Do my friends influence my investment behavior? Evidence from a representative sample of the German population *

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Abstract

We analyze peer group effects on financial decisions to hold risky assets (like stocks, funds, warrants). We employ the German Socio-Economic Panel and find that social interaction with neighbors has strong impact as suggested by earlier studies with less representative samples. In addition, we show for the first time that friends have a strong influence. A ten-percentage point increase in the average participation rate of an individual's friends increases that individual's probability of holding risky assets by more than four percentage points. To establish causality, we use the fact that Germany was divided into communist and capitalist sectors until 1989.

JEL: D14, D85, G11, Z13

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1 Introduction

In this paper, we investigate peer group effects among the German population on the financial decision whether to hold risky assets (like stocks, funds, warrants, corporate bonds). We employ the German Socio Economic Panel (GSOEP), which gives a representative sample of the German population. Specifically, we use the 2004 and 2006 waves, which focus on neighborhoods and friendship networks, respectively.

The contribution of our paper is twofold. First, since we consider social effects among neighbors, we transfer the ideas of Hong et al. (2004) to a representative sample. They find that social households (those that interact with their neighbors) are more likely to participate in the stock market and attribute this result to a word-of-mouth effect. Unfortunately, their data are based on the Health and Retirement Study which surveys Americans over the age of 50 only. This fact has the potential to bias the results. For example, Bearman and Parigi (2004) study the conversation topics within social networks. They are particular interested in "important matters" and the topic domain "money and house" is indeed the most frequently discussed domain. Bearman and Parigi (2004) report that older people are less likely to talk about important matters compared to younger people. This observation suggests that the results of Hong et al. (2004) actually underestimate the effect. The networks of older people are also smaller (Marsden, 1987), suggesting a lower probability that the individual talks about personal finances to a tie within the network.

On the other hand, Campbell and Lee (1992) report that older people are more likely to talk with and to visit their neighbors. A reason might be that older people have higher costs of maintaining distant relationships (see e.g. Fischer (1982)). In that case, the variation in the importance of the neighborhood networks for older people may not reflect different degrees of sociability, but rather difference in the costs of maintaining distant relationships or the need for local services (like mowing the lawn) that may arise with increased health problems. However, we verify the results of Hong et al. (2004) with respect to neighborhood networks qualitatively and quantitatively for a representative sample.

As a second contribution, we extend the ideas of social interaction by considering friendship networks as well. In the 2006 wave of the GSOEP, every respondent was asked to "[...] think of three people outside of your household who are important for you, personally." For sake of brevity, we refer to these people as friends. Furthermore, respondents disclosed marital status, gender, age, labor force status, the highest educational degree of their friends, and − probably most important for our study − whether their friends are from East or West Germany (see appendix A for an excerpt from the questionnaire).

Friendship networks have several advantages over neighborhoods. Some studies determine peer groups exogenously, e.g. roommates (Sacerdote, 2001) or neighbors (Brown et al., 2008) presumably form a peer group, although the interaction of group members is not warranted per se. A further implicit assumption is that people who (probably) talk about the weather to their neighbors are also likely to talk about personal finances (to their neighbors or to somebody else). However, Bearman and Parigi (2004) report that most individuals talk about important matters to their spouse or to their friends. Wellman (1996) states that "active ties with neighbors, coworkers and organizational members are usually weaker and less durable than ties with friends and immediate kin" (page 348). We can avoid the additional implicit assumption that contacting and visiting neighbors also means talking about important matters by investigating friendship networks directly. Furthermore, friends are not restricted to geographically close areas and thus allow a non-spatial view on peer group effects, a fact that seems to be important in times of telephone flat rates and high-speed internet access.

The endogeneity problem is, however, apparent for friendships. Friendships are certainly formed by specific characteristics of the individuals, for example marital status, sex, and age (see Verbrugge, 1977). A similar problem exists for neighbors, who typically sort by characteristics like wealth or industries that are also major determinants in financial decision making. We are, however, able to control for those background variables that are commonly assumed to influence stock market participation. There is reason to believe that unobserved personal traits that are common among neighbors and friends still exist, but it is in our view unlikely that exactly these unobserved characteristics also have major impact on financial decisions in the first place.

Nevertheless, as in all social effect studies, the problem at hand is how to distinguish between peer group effects and correlated effects. Manski (1993, 1995) provides a clear description of the different effects and points out the varying implications. He distinguishes between *correlated effects*, *contextual effects* and *endogenous effects*. Correlated effects are induced by similar background characteristics of a reference group. For example, some people who have a clear (unobservable) preference for holding stocks might meet at their broker's office every once in a while and establish a friendship. Putting one of them into another reference group would not affect his or her propensity to hold stocks. A contextual effect indicates that the behavior of one individual varies with the reference group's distribution of characteristics. For example, the propensity to hold stocks increases with the average education in the peer group. Higher education increases the ability to understand financial markets and to communicate this knowledge to other group members. Thus, someone taken out of a less educated group can benefit if placed into a higher educated group. Finally, endogenous effects describe the fact that a group's average stock market participation rate directly influences a group member's propensity to hold stocks. Both contextual and endogenous effects are social effects, but their policy implications are different. Endogenous effects imply a social multiplier hypothesis: if a group's average stock market participation increases, then each individual's propensity to hold stocks increases which in turn increases the average stock market participation and so on. Contextual and correlated effects do not imply this multiplier hypothesis. Therefore, exploiting peer group effects to facilitate, for example, the convergence in wealth or living standards of different geographic areas via stock market participation or to initiate private retirement savings would be easier if endogenous effects were present. And in fact, Duflo and Saez (2002) find endogenous effects for the decision whether to enroll in a tax-deferred retirement savings account among co-workers.

To our knowledge, this is the first study that investigates peer group effects on financial decisions based on friendship networks. We establish significant social effects in friendship networks. A ten-percentage point increase in the average participation rate of an individual's

friends leads to a 4.3-percentage point increase in that individual's probability of participating in asset markets.[1]

To verify a causal link between individuals' and friends' participation decisions, we employ a unique feature of our data set. Since Germany was divided until 1989, East Germans were socialized into a communist society without stock market access whereas in West Germany the stock market was prospering. In fact, the participation rate is still significantly higher in West Germany. This finding is in line with Guiso et al. (2004), who report that the social capital of one's birth region affects financial decisions in adulthood. Brown et al. (2008) exploit this insight to provide evidence of a causal effect of neighbors on stock market participation. They employ a unique data set of taxpayers to test peer group effects among neighbors. Via the matching of social security numbers, they identify taxpayers' birth state[2] and consider citizens that presumably never changed their state of residence. They argue that these citizens' stock market participation should not be correlated with the average stock market participation of another state except for a neighbor originally coming from that state.

Similarly, for each of the friends disclosed by respondents, we know whether he or she is from East or West Germany. We consider those respondents that resided for their whole life in East Germany. Presumably, people in this subsample were socialized into and exposed to a communist society and decided to remain in an area that is presumably affected by the long-lasting effects of the former communist regime.[3] We find that the peer group effects for those East Germans with at least one West German friend are greater than our baseline effect. For friendship networks with at least two West German friends, this effect is actually amplified. These results suggest a causal link between individuals' and friends' asset market participation and also underscore the importance of peer group effects in general.

[1] We use the term *participation* to denote that a respondent holds risky assets.

[2] In fact they could identify the state in which citizens resided when applying for their social security number.

[3] In November 2007, the news magazine SPIEGEL ONLINE launched an article with the title "Germany Still Divided 18 Years After the Fall of the Wall". They polled over 1,000 Germans and "[...] found that 67 percent of both eastern and western Germans felt they had different identities from their counterparts".

While investigating friendship networks as a channel for peer group effects, we combine some of the advantages of the studies of Hong et al. (2004) and Brown et al. (2008). The latter's taxpayer data set has the disadvantage that many important demographic control variables like education are missing, but they can control for neighbor's origins, i.e. their birth state. For our analysis, we take full advantage of the availability of typical household surveys' demographic control variables and of the fact that we know whether respondents and their friends are from East or West Germany.

We proceed as follows. Section 2 describes the data and methodology. Regression results are presented in Section 3. Section 4 concludes.

2 Data and Methodology

2.1 The risky assets proxy and control variables in the GSOEP

We employ the 2004 and 2006 waves of the German SOEP. The 2004 wave has a special focus on neighborhoods whereas the 2006 wave considers friendship networks. Depending on whether we analyze neighbors or friends as the channel of peer effects, we use the corresponding wave.

On the household level, we know in both waves whether at least one member of the household owns (i) a savings account, (ii) a savings contract for building a home, (iii) life insurance, (iv) fixed interest securities (saving bonds, mortgage bonds, federal savings bonds) or (v) other securities (stocks, funds, corporate bonds, equity warrants). The latter category is our proxy for holding risky assets. To avoid multiple observations we only consider heads of households instead of all respondents. Nevertheless, our main results are based on more than 10,000 observations. Whether a household holds risky assets is represented by a dummy variable that takes the value one if the respondent participates and zero otherwise. We use this dummy variable as dependent variable in linear regression models with robust standard errors.[4] Furthermore, the GSOEP gives us an arsenal of control variables. We control in all regressions for respondents' workforce status, education, gender, marital status, religious

[4]Our results would be basically the same if we used probit or logit regressions.

affiliation, age, risk tolerance, household's net monthly income, fixed interest security, building society contract, housing, mortgage quantity, and Riester plans. Riester plans are voluntary private tax-deferred retirement savings accounts that were introduced in 2002. A Riester plan may well invest in riskless assets or stocks. Thus, a Riester plan's tax advantages and subsidies for children may facilitate asset market participation. For age, monthly income and mortgage quantity we use nine decile dummies. The risk tolerance dummy is formed as follows. Respondents were asked to answer on an eleven-point scale whether they were willing to take risk in financial matters. We define those respondents as risk-tolerant who marked the top three scale points. Our results, however, are not very sensitive to this particular choice.[5]

2.2 Neighborhoods in the 2004 wave

Motivated by the results of Hong et al. (2004), which rely on the data of the Health and Retirement Study, we investigate whether social interaction with neighbors increases the probability of holding risky assets in a representative sample. We consider two measures of social interaction. During the 2004 wave of the GSOEP, respondents were asked, "How close is your contact with your neighbours here in the building or in this area in general?" We define a dummy variable *contact with neighbors* that takes the value zero, if respondents have no contact with neighbors, and the value one, if they have casual to very close contact. Furthermore, respondents disclosed whether they visit neighbors. We define a dummy variable *visit neighbors* that takes the value one if this is the case and the value zero otherwise. These variable definitions are very close to the ones in Hong et al. (2004) and thus allow for a direct comparison.

2.3 Friendship networks in the 2006 wave

The 2006 wave of the GSOEP focuses on friendship networks which is particularly helpful in estimating peer group effects. As noted earlier, every respondent was asked to "[...] think of three people outside of your household who are important for you, personally." For

[5] We also tried all upper ranges from the midpoint of the scale onwards for a definition of our risk tolerance dummy. Results were basically the same.

the sake of brevity, we refer to these people as friends, although they may also be favorers or relatives. Respondents disclosed amongst other things marital status, gender, age, non-German nationality, labor force status and the highest educational degree of their friends (see appendix A for an excerpt from the questionnaire). All these attributes are also known for respondents themselves.

For analyzing peer group effects in friendship networks, a social interaction variable like *visit friends* is not feasible since, of course, we expect friends to interact with each other. Instead, we analyze the impact of the average participation rate of the three friends. A disadvantage of our data is that we actually do not know whether a friend holds risky assets. This disadvantage is outweighed by excellent control variables for friends and our awareness about the friendship. However, we have to circumvent this shortcoming in our estimation technique. To do so, we calibrate a submodel on those respondents' attributes that we also know for friends, namely education, labor force status, non-German nationality, age, gender and marital status. The coefficients are shown in Table 5 in Appendix B. The R^2 statistic of 9.2% is quite acceptable for probit regressions.[6] On the basis of this probit model, we predict for each friend the probability of holding risky assets. We denote the corresponding variables *friend 1*, *friend 2*, and *friend 3*. A peer group's average probability is then the best estimator for that group's average participation rate. We denote this estimator by *peer group*.

Furthermore, we know for each friend whether he or she is from East Germany, West Germany or from abroad. This will be helpful since we exploit different participation rates among East and West Germans in our analysis and the fact that people were socialized into and exposed to communism or capitalism. This is a unique feature of our German data set.

[6] If we include nine decile dummy variables for a household's net monthly income and further control for risk tolerance, then the R^2 statistic is 12.4% which is only slightly higher than the R^2 statistic in the model we use.

3 Results

3.1 Descriptive statistics

We start our analyses with some descriptive statistics that will be useful later on. As our neighborhood analysis will make use of the different participation rates in different German states, we provide some descriptive statistics about these participation rates in Table 1 for the 2004 wave.

Insert Table 1 about here.

Since we do not know from which state respondents' friends originate, the average state participation rates are not very helpful for analyzing friendship networks. We know, however, whether respondents' friends are from East or West Germany. In 2006, the average participation rates in East Germany and West Germany in terms of risky assets are 25.35% and 32.13%, respectively. For reunited Germany, the corresponding number is 30.52%.

Furthermore, we exploit the fact that we know the highest school degree of respondents' friends. Table 2 depicts participation rates depending on respondents' education. Higher education goes along with higher participation rates.

Insert Table 2 about here.

3.2 Regression results for neighborhoods

Hong et al. (2004) consider word-of-mouth effects among neighbors. Unfortunately, their results are based on the Health and Retirement Study which surveys Americans over the age of 50 only. In the following analysis we transfer their ideas to our representative sample of the German population.

Insert Table 3 about here.

Table 3 presents the results for both sociability indicators *contact with neighbors* and *visit neighbors*. All presented regression models control for respondents' workforce status, education, gender, marital status, religious affiliation, age, risk tolerance, the household's

net monthly income, fixed interest security, building society contract, life insurance, Riester savings plan, housing, and the mortgage quantity. We consider the *contact with neighbors* variable first. Model (1) reveals that having contact with neighbors increases the probability of holding risky assets by 6.8 percentage points. This effect is economically and statistically significant. However, whether this effect is driven by an endogenous effect in the sense of Manski (1993, 1995) needs to be determined next. Fortunately, an endogenous effect implies a multiplier effect whereas correlated effects do not. Specifically, under our hypothesis of an endogenous effect, we expect the peer group effect to be higher in high participation states. Depending on the story being told, we also expect lower social effects in low participation states. Therefore, we interact the sociability indicator with a high and a low state-level participation indicator. We partition the sixteen German states into five low, six middle, and five high participation states. Thus, the low state-level participation indicator takes the value one if the average participation in a state is below 27% (see Table 1). Otherwise this indicator is zero. A corresponding choice applies to the definition of the high state-level participation indicator. Model (2) in Table 3 shows that the baseline effect is nearly unchanged when these interaction terms enter the regression. A social household is more likely to hold risky assets by 6.5 percentage points. As predicted by the multiplier hypothesis, this effect is significantly lower for social households that live in a low participation state and higher for social households in high participation states. In low participation states, a social household's probability of holding risky assets is only 2.4 percentage points, whereas in high participation states it is 9.1 percentage points. Since we do not let the average state participation enter the regression, one may wonder whether these interaction terms attract all the significance from the average state participation level. First note that, following Hong et al. (2004) we do not want the average state participation level to enter the regression because we do not want to explain participation by its own characteristic. Second, one needs to find a good story, why exactly the interaction with our sociability indicator attracts all significance. As a robustness check, we also interact our risk-tolerant dummy with the high and low state-level participation indicators. In model (2) these interaction terms also enter the regression, but their influence is not significant. Both risk tolerance and sociability are personality traits and

significantly increase the propensity to hold stocks, but they behave fundamentally differently when interacted with the state-level participation dummies.

Looking at the results for our *visit neighbors* variable as sociability indicator in models (3) and (4), we see the same picture as for the *contact with neighbors* variable. The baseline effect, however, is considerably lower, yet still significant. Models (3) and (4) quantify the increase in the probability of holding risky assets for social households to 1.6 and 1.9 percentage points, respectively. Again, risk tolerance is a key driver for holding risky assets, but the interaction of the risk tolerance dummy with the high and low state-level participation dummies does not become significant. The interactions of the *visit neighbors* variable with the high and low average state participation indicators are significant and thus point to an endogenous effect. In high participation states, sociability increases the probability of holding risky assets by 2.5 percentage points to 4.4 percentage points. Social households in low participation states have a decreased participation probability. Here, the overall effect is even negative with -4 percentage points. This negative peer group effect is an interesting finding that may help to distinguish the different potential drivers behind the peer group effect. We will discuss this issue briefly in our concluding section.

3.3 Regression results for friendship networks

We now infer a friendship network's social effects on holding risky assets. First, each friend's estimated probability of participation, denoted by the variables *friend 1*, *friend 2*, and *friend 3*, enters the regression as an independent variable next to our control variables. Second, we use the peer group's estimated average participation rate, denoted by the variable *peer group* as independent variable.

Insert Table 4 about here.

In Table 4, model (1) shows that all three friends' probability of holding risky assets are significantly correlated with respondents' behavior towards holding risky assets. Whereas the average marginal effects for friend 1 and friend 3 are 17.4 and 26.8 percentage points, respectively, for friend 2 it is only 7.6 percentage points. Model (2) reveals that the peer

group's average participation rate is significantly correlated with respondents' behavior. The average marginal effect is 43 percentage points which is somewhat less than the sum of all three friends' marginal effects, i.e. a ten-percentage point increase in the average participation rate of an individual's friends increases the probability of holding risky assets by 4.3 percentage points.

Although these effects are statistically and economically highly significant (friend 2 is only significant at the 5% level), we want to know whether this correlated behavior of respondents and their friends in terms of holding risky assets is because of social effects (like word-of-mouth) and not because of hidden background characteristics. In an extreme case, people could have met and established their friendship at their broker's office. Therefore, we motivate the following hypothesis: if reported friendships were established at their broker's office, there should be no variation in an individual's propensity to hold stocks with varying education. The reasoning behind this hypothesis is that higher education generally goes along with higher participation rates (see Table 2). For example, if the propensity to hold stocks is determined by peer group effects, then this effect should increase with respondents' peer group's education. If, however, friendship was established at their broker's office, then there should be no variation in the peer group effect with varying education. In Manski's (1995) language this hypothesis is equivalent to a contextual effect. To facilitate this analysis we need to define a peer group's education by using the education of all three respondents' friends. We define the peer group as having, for example, a secondary school degree if and only if more than half of all friends have a secondary school degree. Therefore if a respondent only specified two friends, then both must have the same education level to have this education level assigned to the peer group. Otherwise the peer group's education is mixed.

We define a high and a low education indicator and interact these indicators with the peer group's average participation rate. If the respondent's peer group's predominant education is given by no school degree or a secondary school degree, the low education indicator takes the value one. The high education indicator takes the value one if the peer group's predominant education is given by a technical or an upper secondary school degree. Otherwise these indicators have the value zero.

In Table 4, model (3) provides evidence of a contextual effect, i.e. the marginal effect of the peer group's average participation rate varies with the predominant education in that group. For example, if the predominant education is rather high, i.e. a technical or an upper secondary school degree, then the average marginal effect for the group's average participation rate amounts to 43.4 percentage points. If the predominant education is low, i.e. a secondary or no school degree, then this average marginal effect is only as high as 32.4 percentage points.

To address the possibility of an endogenous effect, i.e. the peer group's average participation rate influences respondents' probability of holding risky assets, we combine the identification strategy of Brown et al. (2008) with the excellent controls given by our household survey data. Specifically, we employ a unique pattern of our data, namely, that Germany was divided until 1989. The East German population was socialized into a society without stock market access owing to communism. On the other hand, West Germany provided a vital base for a market economy. We assume that the former communist regime in East Germany has a long-lasting effect on the people in that area. Indeed, the fraction of people holding risky assets is 32.13% in West Germany, but only 25.35% in East Germany. Therefore, we consider the subsample of those Germans who lived in East Germany prior to reunification and who never lived in West Germany. We include all years[7] after the German reunification in the subsample formation to exclude those people who have a capitalist bent and, for example, soon moved to Frankfurt to become investment bankers after the German reunification. Presumably, people in this subsample were socialized into and exposed to norms of a communist society. Furthermore, they decided to remain in an area that is presumably affected by the long-lasting effects of the former communist regime. If friends influence their behavior in terms of holding risky assets, then a friendship network consisting predominantly of West Germans should have positive impact on East Germans' participation rate. In our opinion, it is hard to find another story that would imply this prediction. We define two West German friendship network dummy variables. These dummy variables take the value one for respondents with at least one or at least two friends from West Germany, respectively, and

[7]We include only years of major GSOEP waves, i.e. 1990, 1992, ..., 2006, for the subsample formation.

the value zero otherwise. These dummy variables enter the regressions interacted with the *peer group* variable, i.e. the estimated average participation rate of respondents' friends.

In Table 4, models (4), (5), and (6) are based on our East German subsample. The results confirm our peer group effect hypothesis in friendship networks. First, the average marginal effect of the *peer group* variable among East German respondents is 39.5% and thus 3.5 percentage points lower than the average effect based on the whole sample of all respondents (see model (2)). This lower marginal effect is in line with the social multiplier hypothesis since fewer East Germans hold risky assets. Second, the West German friendship dummy variables interacted with the *peer group* variable have significantly positive marginal effects. In an East German respondent's friendship network with at least one West German friend, the marginal effect of the estimated average participation rate increases from 37.5 percentage points to 50.9 percentage points. For friendship networks with at least two West German friends, we expect this effect to be even greater. Indeed, here the marginal effect increases from 38.3 percentage points to 66.7 percentage points. Thus, the more West Germans there are in an East German's friendship network, the larger is the peer group effect. This is in line with the social multiplier hypothesis and clearly points to an endogenous effect.

4 Discussion

Investigating the determinants of stock market participation is important for understanding individual financial decision making. Peer group effects play a key role in these determinants as is well known in the literature. The channels by which peer group effects evolve, however, are only partly understood. Most studies define neighbors or roommates exogenously as peers and thus focus on a spatial evolution of peer group effects. Indeed, our results for neighborhoods further justify this view. However, we extend the possible spectrum of channels by which peer group effects may evolve. We find a strong causal effect of friends on one's own decision whether to hold risky assets. Friendships usually exist over far greater distances than neighborhoods. Thus, our results give rise to a non-spatial view on peer group effects. Given the advances in communication technology this view might be vital for further research.

Furthermore, there is still some ambiguity concerning the driving forces behind peer group effects. The literature distinguishes three different drivers for peer group effects. From an economist's point of view, learning from peers and thereby reducing information costs (see Bikhchandani et al., 1992; Banerjee, 1994; Ellison and Fudenberg, 1993) is the most appealing hypothesis. Vissing-Jorgensen (2002) estimates the fixed costs of stock market participation to be around $200. Learning from peers can help to reduce these costs and make stock market participation more attractive. Sociologists, however, advocate the role of social norms (see Bernheim, 1994) or the simple pleasure of talking to others about recent stock movements (see Becker, 1991). The negative peer group effect that we found for one of our sociability indicators in low participation states contradicts economic theory as economists claim that no matter how risk-averse a decision maker is, she should invest at least a tiny fraction of her wealth in stocks. Hence it is hard to justify that individuals learn from peers to stay away from the stock market. However, the negative effect in low participation states is consistent with either social norms or simply the pleasure of talking to others.

Probably the most important consequences of our results are the non-trivial effects of our fast-changing social life on asset markets and individuals. McPherson et al. (2006) analyze changes in US social networks between 1984 and 2004. They find that the number of people that have no one to talk to about important matters has tripled. Furthermore, the mean social network size decreased by one third during that period. Since we detected a strong impact of friendship networks on one's own asset market participation decision and this very decision is a key driver for the equity risk premium (Mankiw and Zeldes, 1991), the current tendency to social isolation can have non-trivial effects on asset markets. At the individual level this tendency may show its cruelty when old people are not only depressed by missing social networks, but also suffer from insufficient retirement savings owing to lacking peer group effects in the past. Although we did not explicitly consider retirement saving issues in this work, it seems reasonable that peer group effects among friends should also be relevant in this retirement provisions context.

A Questions about friends in the GSOEP

116. Now a question about your circle of friends / acquaintances:

Please think of three people outside of your household who are important for you, personally.

They can be relatives or non-relatives. Respond for the first, second and third person:

			First person	Second person	Third person
a)	**Are you related?**	yes	☐	☐	☐
		no	☐	☐	☐
b)	**Is he or she**	a man	☐	☐	☐
		woman	☐	☐	☐
c)	**How old is he or she?**				
	If you are not exactly sure, please guess!	Years	☐☐	☐☐	☐☐
d)	**Where does this person come from?**				
	From the former West Germany		☐	☐	☐
	From the former East Germany		☐	☐	☐
	From another country		☐	☐	☐
	Are you from the same country?	yes	☐	☐	☐
		no	☐	☐	☐
e)	**Is he or she ...**				
	– in full-time paid employment?		☐	☐	☐
	– in part-time paid employment?		☐	☐	☐
	– registered as unemployed?		☐	☐	☐
	– in school / professional training / tertiary education?		☐	☐	☐
	– retired or on a pension plan?		☐	☐	☐
	– other?		☐	☐	☐
f)	**Which is the highest educational degree he or she has attained?**				
	No school degree		☐	☐	☐
	Secondary school degree		☐	☐	☐
	Intermediate school degree		☐	☐	☐
	Upper secondary school degree		☐	☐	☐
	Don't know		☐	☐	☐

B Probit model for the estimation of friends' participation probability

Table 5: Probit regression model used to calculate each friend's probability of holding risky assets. Independent variables are age, education, labor force status, non-German nationality, gender, and marital status. The dependent variable is a dummy variable that indicates whether a household holds risky assets. Coefficients (and not marginal effects) are shown. N corresponds to the number of observations. Standard errors are in parentheses. Significance stars denote * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, respectively.

age: 1st decile	-.363***
	(.091)
age: 2nd decile	-.060
	(.062)
age: 3rd decile	.134**
	(.061)
age: 4th decile	.139**
	(.061)
age: 5th decile	.011
	(.062)
age: 6th decile	.087
	(.062)
age: 7th decile	.221***
	(.059)
age: 8th decile	.336***
	(.053)
age: 9th decile	.301***
	(.055)
female	-.156***
	(.028)
education: secondary school degree	-.346***
	(.041)
education: intermediate school degree	.080**
	(.041)
education: upper secondary school degree	.518***
	(.042)
education: no school degree	-.610***
	(.130)
non-German nationality	-.595***
	(.065)
work: full-time employed	-.248**
	(.117)
work: part-time employed	-.321***
	(.122)
work: unemployed	-.648***
	(.111)
work: vocational training	-.682***
	(.212)
work: others	-.391***
	(.116)
Const.	-.147
	(.111)
N	12493
R^2	.092

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Table 1: The fraction of respondents who hold risky assets in 2004 depending on the state they live in. Note that GSOEP does not distinguish the two states Rhineland-Palatinate and Saarland (probably owing to data privacy issues). Statistics for East and West Germany and for Germany as a whole are also given. In the second column, E and W are short hand for East and West Germany, respectively. N corresponds to the number of observations.

State	East/West Germany	N	Risky assets
Baden-Wuerttemberg	W	1386	33.91%
Bavaria	W	1651	38.82%
Berlin (East)	E	220	27.27%
Berlin (West)	W	280	32.50%
Brandenburg	E	495	30.30%
Bremen	W	99	33.33%
Hamburg	W	190	35.26%
Hesse	W	799	34.92%
Lower Saxony	W	1018	34.18%
Mecklenburg-West Pomerania	E	285	24.56%
North Rhine-Westphalia	W	2476	31.74%
Rhineland-Palatinate, Saarland	W	720	25.00%
Saxony	E	827	31.44%
Saxony-Anhalt	E	486	25.72%
Schleswig-Holstein	W	370	20.27%
Thuringia	E	485	26.80%
West Germany		8989	33.04%
East Germany		2798	28.41%
Germany		11787	31.94%

Table 2: The fraction of respondents who hold risky assets in 2006 depending on their school degree. Those respondents (989) with other school degrees than the reported ones are omitted. N corresponds to the number of observations.

Education	N	Risky assets
upper secondary school degree	2607	50.79%
technical school degree	691	44.28%
intermediate school degree	3373	33.14%
secondary school degree	4064	18.62%
no school degree	194	8.76%

Table 3: The effect of a household's sociability on the probability of holding risky assets. Sociability is represented by the *contact with neighbors* dummy variable in models (1) and (2) and by the *visit neighbors* dummy variable in models (3) and (4). The sample comprises households of the 2004 wave of the GSOEP. All models are based on linear regressions that control for respondents' workforce status, education, gender, marital status, religious affiliation, age, household's net monthly income, fixed interest security, building society contract, life insurance, Riester plans, housing, and mortgage quantity (not reported here). The dependent variable is a dummy variable that indicates whether a household holds risky assets. N corresponds to the number of observations. Robust standard errors are in parentheses. Significance stars denote * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, respectively.

	contact with neighbors		visit neighbors	
	(1)	(2)	(3)	(4)
sociability indicator	.068***	.065***	.016**	.019*
	(.020)	(.020)	(.008)	(.010)
sociability indicator ×				
low state level participation		-.041***		-.059***
		(.011)		(.014)
sociability indicator ×				
high state level participation		.026***		.025**
		(.009)		(.012)
risk-tolerant	.198***	.176***	.197***	.171***
	(.024)	(.039)	(.025)	(.039)
risk-tolerant ×				
low state level participation		-.010		-.012
		(.084)		(.084)
risk-tolerant ×				
high state level participation		.045		.057
		(.051)		(.051)
N	11780	11780	11780	11780
R^2	.226	.228	.225	.228

Table 4: The effect of each friend's probability of holding risky assets and the whole group's estimated average participation rate on respondent's propensity to hold risky assets. In models (1), (2), and (3), the sample comprises households of the 2006 wave of the GSOEP. Models (4), (5), and (6) are based on households in East Germany as indicated in the 2006 wave of the GSOEP. All models are based on linear regression that control for respondents' workforce status, education, gender, marital status, religious affiliation, age, risk tolerance, household's net monthly income, life insurance, fixed interest security, building society contract, Riester plans, housing, and mortgage quantity (not reported here). The dependent variable is a dummy variable that indicates whether a household holds risky assets. N corresponds to the number of observations. Robust standard errors are in parentheses. Significance stars denote * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, respectively.

	East and West Germany			only East Germany		
	(1)	(2)	(3)	(4)	(5)	(6)
friend 1	.174***					
	(.029)					
friend 2	.076**					
	(.031)					
friend 3	.268***					
	(.031)					
peer group		.430***	.403***	.395***	.375***	.383***
		(.036)	(.039)	(.088)	(.088)	(.088)
peer group ×						
low education indicator			-.079**			
			(.038)			
peer group ×						
high education indicator			.031			
			(.034)			
At least 1 West German friend					.134*	
					(.073)	
At least 2 West German friends						.284**
						(.119)
N	11918	11918	11918	2197	2197	2197
R^2	.228	.225	.226	.223	.224	.225