*** (0.0115)	0.172*** (0.00416)	-0.389*** (0.0121)	-0.211*** (0.00746)
income_hh_2	0.129*** (0.0221)	0.0553*** (0.00987)	0.266*** (0.0299)	0.132*** (0.0221)
income_hh_3	0.244*** (0.0222)	0.109*** (0.00980)	0.477*** (0.0295)	0.270*** (0.0216)
income_hh_4	0.331*** (0.0224)	0.145*** (0.00976)	0.624*** (0.0295)	0.357*** (0.0214)
income_hh_5	0.384*** (0.0227)	0.170*** (0.00982)	0.713*** (0.0296)	0.410*** (0.0214)
income_hh_6	0.452*** (0.0231)	0.191*** (0.00986)	0.817*** (0.0299)	0.471*** (0.0215)
income_hh_7	0.500*** (0.0234)	0.208*** (0.00996)	0.908*** (0.0301)	0.523*** (0.0216)
income_hh_8	0.540*** (0.0236)	0.216*** (0.00998)	0.972*** (0.0303)	0.560*** (0.0217)
income_hh_9	0.648*** (0.0239)	0.252*** (0.0100)	1.074*** (0.0305)	0.620*** (0.0218)
income_hh_10	0.682*** (0.0242)	0.261*** (0.0101)	1.182*** (0.0307)	0.684*** (0.0218)
income_hh_11	0.768*** (0.0246)	0.287*** (0.0101)	1.299*** (0.0308)	0.752*** (0.0219)
income_hh_12	0.836*** (0.0250)	0.307*** (0.0102)	1.456*** (0.0310)	0.847*** (0.0220)
wealth_hh_2	1.089*** (0.0427)	0.225*** (0.0244)	0.277*** (0.0328)	0.0414 (0.0252)
wealth_hh_3	1.463*** (0.0419)	0.343*** (0.0240)	0.444*** (0.0316)	0.127*** (0.0241)

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VARIABLES	(1) Probit Part. stock mkt.	(2) Tobit Sh. risky assets	(3) Probit Part. risky exp.	(4) Tobit Sh. risky exp.
... continues from last page				
wealth_hh_4	1.691*** (0.0418)	0.410*** (0.0238)	0.595*** (0.0311)	0.207*** (0.0236)
wealth_hh_5	1.867*** (0.0417)	0.458*** (0.0237)	0.668*** (0.0309)	0.242*** (0.0235)
wealth_hh_6	2.020*** (0.0417)	0.508*** (0.0236)	0.762*** (0.0308)	0.300*** (0.0233)
wealth_hh_7	2.147*** (0.0417)	0.541*** (0.0236)	0.818*** (0.0308)	0.332*** (0.0233)
wealth_hh_8	2.277*** (0.0417)	0.582*** (0.0236)	0.889*** (0.0307)	0.375*** (0.0232)
wealth_hh_9	2.421*** (0.0418)	0.623*** (0.0236)	0.962*** (0.0308)	0.419*** (0.0232)
wealth_hh_10	2.581*** (0.0419)	0.664*** (0.0235)	1.045*** (0.0308)	0.471*** (0.0231)
wealth_hh_11	2.759*** (0.0421)	0.716*** (0.0235)	1.127*** (0.0309)	0.531*** (0.0232)
wealth_hh_12	3.129*** (0.0427)	0.829*** (0.0236)	1.293*** (0.0312)	0.657*** (0.0234)
hh_size	-0.267*** (0.0134)	-0.135*** (0.00492)	-0.256*** (0.0144)	-0.208*** (0.00932)
hh_size_sq	0.0237*** (0.00191)	0.0132*** (0.000689)	0.0230*** (0.00202)	0.0203*** (0.00128)
hh_type_couple	0.00465 (0.0224)	0.00242 (0.00884)	-0.0280 (0.0244)	-0.0261* (0.0159)
hh_type_other	-0.105*** (0.0219)	-0.0461*** (0.00870)	-0.0953*** (0.0240)	-0.0767*** (0.0156)
gender	-0.0742*** (0.00876)	-0.0282*** (0.00330)	-0.0328*** (0.00958)	-0.0256*** (0.00621)
age	-0.0297*** (0.00174)	-0.0129*** (0.000665)	-0.0343*** (0.00195)	-0.0237*** (0.00129)
age_sq	0.000141*** (1.77e-05)	8.14e-05*** (6.81e-06)	0.000205*** (2.03e-05)	0.000167*** (1.37e-05)
citizenship	-0.0685** (0.0309)	-0.00181 (0.0123)	-0.162*** (0.0353)	-0.0786*** (0.0236)
edu_secondary	0.0309 (0.0189)	0.00387 (0.00767)	0.00472 (0.0215)	-0.0173 (0.0145)
edu_tertiary	0.149*** (0.0196)	0.0584*** (0.00789)	0.00176 (0.0222)	0.00268 (0.0149)
st_unemployed	0.116*** (0.0222)	0.0508*** (0.00899)	-0.0118 (0.0263)	0.0452** (0.0183)
st_retired	0.151*** (0.0143)	0.0674*** (0.00524)	-0.0166 (0.0161)	0.0199* (0.0107)
st_out_of_labor	0.204*** (0.0234)	0.108*** (0.00957)	-0.0543** (0.0270)	0.0443** (0.0189)
Constant	-1.719*** (0.0645)	-0.347*** (0.0302)	-0.610*** (0.0638)	-0.109** (0.0443)
Observations	176,781	167,550	176,781	159,166
Pseudo R-sq	0.21	0.15	0.14	0.10
σ		0.415 (0.0015)		0.670 (0.0030)

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Reference categories: income -> lowest income bracket; wealth -> lowest wealth bracket;

household type -> single; gender -> male; citizenship -> german;

education -> primary; social status -> employed

Table 3: Heterogeneity across single eastern states

VARIABLES	(1)	(2)	(3)	(4)
	Probit Part. stock mkt.	Tobit Sh. risky assets	Probit Part. risky exp.	Tobit Sh. risky exp.
1998.year	0.237*** (0.0108)	0.0915*** (0.00395)	-0.478*** (0.0112)	-0.226*** (0.00694)
2003.year	0.600*** (0.0113)	0.211*** (0.00405)	-0.443*** (0.0118)	-0.244*** (0.00729)
2008.year	0.436*** (0.0114)	0.169*** (0.00413)	-0.398*** (0.0119)	-0.217*** (0.00739)
brandenburg	0.403*** (0.0370)	0.152*** (0.0147)	0.378*** (0.0359)	0.232*** (0.0214)
1998.year#brandenburg	-0.316*** (0.0503)	-0.124*** (0.0197)	-0.167*** (0.0533)	-0.122*** (0.0336)
2003.year#brandenburg	-0.406*** (0.0516)	-0.146*** (0.0200)	-0.241*** (0.0558)	-0.151*** (0.0352)
2008.year#brandenburg	-0.437*** (0.0499)	-0.159*** (0.0195)	-0.268*** (0.0525)	-0.184*** (0.0323)
mecklenburg	0.309*** (0.0448)	0.109*** (0.0177)	0.297*** (0.0441)	0.192*** (0.0267)
1998.year#mecklenburg	-0.207*** (0.0599)	-0.0797*** (0.0236)	-0.0815 (0.0637)	-0.0707* (0.0408)
2003.year#mecklenburg	-0.370*** (0.0603)	-0.0893*** (0.0243)	-0.0486 (0.0646)	-0.0148 (0.0415)
2008.year#mecklenburg	-0.411*** (0.0606)	-0.118*** (0.0243)	-0.183*** (0.0648)	-0.113*** (0.0411)
sachsen	0.366*** (0.0282)	0.136*** (0.0111)	0.501*** (0.0270)	0.305*** (0.0158)
1998.year#sachsen	-0.130*** (0.0377)	-0.0515*** (0.0147)	-0.128*** (0.0389)	-0.0763*** (0.0246)
2003.year#sachsen	-0.296*** (0.0389)	-0.0929*** (0.0149)	-0.265*** (0.0412)	-0.164*** (0.0255)
2008.year#sachsen	-0.298*** (0.0386)	-0.114*** (0.0148)	-0.368*** (0.0411)	-0.244*** (0.0252)
sachsen_anhalt	0.254*** (0.0426)	0.0838*** (0.0174)	0.219*** (0.0417)	0.137*** (0.0258)
1998.year#sachsen_anhalt	-0.0969* (0.0549)	-0.0237 (0.0220)	0.0489 (0.0576)	0.0250 (0.0371)
2003.year#sachsen_anhalt	-0.235*** (0.0570)	-0.0660*** (0.0225)	-0.136** (0.0624)	-0.105*** (0.0394)
2008.year#sachsen_anhalt	-0.257*** (0.0543)	-0.0769*** (0.0217)	-0.134** (0.0572)	-0.103*** (0.0360)
thuringen	0.296*** (0.0512)	0.0991*** (0.0203)	0.327*** (0.0490)	0.185*** (0.0292)
1998.year#thuringen	-0.0692 (0.0628)	-0.0188 (0.0247)	0.0953 (0.0629)	0.0828** (0.0394)
2003.year#thuringen	-0.257*** (0.0633)	-0.0872*** (0.0243)	-0.134** (0.0657)	-0.0580 (0.0408)
2008.year#thuringen	-0.377*** (0.0632)	-0.134*** (0.0245)	-0.222*** (0.0654)	-0.133*** (0.0404)
All controls as in basic regression included.				
Observations	176,781	167,550	176,781	159,166
Pseudo R-sq	0.21	0.15	0.14	0.10
σ		0.4152 (0.0015)		0.6696 (0.0030)

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

VARIABLES	(1) Probit Part. stock mkt.	(2) Tobit Sh. risky assets	(3) Probit Part. risky exp.	(4) Tobit Sh. risky exp.
... continues from last page:				
rheinland	-0.479*** (0.0348)	-0.173*** (0.0132)	-0.504*** (0.0333)	-0.310*** (0.0200)
1998.year#rheinland	0.143*** (0.0461)	0.0423** (0.0171)	0.0568 (0.0484)	0.0326 (0.0307)
2003.year#rheinland	0.374*** (0.0470)	0.104*** (0.0171)	0.240*** (0.0500)	0.144*** (0.0314)
2008.year#rheinland	0.320*** (0.0469)	0.111*** (0.0174)	0.315*** (0.0495)	0.210*** (0.0311)
saarland	-0.435*** (0.0675)	-0.158*** (0.0249)	-0.418*** (0.0629)	-0.250*** (0.0370)
1998.year#saarland	0.0300 (0.0897)	-0.0114 (0.0332)	-0.104 (0.0954)	-0.102* (0.0603)
2003.year#saarland	0.216** (0.0919)	0.0720** (0.0336)	0.249*** (0.0952)	0.157*** (0.0596)
2008.year#saarland	0.258*** (0.0894)	0.0910*** (0.0335)	0.342*** (0.0923)	0.222*** (0.0579)
baden	-0.388*** (0.0270)	-0.142*** (0.0101)	-0.380*** (0.0261)	-0.233*** (0.0153)
1998.year#baden	0.154*** (0.0347)	0.0506*** (0.0128)	-0.0179 (0.0358)	-0.00126 (0.0225)
2003.year#baden	0.315*** (0.0358)	0.0992*** (0.0131)	0.144*** (0.0378)	0.0971*** (0.0235)
2008.year#baden	0.421*** (0.0362)	0.139*** (0.0132)	0.275*** (0.0378)	0.174*** (0.0233)
bayern	-0.315*** (0.0254)	-0.121*** (0.00936)	-0.330*** (0.0247)	-0.206*** (0.0144)
1998.year#bayern	0.0837** (0.0325)	0.0402*** (0.0119)	0.0380 (0.0334)	0.0251 (0.0206)
2003.year#bayern	0.375*** (0.0337)	0.114*** (0.0121)	0.253*** (0.0352)	0.139*** (0.0214)
2008.year#bayern	0.342*** (0.0332)	0.121*** (0.0121)	0.265*** (0.0346)	0.175*** (0.0212)

All controls as in basic regression included.

Observations	176,781	167,550	176,781	159,166
Pseudo R-sq	0.21	0.15	0.14	0.10
σ		0.4145 (0.0015)		0.6691 (0.0030)

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4: Heterogeneity across single western states

VARIABLES	(1)	(2)	(3)	(4)
	Probit Part. stock mkt.	Tobit Sh. risky assets	Probit Part. risky exp.	Tobit Sh. risky exp.
1998.year	0.116*** (0.0202)	0.0454*** (0.00790)	-0.529*** (0.0209)	-0.258*** (0.0132)
2003.year	0.320*** (0.0212)	0.123*** (0.00826)	-0.623*** (0.0229)	-0.354*** (0.0144)
2008.year	0.128*** (0.0204)	0.0612*** (0.00798)	-0.655*** (0.0216)	-0.385*** (0.0135)
schleswig	-0.297*** (0.0384)	-0.111*** (0.0142)	-0.286*** (0.0363)	-0.178*** (0.0211)
1998.year#schleswig	0.127** (0.0512)	0.0587*** (0.0191)	-0.0161 (0.0526)	-0.00490 (0.0330)
2003.year#schleswig	0.344*** (0.0538)	0.123*** (0.0195)	0.189*** (0.0564)	0.120*** (0.0350)
2008.year#schleswig	0.369*** (0.0546)	0.129*** (0.0201)	0.294*** (0.0571)	0.173*** (0.0353)
hamburg	-0.158*** (0.0490)	-0.0407** (0.0186)	-0.249*** (0.0469)	-0.136*** (0.0279)
1998.year#hamburg	0.181*** (0.0657)	0.0687*** (0.0248)	9.35e-05 (0.0681)	0.0276 (0.0440)
2003.year#hamburg	0.272*** (0.0682)	0.0948*** (0.0252)	0.0535 (0.0731)	0.0677 (0.0474)
2008.year#hamburg	0.232*** (0.0681)	0.0842*** (0.0256)	0.135* (0.0716)	0.107** (0.0461)
niedersachsen	-0.275*** (0.0306)	-0.111*** (0.0114)	-0.327*** (0.0294)	-0.216*** (0.0171)
1998.year#niedersachsen	0.0951** (0.0402)	0.0375** (0.0149)	0.0307 (0.0415)	0.0203 (0.0258)
2003.year#niedersachsen	0.187*** (0.0421)	0.0726*** (0.0155)	0.191*** (0.0444)	0.138*** (0.0276)
2008.year#niedersachsen	0.217*** (0.0406)	0.0897*** (0.0151)	0.221*** (0.0427)	0.161*** (0.0263)
bremen	-0.472*** (0.0750)	-0.174*** (0.0294)	-0.476*** (0.0720)	-0.273*** (0.0455)
1998.year#bremen	0.258*** (0.0974)	0.0913** (0.0379)	0.120 (0.104)	0.0468 (0.0683)
2003.year#bremen	0.127 (0.100)	0.0361 (0.0385)	0.207* (0.109)	0.0846 (0.0692)
2008.year#bremen	0.297*** (0.101)	0.109*** (0.0388)	0.246** (0.110)	0.133* (0.0702)
nordrhein	-0.302*** (0.0216)	-0.108*** (0.00824)	-0.395*** (0.0209)	-0.243*** (0.0123)
1998.year#nordrhein	0.126*** (0.0286)	0.0478*** (0.0108)	0.102*** (0.0296)	0.0659*** (0.0187)
2003.year#nordrhein	0.252*** (0.0298)	0.0780*** (0.0112)	0.174*** (0.0319)	0.111*** (0.0200)
2008.year#nordrhein	0.308*** (0.0299)	0.106*** (0.0113)	0.274*** (0.0317)	0.179*** (0.0198)
hessen	-0.312*** (0.0317)	-0.120*** (0.0116)	-0.425*** (0.0310)	-0.237*** (0.0185)
1998.year#hessen	0.108*** (0.0418)	0.0525*** (0.0153)	0.110** (0.0435)	0.0574** (0.0277)
2003.year#hessen	0.254*** (0.0423)	0.0826*** (0.0152)	0.185*** (0.0446)	0.104*** (0.0280)
2008.year#hessen	0.254*** (0.0419)	0.0926*** (0.0152)	0.285*** (0.0441)	0.172*** (0.0276)

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Table 5: Cohort effects

VARIABLES	(1)	(2)	(3)	(4)
	Probit Part. stock mkt.	Tobit Sh. risky assets	Probit Part. risky exp.	Tobit Sh. risky exp.
east	0.429*** (0.0211)	0.167*** (0.00817)	0.429*** (0.0205)	0.271*** (0.0121)
first_member_cohort	0.125*** (0.0134)	0.0399*** (0.00481)	0.168*** (0.0142)	0.117*** (0.00893)
first_member_cohort#east	-0.0980*** (0.0239)	-0.0528*** (0.00932)	-0.0508** (0.0251)	-0.0393** (0.0160)
1998.year	0.258*** (0.0110)	0.0985*** (0.00404)	-0.455*** (0.0114)	-0.211*** (0.00705)
2003.year	0.673*** (0.0132)	0.236*** (0.00473)	-0.352*** (0.0137)	-0.181*** (0.00836)
2008.year	0.514*** (0.0135)	0.195*** (0.00483)	-0.302*** (0.0140)	-0.151*** (0.00853)
1998.year#east	-0.166*** (0.0236)	-0.0630*** (0.00918)	-0.0697*** (0.0243)	-0.0462*** (0.0154)
2003.year#east	-0.366*** (0.0267)	-0.128*** (0.0102)	-0.235*** (0.0282)	-0.149*** (0.0174)
2008.year#east	-0.433*** (0.0263)	-0.163*** (0.0101)	-0.312*** (0.0275)	-0.213*** (0.0168)
All controls as in basic regression included.				
Observations	176,781	167,550	176,781	159,166
Pseudo R-sq	0.21	0.15	0.14	0.10
σ		0.4166 (0.0015)		0.6692 (0.0030)

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1