

# **Health Risk, Financial Information and Social Interactions: the Portfolio Choice of European Elderly Households**

## **Preliminary version**

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## **Abstract**

Recent empirical research emphasizes transaction costs, financial literacy, health status and social interactions as key determinants of the propensity to invest in risky financial assets. We offer a systematic assessment of the determinants of household portfolio choice using the Survey of Health, Ageing and Retirement in Europe (SHARE), which has detailed information on individuals aged 50+ in 10 European countries. We find that the propensity to invest in stocks is positively related to social interactions, financial literacy and intention to leave a bequest, and negatively associated with health status. The results for the asset share invested in stocks are consistent with constant relative risk aversion. Across countries, differences in the propensity to take financial risks are likely to arise from differences in transaction and participation costs.

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## 1. Introduction

A vast body of empirical research documents that many individuals do not invest in stocks and that those who do hold only a few stocks and are thus poorly diversified. Asset shares invested in stocks exhibit wide heterogeneity, in particular with respect to investors' wealth and agents' horizon (Ameriks and Zeldes, 2004). Recent studies have also found associations between stockholding and background income risk (Guiso, Jappelli and Terlizzese, 1996; Heaton and Lucas, 2000), health status (Rosen and Wu, 2003), culture and social interactions (Grinblatt and Keloharju, 2001; Hong, Kubik and Stein, 2004).

Cross-country comparisons offer potentially very useful scenarios to understand household portfolio choice. In countries like Sweden or the US over 50 percent of households have stocks, while in Southern Europe the same proportion does not exceed 20 percent. Guiso, Jappelli and Haliassos (2003) argue that differences in entry costs are key determinants of differences in stock market participation across countries. As of today, however, a systematic analysis of stockholding across countries has not been possible given lack of fully comparable microeconomic data.

In this paper we exploit within and across country variability in household portfolio choice using data drawn from the first release of the Survey of Health, Ageing and Retirement in Europe (SHARE). SHARE is a survey of people aged 50 and above, taking place in 10 European countries: Austria, Belgium, Denmark, France, Germany, Greece, Italy, Netherlands, Spain, Sweden and Switzerland. The survey asks detailed questions on demographics, physical and mental health, employment, income, assets, social activities, and expectations. Furthermore, questions are standardized across countries, allowing detailed and wide-ranging international comparisons.

The sample focuses on the elderly, and we need to recognize that the elderly face substantial mortality risk, especially at advanced ages, reducing their planning horizon. Moreover, while the retired face more limited income risk, they have much more uncertainty

about medical expenditures. Controlling for the potential effect of health status on the willingness to bear financial risk is therefore particularly important.

Studying the portfolio allocations of the elderly is of interest to both economists and policy makers. European financial integration can be expected to enhance competition among financial intermediaries, reducing financial transaction costs; pension reforms are likely to increase reliance on individual retirement accounts. Both developments are likely to increase direct and indirect stockholding and investor's financial risk exposure, with important economic consequences. Investors that gain direct or indirect access to the stock market, instead of relying on bank savings accounts or treasury bills, have more instruments with which to smooth their consumption and manage household risks. Since stocks yield higher expected returns, wider participation tends to reduce inequality if those previously excluded are also relatively less well off. But wider and better investment opportunities bring with them increased risks. Excessive or ill-advised trading of stocks can significantly reduce realized returns, and poor judgment in allocating retirement wealth can create major financial distress at a point in the lifecycle where the potential for offsetting adjustments is quite limited. At the aggregate level, wealth effects on consumption may become more widespread, and the link between stock market fluctuations and fluctuations in real economic variables tighter.

The rest of the paper is organized as follows. Section 2 reviews recent contributions on the determinants of household portfolio choice to delimit the set of variables that will be used in the empirical analysis. Section 3 describes the survey data and the definitions of the variables used in the estimation. Section 4 present the empirical results for the probability of investing in stocks, either directly or through mutual funds and investment accounts, and the asset share invested in stocks. We find that transaction costs, financial literacy, social interaction and health status are crucial variables to explain individual portfolio allocations and inter-country differences in stockholding. Section 5 concludes.

## **2. Determinants of stockholding**

While traditional finance theory predicts that investor's willingness to take financial risks depends only on risk aversion and investment opportunities, dynamic models of portfolio choice emphasize that investment opportunities and wealth itself change over time, that investors usually face other background risks, and that transaction costs, information costs and borrowing constraints limit household financial decisions; Gollier (2001) surveys some of the recent developments.

Analytical results in this area are seldom available, as they require restrictive assumptions about preferences, or excluding some important factors affecting portfolio choice, such as background risk or transaction costs. The modern literature therefore relies mainly on computational methods to solve portfolio models in an attempt to isolate the contribution of some of the major factors affecting portfolio choice.

On the empirical front, the empirical literature on household portfolio choice has sought to single out variables that are able to explain the patterns of portfolio choice in microeconomic data. The most common approach is to estimate reduced form regressions that include investors' wealth, age, and other socioeconomic variables, addressing two distinct but related questions: (1) What are the determinants of the decision to invest in stocks? And, having taken that decision, (2) What are the determinants of the asset share invested? The two set of questions address different issues, with the first one is naturally related to an evaluation of entry and other transaction costs, and require different econometric frameworks.

In this section we review some of the channels through which investors' characteristics affect portfolio choice, with special focus on transaction costs, information, costs, health status, social interactions and bequest motives.

### **2.1. Transaction and information costs**

Participation and information costs are prime candidates to explain differences among investors' behavior. Under standard preferences, in a world of complete markets without

frictions, the portfolio of affluent investors is just a scaled version of the portfolio of the median investor. In practice, survey data reveal that the portfolio of the affluent differs dramatically from that of the less wealthy, especially because the wealthy tend to participate much more to the stock market. One possibility is that risk aversion is strongly correlated with wealth, and that rich investors tolerate more financial risk. Another is that transaction costs segment investors according to wealth. The exact nature of transaction costs and how they affect the decision to enter and exit the stock market are the focus of ongoing research. But the general implication of transaction costs is that, controlling for risk aversion, the higher the investor's wealth, the more likely is that he invests in stocks (Vissing-Jorgensen, 1995).

Information costs are a further barrier to entry the stock market. Managing a portfolio requires a specific human capital investment, in terms of time and effort needed to familiarize with the notions of transaction costs, asset returns, volatility, and covariance between assets returns. People are very diverse in their degree of financial literacy and in the sophistication necessary to manage a portfolio. On a more fundamental level, people differ in the basic mathematical skills needed to understand financial matters and to participate to the stock market. In SHARE we can relate portfolio choices to numeracy skills and financial literacy, and therefore address the potential impact of financial information on people's investment choice.

## **2.2. Social interaction**

In addition to information that investors can collect from the media or financial practitioners, there are important financial information spillovers from informed to uninformed consumers in the same social circle. Individuals often learn about investment opportunities from others, and how this occurs depends on the specific process of social learning and on how people interact.

Duflo and Saez (2002) show that in the US the decision to participate in Tax Deferred Accounts is significantly affected by a similar decision of employees in the same department. Thus, the experience of peers about the performance of their investments is passed on to others. Hong, Kubik and Stein (2004) show that stock market participation is higher among more socially connected individuals. Furthermore, this effect is stronger among individuals living in

communities with a higher participation rate to begin with, implying that social learning interacts positively with learning induced by market development. With respect of this study, in SHARE we have much more detailed indicators of sociability.

A related line of research points out that trust is an important determinant of economic exchange, and financial transactions in particular. Guiso, Sapienza and Zingales (2004) find that in Italian provinces with relatively high social trust, the proportion of stockholders is higher, other things equal. People more active socially might have a stronger tendency to trust, and therefore the two channels are difficult to distinguish empirically.

### **2.3. Health status**

While the elderly are unlikely to face significant income risk, except for the inflation risk associated with annuities, they typically face a much higher risk of health care consumption and nursing home costs. Controlling for health status is therefore quite important in our sample.

There could be several channels through which health status affects portfolio choice, especially when health risk becomes relevant. A first possibility is that health is correlated with individual resources, along the lines suggested by Smith (1999). Poor health is then associated with low wealth and therefore with less investment in stocks. Edwards (2003) explores a second possibility, showing that the introduction of uninsurable health risk of becoming permanently unhealthy induces investors to become effectively more risk averse, thereby reducing the asset share allocated to stocks.

A third possibility is that health status captures the variability of future medical expenditure, also reducing the willingness to invest in risky assets. Indeed, the literature on background risk suggests that the propensity to take financial risk is affected not only by rate of return risk, but also by independent sources of uncertainty, and that when people face risks that cannot be easily avoided or diversified (such as wage and unemployment risk), they are less willing to invest in risky assets. In order to reduce overall exposure to risk, people react to unavoidable risks by decreasing exposure to avoidable ones, such as a risky asset portfolio.<sup>1</sup> One

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<sup>1</sup> There is evidence that people with lower earnings uncertainty hold riskier financial portfolios, see Guiso, Jappelli and Terlizzese (1996) and Heaton and Lucas (2001).

advantage of focusing on a sample of elderly individuals is that most of them are retired and face very limited income risk.

We are aware of only two papers that explore the relation between health and portfolio choice. Edwards (2003) uses the U.S. Health and Retirement Study (HRS) and the Survey on Assets and Health Dynamics Among the Oldest Old (AHEAD) and finds that current health status and expectations about future health affect negatively the share of risky assets. Rosen and Wu (2004) use the HRS and estimate the relation between health status, asset ownership and share invested in risky assets, finding that poor health affects negatively ownership and investment in risky assets. Interestingly, they are able to show that the negative association is not due to the omission of variables that simultaneously affect health and financial decisions, such as planning horizon, risk aversion and health insurance status.

Studying the relation between health status and financial decisions across countries poses also the opportunity to explore the relation between coverage of health risk and portfolio choice. Even in countries where health coverage is universal and provided free of charge, as is the case in some European countries, consumers may feel the need to increase their coverage against the risk of poor health. If insurance markets are not perfect, people must pay out-of-pocket for health expenditures. One could therefore expect health status to impact portfolio choice more in countries with relatively low protection against health risks or relatively low quality of health care. On the other hand, health care is provided also through informal family networks, and one may expect health status to impact portfolio choice less in countries in which such networks are more prevalent. The relation between health status and propensity to take financial risks therefore depends on formal and informal insurance arrangements, and in each country these effects might reinforce or offset each other.

#### **2.4. Investors' horizon and bequest motives**

One reason why the portfolio of the elderly might differ from that of other investors is that the elderly face mortality risk, and have, of course, shorter horizons than the non-elderly. The time horizon for a couple as a unit is even shorter (Hurd, 2003). Standard finance theory with CRRA preferences, no background risk and frictionless markets, suggests that portfolio

allocations are independent from investor's horizon. Departing from these assumptions, investor's horizon affects portfolio allocations. But the relation is far from simple, depending, to say the least, on the choice of the utility function, the correlation of income and rate of return shocks, and the presence of transaction costs (Ameriks and Zeldes, 2004).

Even though the theoretical effect of changing the investor's horizon is ambiguous a priori, Ameriks and Zeldes (2004) present ample evidence that professionals and mutual fund companies suggest to reduce stock exposure as the horizon declines. A typical advice is that the asset share invested in stocks should decline with age, for instance that the share should be 100 minus investor's age. Thus, even if there are no compelling theoretical reasons to reduce risk exposure with age, people might nevertheless do so following standard financial advice.

The time horizon interacts with the bequest motive. While both young and old persons might have a bequest motive, "... for a young person the event of a bequest is so remote as not alter behavior. For the elderly, however, a bequest motive could extend the time horizon, reducing or eliminating any effects of mortality risk" (Hurd, p. 433). For this reason, in the empirical analysis we will control for bequest motives and intention to leave a bequest. Our expectation is that intention to leave a bequest impacts portfolio allocations in the same direction as investors' horizons.

### **3. The data**

Interest in the association between health outcomes, economic resources and labor market conditions, has led a group of European researchers to collect the Survey of Health, Aging and Retirement in Europe (SHARE). The questionnaire and the sample design are patterned after the US Health and Retirement Survey (HRS) and the English Longitudinal Study of Ageing (ELSA).

The survey collects information on a total of 15,645 households and 22,772 individuals; it is representative of the population aged 50 and above in 10 European countries. The range of SHARE questions is very wide, encompassing among other things physical health, socio-economic status, financial transfers, intensity of social interaction, basic mathematical skills and expectations about the future, representing an ideal setting to study the determinants of household

portfolio in Europe. Some of the questions refer to the household (for instance, assets) while others are posed to the respondent and spouse; for instance, an overall assessment of health status, family networks and social activities. Details on sampling, response rates and definition of variables are provided in Börsch-Supan et al. (2005).

### **3.1. Financial wealth and stockownership**

The SHARE questionnaire asks information on real and financial assets, with special care taken to ensure comparability across countries. There are questions on seven kinds of financial assets: bank and other transaction accounts, government and corporate bonds, stocks, mutual funds, individual retirement accounts, contractual savings for housing, and life insurance policies.

We adopt two definitions of stockownership: direct stockownership and total stockownership, defined as stocks held directly plus stocks held through mutual funds and investment accounts. To measure indirect stockownership we need information on what percentage of mutual funds and individual retirement are invested in stocks. The SHARE questionnaire does not provide information on the exact allocations. There are however questions for both mutual funds and individual retirement accounts which give information on whether the amount invested is mostly in stocks, roughly equally in stocks and bonds, or mostly in bonds. We impute to these three possible answers 75, 50 and 25 percent invested in stocks. Appendix A.1 and Christelis, Jappelli and Padula (2005a, 2005b) report further details on wealth definition and imputation.

Figure 1 reports the percentage of direct and total stockowners, showing wide differences across the 10 countries. Direct stockholding ranges from less than 5 percent in Spain to over 40 percent in Sweden. Total stockownership goes from about 10 percent in Spain, Greece and Italy to over 70 percent in Sweden. In broad terms there is a negative gradient going from North to South, with a group in the middle consisting of France, Germany, Netherlands and Switzerland. Sweden and Denmark have by the far the highest percentages of both direct and total stockholding, while Austria, Spain, Greece and Italy are at the other end of the spectrum.

The share of financial wealth invested in stocks (direct plus indirect) is plotted in Figure 2 separately for the total sample and the sample including only investors with positive stock

amounts. In the total sample the share exhibits wide variability, being highest in Sweden and Switzerland, and lowest in Austria and Spain. Focusing on stockowners provides a completely different picture. The share invested in stocks is generally between 30 and 40 percent, with less variability across countries. Furthermore, the ranking is reversed: even in countries with very few stockowners, as Italy and Greece, the share is substantial, while in countries that have more stockowners (as Denmark) the share is comparatively low. Overall, Figures 1 and 2 suggest that the decision to invest in stocks and the determinants of the asset share, conditional on investing, should be analyzed separately, calling for appropriate econometric modeling.

### **3.2. Health status**

Health status is an intrinsically unobservable variable. Researchers generally seek to measure it using household surveys or medical-administrative records. Currie and Madrian (1999) suggest eight different categories of health indicator: (1) subjective health status; (2) health limitations to the ability to work or to carry normal activities; (3) functional limitations on normal activities; (4) chronic disease; (5) permanent disability; (6) health care utilization; (7) nutritional status, as measured by the body mass index, (8) expected mortality. SHARE has information on all these measures and provides a good means of checking whether these measures are mutually consistent and whether health outcomes can be foretold from subjective feelings about health status (Börsch-Supan,2005).

While objective health measures are less likely to be affected by measurement error and therefore more reliable, subjective data describe individual perceptions. In our context, self-reported health status might be even more relevant than objective health indicators. If people buffer health risks by investing less in risky financial assets, it is the perception of such risks (not necessarily their actual presence) that determines portfolio choice. Furthermore, using self-reported health status delivers results more easily comparable to other studies using the same variable (Rosen and Wu, 2003).

Self-reported health status is ranked on a 1-5 scale (1=*Very Good*, 2=*Good*, 3=*Fair*, 4=*Poor*, 5=*Very Poor*). A high value of the index corresponds therefore to poorer health. Self-assessed health measures are well known to correlate strongly with objective indicators (Currie

and Madrian, 1999), and may directly affect economic behavior.<sup>2</sup> The distribution of self-reported health status indicates that 12.6 percent view their health as very good, 43.8 percent as good, 31.4 percent as fair, 9.7 percent as poor and 2.5 percent as very poor. Chronic diseases affect over one third of the sample, and 13 percent report some form of disability (such as blindness, deafness or disabilities limiting mobility). Overall, these indicators suggest that serious health problems affect a considerable share of the elderly in Europe, between a third and half.

The distribution of this variable across countries shows some interesting differences in self-reported health. As can be seen in Figure 3, in Germany, Spain and Italy people claim more often that they are in bad or very bad health (higher values denote worse health), while in Switzerland, Denmark, Netherlands, and Sweden they report more often that they are in good health. Indeed, there could be differences in reporting styles across countries that result in different evaluations of similar physical problems. Jürges (2005a) attempts to disentangle real health differences from differences in reporting style. To address differences in reporting style, in the empirical analysis we check the sensitivity of the results standardizing health status by country-specific means, using alternative health indicators and using a special section of SHARE with “vignettes” asking health questions in common health scenarios.

### **3.3. Social interaction**

SHARE includes a battery of questions on various kinds of social activities that individuals have performed in the month prior to the interview. The possible activities that we consider as indicating some form of social interaction are: (1) voluntary or charity work; (2) care for a sick or disabled adult; (3) helping family, friends or neighbors; (4) attendance of an educational or training course; (5) participating in a sport, social or other kind of club; (6) taking part in a religious organization; (7) taking part in a political or community-related organization. We convert these questions in dummy variables and construct an indicator of social interaction as the

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<sup>2</sup> Individuals in SHARE are also asked if they suffer from chronic disease and disability, if they have experienced health problems in the last 12 months, if those problems limited their ability to work and live normally, and many others health-related questions. Finally, individuals report weight and height, and those under 66 years give their estimated probability of surviving to past age 75.

sum of dummies, ranging from zero to seven. The precise form of the question on social activities is reported in Appendix A.2.

As pointed out by Hong, Kubik and Stein (2004), word-of-mouth and observational learning are two channels through which social interaction might influence stock market participation. With respect to their analysis who focuses only on whether people interact with neighbourhoods or attend church, we can condition on a much larger set of variables.

The distribution of the indicator of sociability across countries is shown in Figure 3. In Sweden, Denmark, the Netherlands and Switzerland the index is close to one, meaning that people in these countries have engaged, on average, in one social activity in the previous month. The level of social interaction in Italy, Greece and Spain is much lower, averaging only 0.31, 0.20 and 0.36 activities per person respectively.

When looking at some of the different components of social interaction, Hank and Erlinghagen (2005) find that volunteering displays a strong North-South gradient, just as our constructed index of social activities. In addition, volunteering is positively correlated with participation in organizations and with the provision of informal help and care to other people. Interestingly, they also find that the latter two activities are also more prevalent in Northern than Southern countries, which is surprising since one might expect that providing help in the South, at least within families, would be more prevalent.

### **3.4. Numeracy**

The capacity to perform numerical calculations affects how accurately people can make financial decisions and manage their portfolios in a manner that reflects their preferences. SHARE respondents are asked to perform the following simple numerical calculations: (1) find 10 percent of a number; (2) find one half of number; (3) find the number of which another known number represents two thirds; (4) find 10 percent of another number. Each of the questions refer to specific economic or financial situations.

We used a numeracy indicator constructed by Dewey and Prince (2005), on the basis of the aforementioned four questions; details on its construction and the questions themselves are given in Appendix A.3. The numeracy index ranges from 1 to 5, and its distribution across countries is

shown in Figure 5. All countries receive a score higher than 3, except Spain and Italy, scoring 2.4 and 2.9 respectively. In addition, Dewey and Prince (2005) find that numeracy (together with two other indicators of cognitive impairment, verbal fluency and memory recall) is strongly positively associated with education and income, while it has a negative effect on the ability to give support, on the ability to perform activities of daily living and on self-perceived health.

### **3.5 Expectations to leave an inheritance**

SHARE contains three questions on the expectation of leaving an inheritance, which are asked to all financial respondents in the household. The first question asked is whether there is a chance that the person interviewed expects to leave an inheritance greater than 50,000 euro. If the answer is affirmative then the next question asked is whether she expects to leave an inheritance greater than 50,000 euro. If, on the other hand, the answer to the first question is negative, then she is asked whether there is a chance that she will leave any inheritance. We use the first answer to construct an indicator of the probability to leave an inheritance (details on the construction and the original questions can be found in Appendix A.4).

The distribution of the expected probability of leaving an inheritance across countries is shown in Fig. 6, from which one can see that the ten countries can be approximately divided in 2 groups, one containing the Netherlands, Germany, Austria and Spain where the probability is around 48% whereas in the remaining countries it is close to 60%. The expectation of leaving an inheritance is strongly positively correlated with current wealth, as shown by Jürges (2005b). He also finds that roughly one third of the households expect to bequeath at least half of their current wealth.

### **3.6. Sample statistics**

Selected sample statistics are reported in Table 1, which refers to household heads. The average age of the household head is approximately 66 years in all countries, while the percentage of households that are headed by a female ranges from 47 percent in Spain to 30 percent in France. Northern countries are much more likely to have households headed by a

college graduate. As for the other variables that are of main interest to us, we see that household heads in Northern Europe are more likely to be involved in social activities, while their numeracy is also likely to be higher, although by a lesser degree. The distribution of health status is quite dispersed, with heads in Germany, Italy and Spain reporting on average quite worse health than those in Switzerland, possibly due to different perceptions of similar health conditions across countries. Homeownership is also quite variable, with the three southern European countries and France reporting rates of 74 percent or higher, while in the Netherlands, Austria and Switzerland the rate is roughly 55 percent and in Germany 50 percent. There are two groups with distinctly different probabilities of leaving an inheritance, with the Netherlands, Germany Austria and Spain displaying significantly lower probability than the remaining countries. Finally, household gross financial wealth also varies widely across Europe, with Switzerland clearly above the rest, followed by Sweden and Denmark, while households in Italy, Spain and Greece report lower gross financial assets.

#### 4. The joint distribution of stockholding and financial wealth

To describe the relation between transaction costs and the probability of investing in stocks, let's consider a situation in which investors can choose between a safe and a risky asset (bonds and stocks). Stocks yield an equity premium equal to  $\tilde{r}$ , distributed according to the p.d.f.  $g(\tilde{r})$ , with expected value  $E\tilde{r} = r > 0$  and variance  $\sigma^2$ . We normalize the return on bonds to zero and assume that in some states of the world  $\tilde{r} < 0$  so that stocks do not dominate bonds. Each investor  $i$  is endowed with wealth  $w_i$  and invests a fraction of wealth  $\alpha_i$  in stocks. The investor must pay each a fixed cost  $f_i$  (say, a brokerage fee) to enter the stock market. If he chooses to purchase stocks, he pays  $f_i$  and invests  $\alpha_i w_i$  in stocks; otherwise he keeps all of his wealth in bonds.

The investor's problem is:

$$\max_{\alpha} Eu[(\alpha_i \tilde{r} + 1)(w_i - f_i)]$$

and the optimal share invested in stocks,  $\alpha_i^*$ , satisfies the first order condition:

$$Eu[(\alpha_i^* \tilde{r} + 1)\tilde{r}(w_i - f_i)] \equiv 0$$

The investor chooses to invest in stocks if:

$$Eu[(\alpha_i^* \tilde{r} + 1)(w_i - f_i)] > u(w_i) \quad (1)$$

If the benefit from stockholding exceeds the fixed cost, the investor chooses to purchase stocks, pays the fixed cost  $f_i$  and invests  $\alpha_i^*(w_i - f_i)$  in stocks. Given our assumptions,  $\alpha_i^*$  is strictly positive. Since one additional euro of wealth increases the right-hand side more than the left-hand-side, there exists a sufficiently high level of wealth that triggers stock market participation. Indeed, as entry costs approach zero, all investors purchase stocks.

Equation (1) delivers two insights. First, everyone above the wealth threshold invests in stocks. Second, if entry costs differ across countries, the countries will exhibit different participation rates. Let now  $\hat{r}_i$  be the certainty equivalent equity premium defined implicitly by:

$$Eu[(\alpha_i^* \tilde{r} + 1)(w_i - f_i)] = u[(\alpha_i^* \hat{r}_i + 1)(w_i - f_i)]$$

Then, the stock market participation condition can be written as:

$$w_i > \frac{f_i(\alpha_i^* \hat{r}_i + 1)}{\alpha_i^* \hat{r}_i} = \bar{w}_i \quad (2)$$

All investors with wealth above  $\bar{w}_i$  purchase stocks; all those with  $w_i < \bar{w}_i$  do not. Other things equal, people who are willing to invest a large share of their wealth in stocks are more likely to enter the stock market because they have more to lose from not taking advantage of the equity premium. Using (2), one could immediately compute the proportion of stockholders in the population:

$$h = \text{prob}(w_i \geq \bar{w}_i)$$

Suppose now that the asset share invested in stocks and the equity premium are the same for all European investors. The condition for participating can then be expressed as:

$$f_i < \frac{\hat{r}\alpha w}{(1 + \alpha\hat{r})}$$

Mulligan and Sala-i-Martin (2000) and Vissing-Jorgensen (2004) use the joint distribution of wealth and stockownership to infer information on the distribution of entry costs. As an example, suppose that  $\hat{r} = 0.03$ ,  $\alpha = 0.3$ , and 10 percent of the households with  $w = \text{€}25,000$

invest in the stock market. Then, using the above formula, 10 percent of this group must have participation costs below  $\frac{0.03 \times 0.3 \times 25,000}{1 + (0.03 \times 0.3)} = 223$  euro. If the entry cost  $f$  is not correlated with  $w$ , this also implies that 10 percent of these households has participation costs lower than €223.<sup>3</sup>

To estimate the empirical distribution of entry costs in the 10 European countries of our sample, we split the sample in different deciles and repeat the procedure for each decile and for each country. We then plot the fraction of total stockowners (direct plus indirect) assuming  $\hat{r}=0.03$  and  $\alpha=0.3$ .<sup>4</sup> The latter corresponds to the average share invested in stocks among stockowners. As we shall see in the Section 5, this conditional asset share is not much affected by the level of financial wealth itself.

Figure 7 reports an estimate of the distribution of entry costs in four representative countries, with high (Sweden and Denmark), medium (France) and low stockholding (Italy). The horizontal line indicates the level of participation costs median values of participation costs differ considerably, from less than 100 euro in Sweden and Denmark to more than 1,000 euro in Italy. The corresponding wealth thresholds are about 10,000 euro in Sweden and 75,000 in Italy.

Of course, this is just an example, attributing *all* variability in the decision to invest in stocks to transaction costs under extreme – and implausible – assumptions. As such, it should be taken just as an alternative description of the relation between financial wealth and stockownership. However, the example highlights that the relation between the probability of investing in stocks, transaction costs and financial wealth is highly non-linear and varies considerably across countries, especially at low levels of wealth.

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<sup>3</sup> Vissing-Jorgensen (2004) considers three types of transaction costs: a pure entry cost, a per-period participation cost and a trading cost. Using data from the Panel Study of Income Dynamics, she finds median per period participation costs of \$800 in 1984, \$500 in 1989, and \$350 in 1994. Luttmer (1999) focuses on the lower bound of fixed costs that make consumption data consistent with data on asset returns, suggesting transaction costs of at least 3 percent of monthly consumption for an investor with log utility function. Paiella (2001) follows a similar approach, and using the same dataset as Vissing-Jorgensen estimates that annual participation costs range from \$95 to \$175.

<sup>4</sup> The calculation of participation costs could be refined allowing for heterogeneity in the asset share invested in stocks, and estimating a selection model for the asset share. Vissing-Jorgensen (2004) reports that this refinement does not appreciably change the estimated distribution of entry costs, given that the share invested in stocks typically does not depend on the level of financial wealth, something which we also observe in our data.

In particular, Figure 7 suggests that, at low level of wealth, the slope of the relation between financial wealth and stockownership is steeper in countries in which transaction costs are relatively high, such as Sweden and Denmark, and flatter in countries with high transaction costs, such as Italy. On the other hand, at high levels of wealth, the slope flattens in countries with low transaction costs. In short, the shape of the relation is directly related to transaction costs. To capture such relation, we need a flexible econometric framework.

## 5. Econometric results

According to standard finance theory, households should invest a positive amount of their wealth in stocks, unless stocks are dominated by alternative assets, such as bonds. There is, however, ample evidence that many households do not hold stocks, either directly or indirectly. As shown in Figure 1, our sample is no exception. We therefore model the determinants of stockholding in two stages, analyzing separately the participation decision (whether to invest in stocks) and the allocation of financial wealth between stocks and other assets.

To model the stockownership decision, we assume that the utility gain from owning stocks, net of entry costs, is:

$$y_{hc}^* = z_{hc}'\delta_c + \varepsilon_{hc} \quad (3)$$

where  $h$  and  $c$  are, respectively, the household and the country index, and  $z_h$  the observable variables affecting the utility gain from owning stocks. Utility also depends on unobservable variables, which enter (3) through  $\varepsilon_h$ , a standard normally distributed random term. Household  $h$  owns stocks if  $y_{hc}^* \geq 0$ , which implies that the probability of observing stockownership is  $\Phi(z_{hc}'\delta_c)$ .

In the second stage, the probability of stockownership is used to evaluate the asset share invested in stocks, conditional on ownership:

$$E(w_{hc} | y_{hc}^* > 0) = x'_{hc} \beta_c + \rho \lambda(z'_{hc} \delta_c)$$

where  $x_{hc}$  are observable factors that affect the share of wealth invested in stocks,  $\lambda(z'_{hc} \delta_c)$  is the Mill's ratio and  $\rho$  the correlation coefficient between  $\varepsilon_{hc}$  and a normally distributed unobservable factor that affects the share of wealth invested in stocks.

### 5.1. The decision to invest in stocks

Table 2 reports the probit estimates of direct stockownership. The marginal effects are evaluated at the mean of the right-hand side variables of the participation equation. In this first regression, we adopt a very flexible specification, where all explanatory variables are interacted with a full set of country dummies. This allows for the effect of, say, college or health status to differ across countries. Each column refers to country-variable arranged by decreasing latitude, and rows to the determinants of the decision to own stocks.

The effect of age is negative in each country, but almost never statistically different from zero. Being a college graduate increases the probability of owning stocks, an effect that is particularly strong in Austria, Italy and Spain. The indicators of social activities and numeracy have the expected positive sign and are remarkably similar across countries. Individuals with good numeracy skills are likely to face lower information costs, and therefore are encouraged to entry the stock market.

Most households in the sample are headed by retired individuals. Poor health status might be associated with higher health risk, high risk aversion or low wealth, and each of these factors should discourage stockownership. The results indicate that being in poor health (a high value of the health index) is associated with a lower propensity to invest in stocks. To account for possible differences in reporting style across Europeans, we standardize self-reported health status by subtracting the country mean and dividing by the country standard deviation, obtaining similar results.

A recent literature has emphasized that owning a house is a hedge against rent risk (Sinai and Souleles, 2001; Pelizzon and Weber, 2004), and that renters might face more risk compared

to homeowners, possibly discouraging the decision to invest in stocks. Consistent with this argument, the coefficient of homeownership is positive, though the estimates are not always statistically different from zero. Stockownership is also higher among those with stronger bequest motives, as suggested by the positive sign of the coefficient of the probability of leaving an inheritance.

To estimate the non-linear relation between participation and financial wealth, we introduce separate wealth quartile dummies. Each of the dummies is defined using the quartiles of the country distribution of financial wealth. The results exhibit considerable variability across countries, confirming the descriptive evidence in Section 4.

In Northern countries, such as Sweden, stockownership takes off early in the financial wealth distribution. At the other edge, in Italy and Spain, stockownership becomes economically significant only at higher levels of the wealth distribution. Since at low levels of wealth a small increase in wealth triggers more participation in Sweden than in Italy or Spain, we interpret the pattern of wealth coefficients as indication that transaction costs are higher in Italy or Spain than in Sweden.

Table 3 repeats the estimation for total stockholding. The pattern of coefficients is similar and the coefficients are generally more precisely estimated. For both direct and total stock ownership, we cannot reject the null hypothesis that the coefficients of all variables, except for college degree and financial wealth quartiles, are the same across countries.<sup>5</sup> The associated F-statistics are 71.62 and 75.57, respectively.<sup>6</sup> To improve the precision of our estimates, we can therefore estimate a restricted version of the participation equation.

Table 4 reports the results of the restricted specification, for both direct and total stockownership. The age coefficient is negative and statistically different from zero, suggesting that older households are less likely to hold stocks. The pure cross-sectional nature of the data requires caution in interpreting this coefficient, as a negative age coefficient might arise also if

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<sup>5</sup> Contrary to our expectations, the effect of health status is the same across countries, despite differences in out-of-pocket medical expenditure, degree of coverage and quality of public health system across countries. We speculate that there is an offsetting effect between public and informal care and insurance from the formal sector and from the family, which equalizes the effect of health risk across countries.

<sup>6</sup> The associated p-values are 0.21 and 0.13.

older cohorts face higher transaction and information costs, and are therefore less likely to own tocks.<sup>7</sup>

Being female reduces the probability of holding stock, though the effect is not statistically different from zero in the equation for couples and for total stockownership. Sociability increases the probability of holding stocks either directly or indirectly. The index of social activity ranges from zero (lack of any social activity) to 7 in the data, implying that the probabilities of direct and total stockownership are, respectively, 7 percent and 16 percent higher for those most engaged in social activities. Mathematical skills increase stockownership: direct participation is 9 percent higher for those with the highest score (5) compared to those with the lowest score.

Poor health is associated with lower propensity to own stocks, either direct or indirect. The coefficient of homeownership is positive and statistically different from zero and implies that the probability of owning stocks is between 4 and 6 percent higher for homeowners. The chance of leaving an inheritance increases both total and direct stockholding.

Even the restricted specification allows the effect of education and financial wealth to vary across countries. College graduates are more likely to hold stocks, either directly or indirectly, but the effect is larger in Austria, Spain and Italy. One possible interpretation is that these countries feature low transparency of the financial system, and therefore higher education helps to reduce information costs more than elsewhere.

The propensity to invest in stocks increases across the financial wealth distribution, but at different rates, confirming the results in Table 2. In Sweden and Denmark, the propensity to invest in stocks increases mostly between the first and the second quartile, while in Italy and Spain the increase takes place mostly between the third and the fourth quartile. The same message is conveyed in Figure 8, where we plot the conditional probability of total stockownership against financial wealth quartiles for a representative household in Sweden, Denmark, France and Italy. Stockownership is an increasing function of wealth, concave in Sweden and Denmark, almost linear in France, and convex in Italy.

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<sup>7</sup> Ameriks and Zeldes (2004) use pooled cross-section and panel data and show that the interpretation of the equation of the asset share invested in stocks is highly sensitive to the identifying assumptions between age, cohort and time effects.

As a sensitivity check, we estimate the participation equation on the sample of couples only. Couples are likely to have shorter horizons than singles, and also face a different array of risks, some of which might be insured within the family. Furthermore, variables refer to the household head and in case of couples the variables that refer to the spouse might be important. The results for couples are displayed in the second and fourth columns of Table 4 and are remarkably similar to those for the full sample.

We also estimate our participation equation restricting the sample to retirees. For this group, human capital risk is virtually zero and the lion's share is played by health risks. Interestingly, in this restricted sample, the coefficient of health status is larger than in the full sample.

## 5.2. Asset share invested in stocks

Figure 2 illustrates that, compared to stockownership, the asset share invested in stocks exhibits much less variability across countries. Indeed, in the selected sample of stockowners, the between countries average is 33 percent, and the standard deviation 5 percent.

Table 5 reports the results for the share of stock equation. We concentrate on the sample of stockowners and allow for non-random selection. We exclude from the share equation the proxy for the intensity of social activities, the index of numeracy and enter linearly financial wealth.<sup>8</sup> According to standard portfolio theory, the main determinant of the share of wealth invested in risky assets is the coefficient of relative risk aversion: the lower risk aversion, the larger the portfolio share of risky assets. With constant relative risk aversion the portfolio share is independent of wealth. As Table 5 shows, the coefficient of financial wealth is not statistically different from zero and we take this important finding as evidence of constant relative risk aversion.

Education has a positive effect on the share of risky assets in most countries, and the effect is larger in Mediterranean than in Nordic countries. The age coefficient is not statistically

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<sup>8</sup> The coefficient of social activities and numeracy are not statistically different from zero in the second stage equation: The hypothesis that the financial wealth dummies are equal across countries cannot be

different from zero. Poor health reduces the demand for stocks, while intention to leave a bequest has the opposite effect.

The second column of Table 5 reports separate result for couples. The results are similar, except that the effect of education is attenuated, suggesting that for couples the difference between college and non-college graduates is less significant than for the whole sample.

In summary, we find that the share of risky assets is mostly affected by health status and intention to leave a bequest, and is independent of wealth. These results represent evidence of constant relative risk aversion, and that the relation between wealth and stockownership in the first stage is due to the effect of transaction costs.

### 5.3. Accounting for cross-country differences

This section relates the observed cross-country differences in the decision to invest in stocks to differences in the underlying determinants of ownership. These can arise for two reasons. Countries differ in the level of the variables affecting stockownership; for instance, Sweden exhibits higher sociability and numeracy than Italy or Spain. But countries can also differ in the effect that some variables have on stockownership; since the education and financial wealth variables have different coefficients, this gives an additional source of variability.

To distinguish variation in endowments and coefficients, we employ Oaxaca's (1973) decomposition. We compare all countries to Sweden, taken as a benchmark because it ranks the highest level of stockownership. Using the participation equation, the difference in stockownership between Sweden and, say, Italy can be written as:

$$\begin{aligned} \bar{Y}_{SW} - \bar{Y}_{IT} = & \left[ \frac{1}{N_{SW}} \sum_{h=1}^{N_{SW}} \Phi_h(z'_{SWh} \hat{\delta}_{SW}) - \frac{1}{N_{IT}} \sum_{h=1}^{N_{IT}} \Phi_h(z'_{ITh} \hat{\delta}_{SW}) \right] + \\ & \left[ \frac{1}{N_{IT}} \sum_{h=1}^{N_{IT}} \Phi_h(z'_{ITh} \hat{\delta}_{SW}) - \frac{1}{N_{IT}} \sum_{h=1}^{N_{IT}} \Phi_h(z'_{ITh} \hat{\delta}_{IT}) \right] \end{aligned} \quad (5)$$

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rejected. We reject independence of the share equation from the participation equation: the associated  $\chi^2$

where  $\bar{Y}_{SW}$  and  $\bar{Y}_{IT}$  are the participation rates,  $\Phi_h$  the cumulative standard normal,  $\hat{\delta}_{SW}$  and  $\hat{\delta}_{IT}$  the estimated coefficients in the participation equation, and  $N_{SW}$  and  $N_{IT}$  the number households.<sup>9</sup> From equation (5), one can easily compute how much the difference in stockownership between Sweden and Italy is due to differences in endowments (the first term in equation 5), and coefficients (the second term).

Probit models are non linear, and to single out the contribution of one variable one must make a decision on the values taken by all other variables, and approximate the sample mean of a cumulative standard normal with the cumulative standard normal evaluated at the sample mean.<sup>10</sup> Alternatively, one could take a first order Taylor expansion of  $\Phi_h(z'_{SWh}\hat{\delta}_{SW})$  around  $z'_{SWh}\hat{\delta}_{SW}$ . Neglecting higher order terms, this amounts to write:

$$\Phi_h(z'_{SWh}\hat{\delta}_{SW}) = \Phi_h(z'_{ITh}\hat{\delta}_{SW}) + \phi(z'_{ITh}\hat{\delta}_{SW})(z_{SWh} - z_{ITh})'\hat{\delta}_{SW}$$

where  $\phi$  is the density standard normal. This can be used to assess the contribution of age. However, the approximation can be very poor if  $z'_{ITh}\hat{\delta}_{SW}$  is far off  $z'_{SWh}\hat{\delta}_{SW}$ . To avoid these approximations, we use OLS to quantify the separate contribution of each determinant to the difference between Sweden and Italy. The specification for total stockholding is the same as in Table 4, with college and financial quartile dummies interacted with country dummies.

The first column in Table 6 shows the contribution of each right-hand-side variable to stockownership in Sweden. The proportion of Swedish households owning stocks, either directly or through mutual funds and managed accounts, is 78 percent. This is mostly accounted for by age and wealth. The contribution of financial wealth ranges from 15 (the first quartile) to 23 percent (the fourth quartile), that of age is -21 percent.<sup>11</sup>

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is 48.52.

<sup>9</sup> Some coefficients are the same for Sweden and Italy, such as the coefficient on age. The coefficients associated to the college and the financial wealth quartile dummies are instead different.

<sup>10</sup> For instance, one could compute the difference between the cumulative standard normal evaluated at the sample mean of  $z'_h\hat{\delta}_{SW}$  for Sweden and Italy.

<sup>11</sup> The sign is because the age coefficient is negative.

The remaining columns display differences with respect to Sweden, separately for differences in determinants, such as age or health status, and differences in how education and financial wealth affect stockownership.

As an example, let's consider the difference between Sweden and Italy. The last row reports that the difference between stockownership in Sweden and Italy is  $78-15=63$  percent lower than in Sweden. Of this, the difference in endowments "explains" only a very small portion (1.15 percent), while most of the difference is accounted for by the coefficients. The pattern is the same in all countries: differences in variables account for a very small portion of differences in stockholding, which depend instead on heterogeneity in responses. For instance, in Sweden stockownership is 12 percent higher in the first quartile than in Italy, and 19 percent higher in the second.

Some of the differences in stockownership comes from the effect of education. Being a college graduate does not affect stockownership in Sweden, but it does in most other countries. A college graduate in Austria has a 3% higher probability of owning stock vis-à-vis a college graduate in Sweden, in Spain 1.5% higher. This means that the contribution of heterogeneity in the coefficient of education is negative, which might be interpreted as evidence that higher education lowers the barriers to entry the stock market.

Differences in numeracy and social activities do play a role, especially in Mediterranean countries. Social activities account for less than 2 percent of the difference in stockownership between Sweden and Spain, and so does knowledge (or the lack) of basic mathematical skills: stockownership in Spain is 4 percent lower than in Sweden for the combined effect of social interactions and numeracy.

In summary, the bulk of cross-country differences in stockownership is accounted by differences in the effect of financial wealth, especially at low levels of wealth. We interpret this as evidence of the fact that transaction costs play a major role in explaining international differences in stockownership. Sociability and numeracy also matter: they differ considerably across countries, explaining up to 4 percentage points of stockownership.

## 6. Conclusions

The Survey of Health, Ageing, and Retirement in Europe documents ample variability in the rate of participation to financial markets for the elderly population. This is not a new feature of microeconomic data, as recent evidence for a sample of EU countries and the US shows that heterogeneity in stockownership is a widespread phenomena in micro-data, with very large international differences (Guiso, Haliassos and Jappelli, 2003). But SHARE data are collected on a comparable basis for 10 EU countries and Switzerland. Furthermore, the survey contains many indicators of the life of the elderly in Europe, ranging from physical health, socio-economic status, intensity of social interaction, numeracy, intention to leave bequests. This gives the opportunity to quantify the contribution of many different factors in explaining heterogeneity in stockownership in Europe. Furthermore, we can assess the empirical relevance of the little explored link between health status, sociability, financial literacy and portfolio choice. The data are particularly suited to an analysis of health status, because most households in SHARE are headed by retirees.

We relate direct and indirect stockownership to health status, social interactions, ability with numbers, intention of bequeathing and financial wealth. Other things equal, we find that health status reduces stockownership, while social activities and basic computational skills are positively related to stockownership. Moreover, those who to leave an inheritance are more likely to participate to the stock market.

Most of the cross-country variation in stockownership, however, is not due to the value of or the effect of each of the variables mentioned, but to the different impact of financial wealth. We find that the relation between stock market participation and wealth is increasing in all countries, though it is quite steep at low levels of wealth in countries such as Sweden and Denmark, and relatively flat in Italy or Spain. This means that at low levels of wealth, an increase in wealth triggers stockownership more in Sweden than in Italy, which we interpret as evidence that transaction costs are higher in Mediterranean countries.

The results for the asset share invested in stocks indicate a negative relation with health status and a positive association with intention to leave a bequest. Moreover, the share of wealth

invested in stocks is independent from the level of wealth, which we take as evidence that relative risk aversion is constant.

At this stage, several issues remain open. First, if the impact of health status is robust when we use the “vignette” sample. Second, if and how the taxation of dividends affects stockownership and the asset share invested in stocks. Third, which social activities are more conducive to stockownership. Fourth, if and how informal networks and public coverage of health risks affects the relation between health status and portfolio allocations.

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## Appendix

### A.1 Financial Assets

In this section we will give a brief description of the financial assets data construction, while full details are given in Christelis, Jappelli and Padula (2005b). The questions asked on financial assets are as follows: first the respondent is asked whether she owns the asset and then if yes, in what amount. If the respondent refuses to answer the amount question or claims she does not know, then she is introduced into an unfolding brackets sequence which uses three threshold values which differ by country and asset item. The respondent is randomly assigned to one of the three thresholds and she is asked if she owns more or less than that threshold. Depending on her answer, she is then asked about the next higher or lower threshold and so on.

Going from the raw data to the aggregated measure of gross financial assets requires the following procedures to be performed:

- i) Data cleaning, which involves putting implausibly high or low values to missing and imputing them [see point iii) below] and converting responses in local currency to responses in euro when appropriate
- ii) Conversion of all answers into values adjusted for differences in the purchasing power of money across countries using purchasing power parity data from the OECD.
- iii) Imputing missing values, which is done first for questions on ownership and then for questions on amounts on amounts. The imputation method is the hotdeck using the approximate Bayesian bootstrap as described in Rubin and Schenker (1986) and implemented in Stata with the package hotdeck by A. Mander and D. Clayton. The hotdeck is typically conditioned on country, bracket (when this information is available) and age group. Multiple imputation methods are adopted and thus the hotdeck procedure is run five different times to generate five different datasets. The percentage of values that require imputation by country and asset item are shown in Table A.1.
- iv) We adopt two definitions of stockownership: stocks held directly, or stocks held directly plus stocks held through mutual funds and investment accounts. To measure indirect stockownership we need information on what percentage of mutual funds and individual retirement are invested in stocks. The SHARE questionnaire does not provide information on the exact allocations. There are however questions for both mutual funds and individual retirement accounts which give information on whether the amount invested is mostly in stocks, roughly equally in stocks and bonds, or mostly in bonds. We impute to these three possible answers 75, 50 and 25 percent invested in stocks.

### A.2 Social Activities

The SHARE question on which we base our measure of social activity is as follows (the interviewer is instructed to include all applicable answers):

*Have you done any of these activities in the last month?*

Possible answers are: (1) voluntary or charity work; (2) care for a sick or disabled adult; (3) help for family, friends or neighbors; (4) attendance of an educational or training course; (5) participation in a sport, social or other kind of club; (6) taking part in a religious organization (church, synagogue, mosque etc.); (7) taking part in a political or community-related organization; (8) None of these. As already reported in the text our indicator is the sum of all possible activities.

### **A.3 Numeracy**

The (abridged) questions on numeracy are as follows. Possible answers are shown in a card while the interviewer is instructed not to read them out to the respondent:

- i) *If the chance of getting a disease is 10 per cent, how many people out of one thousand would be expected to get the disease?*  
The possible answers are 100, 10, 90, 900 and another answer.
- ii) *In a sale, a shop is selling all items at half price. Before the sale a sofa costs 300 euro. How much will it cost in the sale?*  
The possible answers are 150, 600 and another answer.
- iii) *A second hand car dealer is selling a car for 6,000 euro. This is two-thirds of what it costs new. How much did the car cost new?*  
The possible answers are 9,000, 4,000, 8,000, 12,000, 18,000 and another answer.
- iv) *Let's say you have 2,000 euro in a saving account. The account earns ten per cent interest each year. How much would you have in the account at the end two years?*  
The possible answers are 2,420, 2,020, 2,040, 2,100, 2,200, 2,400 and another answer.

If a person answers (i) correctly she is then asked (iii) and if she answers correctly again she is asked (iv). Answering (i) correctly results in a score of 3, answering (iii) correctly but not (iv) results in a score of 4 while answering (iv) correctly results in a score of 5. On the other hand if she answers (i) incorrectly she is directed to (ii). If she answers (ii) correctly she gets a score of 2 while if she answers (ii) incorrectly she gets a score of 1.

### **A.4 Probability of leaving an inheritance**

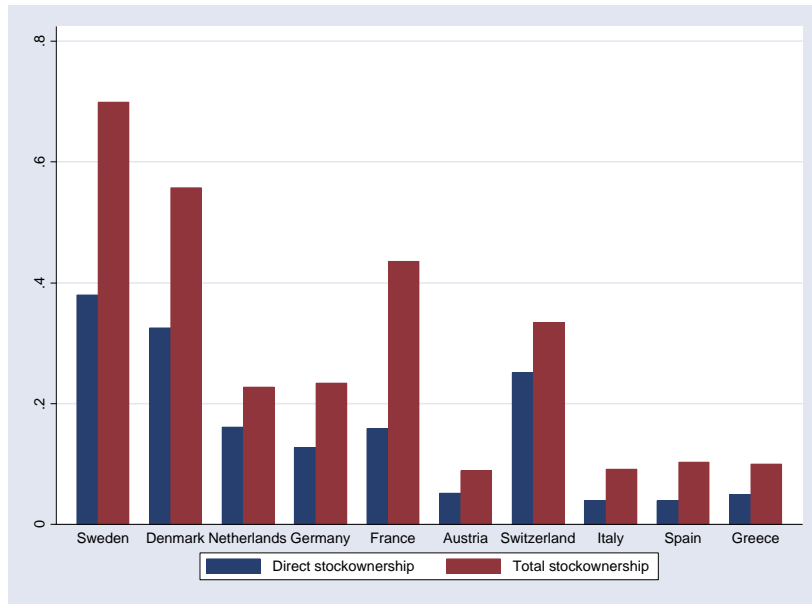
The questions that refer to the probability of leaving an inheritance are as follows (the interviewer is instructed to make sure that the respondent includes property and other valuables):

- i) *Including property and other valuables, what are the chances that you or your husband/wife/partner will leave an inheritance totaling 50,000 euro or more?*  
The possible answers range from 0 to 100.
- ii) *Including property and other valuables, what are the chances that you or your husband/wife/partner will leave any inheritance?*  
The possible answers range from 0 to 100.

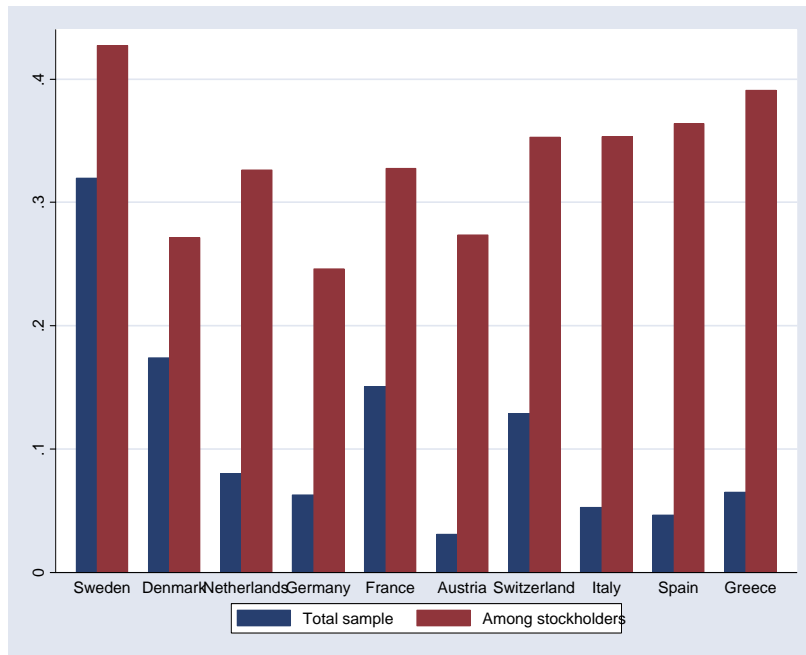
- iii) *Including property and other valuables, what are the chances that you or your husband/wife/partner will leave an inheritance totaling 150,000 euro or more?*

The possible answers range from 0 to 100. If the respondent gives a zero answer to i) she is then asked ii), while only if she gives a positive value as an answer to i) is she asked iii). Our measure of inheritance is the maximum of the chances of leaving an inheritance greater than 50,000 euro across the two partners in a household headed by a couple or the value reported by the household head in a household not headed by a couple.

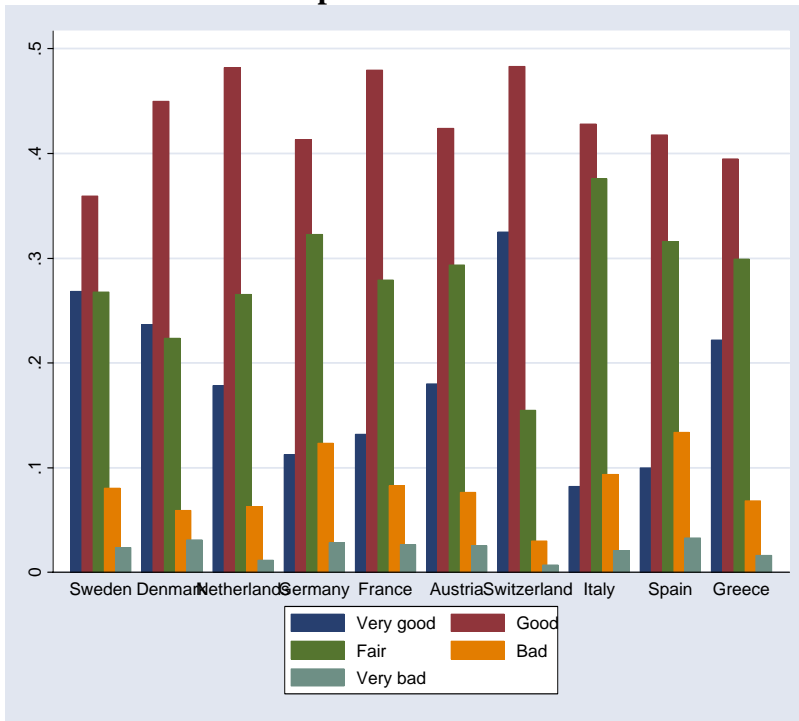
**Figure 1**  
**Direct and total stockownership**



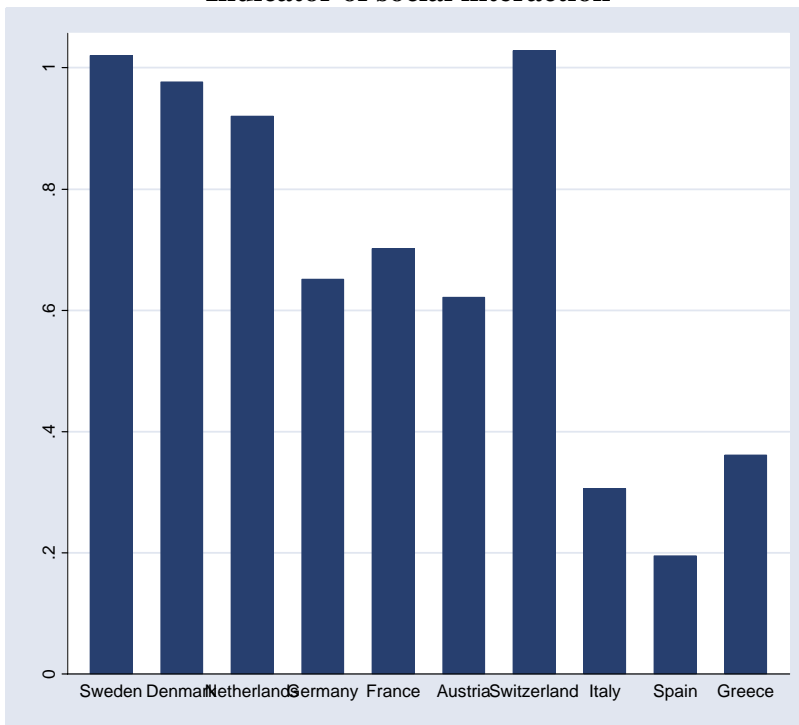
**Figure 2**  
**Share of stocks in financial wealth, in total sample and among stockholders**



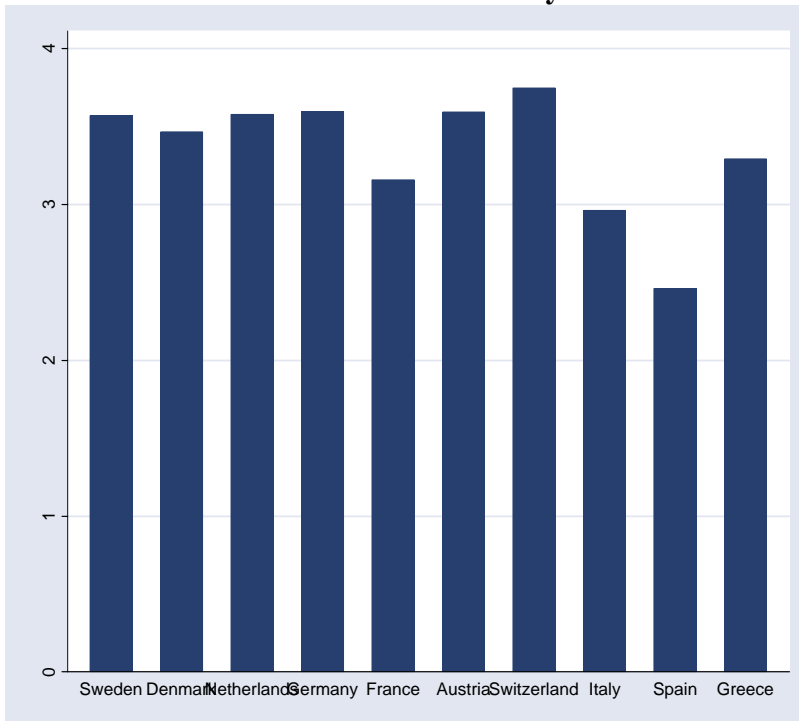
**Figure 3**  
**Self-reported health status**



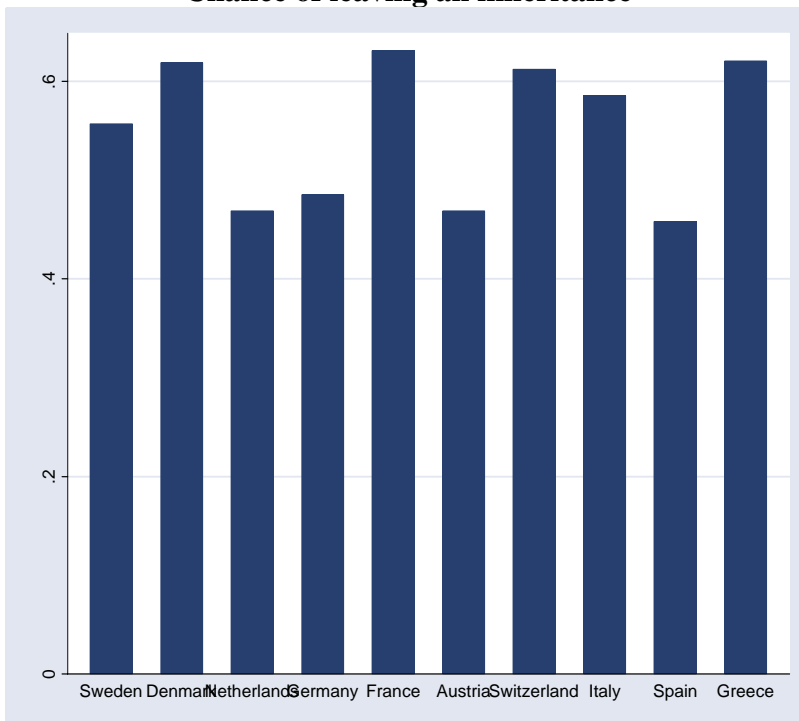
**Figure 4**  
**Indicator of social interaction**



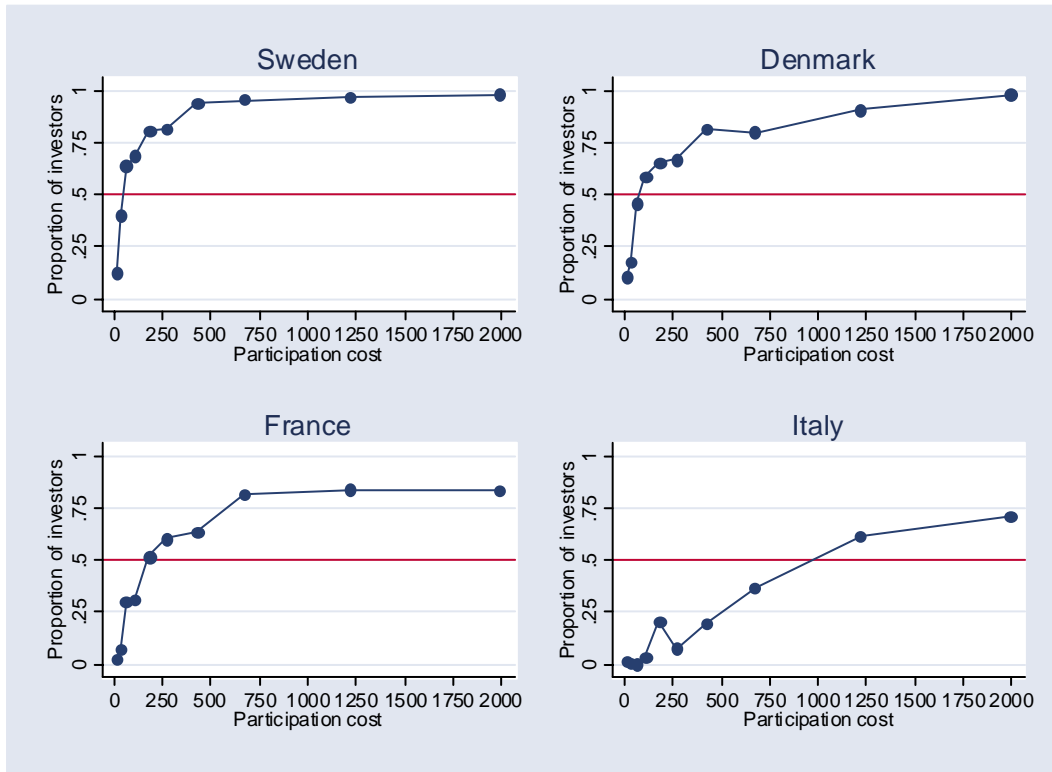
**Figure 5**  
**Indicator of numeracy**



**Figure 6**  
**Chance of leaving an inheritance**

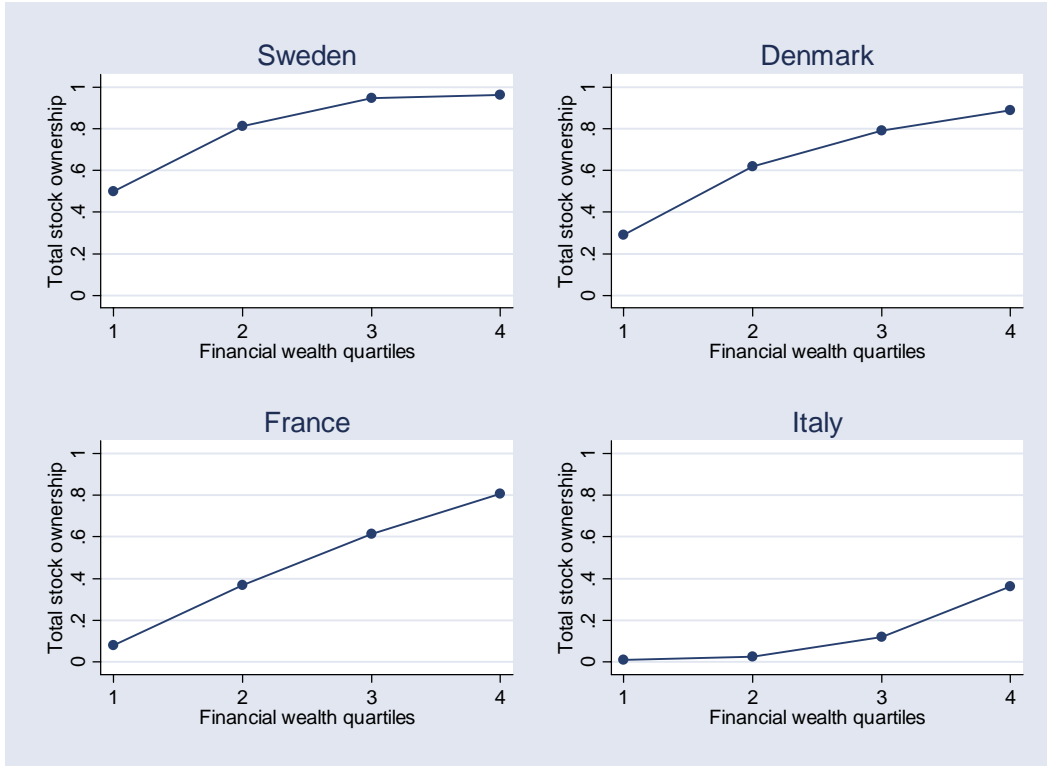


**Figure 7**  
**Participation costs estimated from wealth distribution**



**Figure 8**  
**The impact of financial wealth on stockownership**

The graph displays the effect of financial wealth on total stock ownership. Predicted probabilities are computed from the coefficients in Table 3.



**Table 1**  
**Sample means**

Statistics refer to household heads and are calculated using sample weights.

	<b>Sweden</b>	<b>Denmark</b>	<b>Netherlands</b>	<b>Germany</b>	<b>France</b>
Age	67.0	65.6	65.4	66.0	66.2
Female	0.38%	33.3%	36.1%	38.0%	29.9%
College	19.4%	31.6%	20.9%	25.8%	19.1%
Number of social activities	1.0	1.0	0.9	0.7	0.7
Numeracy	3.6	3.5	3.6	3.6	3.2
Health status	2.2	2.2	2.2	2.5	2.4
Homeowner	68.9%	68.5%	54.9%	50.6%	73.4%
Chance of leaving an inheritance	55.7%	61.9%	46.9%	48.5%	63.1%
Gross financial assets	59,006	76,846	61,192	49,516	76,189
Gross financial assets>0	63,241	88,7600	66,200	54,231	80,993
Direct stockownership	38%	32.5%	16.1%	12.7%	15.8%
Total stockownership	69.9%	55.8%	22.7%	23.4%	43.5%
Share of stocks	32%	17.3%	8.0%	6.3%	15.1%
Share of stock among stockowners	42.7%	27.1%	32.7%	24.6%	32.8%
Number of households	2,129	1,162	1,917	1,987	1,165

	<b>Austria</b>	<b>Switzerland</b>	<b>Italy</b>	<b>Spain</b>	<b>Greece</b>
Age	66.1	64.9	66.4	66.9	66.5
Female	41.1%	34.6%	41.0%	47.0%	37.1%
College	22.3%	26.8%	7.7%	8.7%	14.7%
Number of social activities	0.6	1.0	0.3	0.2	0.4
Numeracy	3.6	3.7	3.0	2.5	3.3
Health status	2.3	1.9	2.5	2.6	2.3
Homeowner	57.2%	54.1%	73.8%	85.5%	83.6%
Chance of leaving an inheritance	46.9%	61.2%	58.5%	45.8%	62.0%
Gross financial assets	31,454	115,801	19,720	28,866	13,664
Gross financial assets>0	39,803	126,544	32,089	36,261	22,936
Direct stockownership	5.1%	25.1%	3.9%	3.9%	4.9%
Total stockownership	8.9%	33.4%	9.2%	10.3%	9.9%
Share of stocks	3.1%	12.9%	5.3%	4.7%	6.5%
Share of stock among stockowners	27.3%	35.3%	35.3%	36.4%	39.1%
Number of households	1,455	697	1,760	1,728	1,466

**Table 2**  
**Probit regressions for direct stockholding**

All coefficients in the table are estimated from a probit model interacting each right-hand-side variable with country dummies. Two stars indicate statistical significance at the 1% confidence level, one star at the 5% level.

	<b>Sweden</b>	<b>Denmark</b>	<b>Netherlands</b>	<b>Germany</b>	<b>France</b>
Age	0.000 (0.001)	0.001 (0.001)	-0.000 (0.001)	0.000 (0.001)	-0.002 (0.001)
Female	-0.002 (0.012)	-0.034 (0.013)*	-0.019 (0.015)	-0.008 (0.018)	-0.041 (0.016)*
College	0.016 (0.015)	0.005 (0.018)	0.033 (0.019)	0.087 (0.023)**	0.077 (0.032)*
Social activities	0.007 (0.005)	0.008 (0.008)	0.012 (0.006)*	0.019 (0.007)**	0.027 (0.009)**
Numeracy	0.021 (0.006)**	0.004 (0.008)	0.010 (0.007)	0.036 (0.008)**	0.031 (0.009)**
Health status	-0.014 (0.006)*	-0.016 (0.008)	-0.010 (0.007)	-0.009 (0.009)	-0.017 (0.011)
Homeownership	0.047 (0.018)**	0.015 (0.024)	0.063 (0.027)*	0.023 (0.021)	0.014 (0.029)
Leave an inheritance	0.077 (0.015)**	0.060 (0.023)**	0.031 (0.020)	0.074 (0.022)**	0.024 (0.027)
I financial quartile	0.434 (0.293)	0.519 (0.299)	0.259 (0.286)	-0.028 (0.119)	0.434 (0.326)
II financial quartile	0.618 (0.255)*	0.666 (0.245)**	0.475 (0.300)	0.118 (0.237)	0.501 (0.319)
III financial quartile	0.696 (0.218)**	0.738 (0.198)**	0.580 (0.277)*	0.283 (0.305)	0.663 (0.260)*
IV financial quartile	0.829 (0.119)**	0.826 (0.120)**	0.766 (0.177)**	0.489 (0.312)	0.782 (0.173)**

**Table 2 - continued**  
**Probit regression for direct stockholding**

	<b>Austria</b>	<b>Switzerland</b>	<b>Italy</b>	<b>Spain</b>	<b>Greece</b>
Age	-0.001 (0.002)	-0.000 (0.001)	-0.002 (0.001)	-0.000 (0.001)	-0.005 (0.002)**
Female	-0.011 (0.025)	-0.026 (0.021)	-0.035 (0.021)	-0.022 (0.024)	-0.043 (0.020)*
College	0.171 (0.046)**	0.049 (0.032)	0.104 (0.057)	0.244 (0.066)**	-0.002 (0.029)
Social activities	0.013 (0.011)	0.010 (0.010)	0.012 (0.015)	0.003 (0.022)	0.032 (0.016)*
Numeracy	0.022 (0.015)	0.035 (0.013)**	0.002 (0.013)	0.019 (0.014)	0.002 (0.013)
Health status	-0.005 (0.014)	-0.010 (0.013)	-0.008 (0.014)	-0.009 (0.015)	-0.001 (0.015)
Homeownership	0.095 (0.050)	0.035 (0.030)	0.087 (0.063)	0.003 (0.043)	0.137 (0.077)
Leave an inheritance	0.044 (0.032)	0.053 (0.032)	0.003 (0.036)	0.020 (0.031)	-0.046 (0.036)
I financial quartile	-0.001 (0.184)	0.077 (0.241)	0.256 (0.371)		0.795 (0.198)**
II financial quartile	0.050 (0.239)	0.293 (0.352)	0.502 (0.374)		0.812 (0.176)**
III financial quartile	0.154 (0.321)	0.552 (0.338)	0.685 (0.285)*	0.335 (0.107)**	0.891 (0.041)**
IV financial quartile	0.339 (0.392)	0.769 (0.199)**	0.815 (0.161)**	0.524 (0.098)**	0.902 (0.025)**

**Table 3**  
**Probit regressions for total stockholding**

All coefficients in the table are estimated from a probit model interacting each right-hand-side variable with country dummies. Two stars indicate statistical significance at the 1% confidence level, one star at the 5% level.

	Sweden	Denmark	Netherlands	Germany	France
Age	-0.007 (0.001)**	-0.011 (0.002)**	-0.003 (0.001)	-0.005 (0.001)**	-0.001 (0.002)
Female	-0.025 (0.026)	-0.040 (0.033)	-0.042 (0.027)	-0.018 (0.027)	-0.005 (0.035)
College	0.006 (0.036)	0.058 (0.041)	0.129 (0.032)**	0.080 (0.029)**	0.036 (0.042)
Social activities	0.027 (0.012)*	0.028 (0.017)	0.013 (0.011)	0.040 (0.012)**	0.010 (0.016)
Numeracy	0.030 (0.013)*	0.004 (0.015)	0.026 (0.012)*	0.028 (0.012)*	0.039 (0.014)**
Health status	-0.027 (0.013)*	-0.036 (0.017)*	-0.021 (0.013)	-0.028 (0.013)*	-0.037 (0.017)*
Homeownership	0.080 (0.033)*	0.059 (0.046)	0.076 (0.038)*	0.028 (0.031)	0.018 (0.041)
Leave an inheritance	0.087 (0.034)**	0.112 (0.045)*	0.095 (0.034)**	0.117 (0.034)**	0.073 (0.042)
I financial quartile	0.633 (0.122)**	0.703 (0.061)**	-0.176 (0.112)	-0.014 (0.195)	-0.140 (0.135)
II financial quartile	0.743 (0.037)**	0.745 (0.014)**	0.051 (0.211)	0.234 (0.238)	0.208 (0.244)
III financial quartile	0.768 (0.014)**	0.750 (0.009)**	0.162 (0.230)	0.380 (0.223)	0.443 (0.212)*
IV financial quartile	0.768 (0.011)**	0.751 (0.008)**	0.389 (0.218)	0.579 (0.151)**	0.608 (0.135)**

**Table 3 - continued**  
**Probit regressions for total stockholding**

	<b>Austria</b>	<b>Switzerland</b>	<b>Italy</b>	<b>Spain</b>	<b>Greece</b>
Age	-0.004 (0.002)	-0.002 (0.002)	-0.008 (0.002)**	-0.007 (0.002)**	-0.003 (0.002)
Female	-0.016 (0.042)	-0.005 (0.044)	-0.002 (0.043)	-0.030 (0.036)	-0.034 (0.037)
College	0.256 (0.049)**	0.117 (0.051)*	0.227 (0.072)**	0.254 (0.065)**	0.007 (0.045)
Social activities	0.018 (0.018)	0.021 (0.018)	0.032 (0.024)	0.048 (0.032)	0.062 (0.023)**
Numeracy	0.053 (0.023)*	0.049 (0.023)*	0.033 (0.021)	0.030 (0.020)	-0.006 (0.018)
Health status	0.018 (0.023)	-0.013 (0.023)	-0.031 (0.022)	-0.007 (0.021)	-0.009 (0.021)
Homeownership	0.133 (0.058)*	0.036 (0.046)	0.051 (0.065)	-0.069 (0.050)	0.105 (0.065)
Leave an inheritance	0.109 (0.050)*	0.070 (0.055)	0.028 (0.056)	0.116 (0.044)**	-0.001 (0.049)
I financial quartile	-0.270 (0.039)**	-0.163 (0.141)	-0.072 (0.216)		0.210 (0.289)
II financial quartile	-0.227 (0.088)**	0.043 (0.260)	0.055 (0.274)		0.128 (0.281)
III financial quartile	-0.143 (0.171)	0.212 (0.291)	0.374 (0.279)	0.495 (0.055)**	0.279 (0.291)
IV financial quartile	0.005 (0.261)	0.551 (0.197)**	0.618 (0.155)**	0.639 (0.032)**	0.424 (0.257)

**Table 4**  
**Probit regressions for direct and total stockholding**

Coefficients are estimated from a restricted probit model interacting education and financial wealth with country dummies. Two stars indicate statistical significance at the 1% confidence level, one star at the 5% level.

	Direct stock ownership		Total stock ownership	
	Full sample	Couples	Full sample	Couples
Age	-0.000 (0.000)	0.000 (0.001)	-0.005 (0.001)**	-0.005 (0.001)**
Female	-0.020 (0.006)**	-0.014 (0.072)	-0.021 (0.011)	0.017 (0.130)
Social activities	0.012 (0.003)**	0.013 (0.004)**	0.026 (0.005)**	0.028 (0.008)**
Numeracy	0.018 (0.003)**	0.020 (0.005)**	0.027 (0.005)**	0.027 (0.008)**
Health status	-0.013 (0.003)**	-0.017 (0.005)**	-0.022 (0.005)**	-0.032 (0.009)**
Homeownership	0.037 (0.007)**	0.042 (0.011)**	0.053 (0.012)**	0.057 (0.022)**
Leave an inheritance	0.049 (0.008)**	0.055 (0.013)**	0.088 (0.013)**	0.111 (0.023)**
College				
<i>Sweden</i>	0.018 (0.015)	0.031 (0.027)	0.018 (0.036)	-0.016 (0.064)
<i>Denmark</i>	-0.006 (0.016)	-0.025 (0.023)	0.067 (0.039)	-0.042 (0.061)
<i>Netherlands</i>	0.099 (0.023)**	0.142 (0.035)**	0.088 (0.028)**	0.154 (0.040)**
<i>Germany</i>	0.030 (0.018)	0.010 (0.024)	0.125 (0.031)**	0.128 (0.041)**
<i>France</i>	0.098 (0.032)**	0.126 (0.047)**	0.027 (0.040)	0.032 (0.062)
<i>Austria</i>	0.178 (0.045)**	0.208 (0.074)**	0.262 (0.047)**	0.247 (0.069)**
<i>Switzerland</i>	0.058 (0.032)	0.047 (0.049)	0.112 (0.049)*	0.120 (0.076)
<i>Italy</i>	0.080 (0.052)	0.021 (0.071)	0.225 (0.071)**	0.251 (0.102)*
<i>Spain</i>	0.235 (0.061)**	0.152 (0.105)	0.274 (0.061)**	0.195 (0.111)
<i>Greece</i>	0.004 (0.029)	-0.015 (0.038)	-0.015 (0.041)	-0.004 (0.064)

**Table 4 - continued**  
**Probit regressions for direct and total stockholding**

<b>I financial quartile</b>				
<i>Sweden</i>	0.630 (0.085)**	0.908 (0.006)**	0.706 (0.021)**	0.639 (0.020)**
<i>Denmark</i>	0.639 (0.087)**	0.892 (0.006)**	0.609 (0.039)**	0.599 (0.034)**
<i>Netherlands</i>	0.116 (0.088)	0.904 (0.006)**	0.261 (0.072)**	0.345 (0.134)**
<i>Germany</i>	0.284 (0.104)**	0.909 (0.006)**	0.179 (0.077)*	0.361 (0.131)**
<i>France</i>	0.337 (0.111)**	0.895 (0.006)**	0.344 (0.073)**	0.429 (0.113)**
<i>Austria</i>	0.072 (0.086)		-0.056 (0.080)	
<i>Switzerland</i>	0.262 (0.120)*	0.884 (0.006)**	0.300 (0.086)**	0.431 (0.123)**
<i>Italy</i>	0.019 (0.086)	0.892 (0.006)**	-0.014 (0.087)	0.051 (0.204)
<i>Greece</i>	0.186 (0.106)	0.892 (0.006)**	0.454 (0.062)**	0.504 (0.083)**
<b>II financial quartile</b>				
<i>Sweden</i>	0.775 (0.057)**	0.917 (0.006)**	0.763 (0.009)**	0.666 (0.014)**
<i>Denmark</i>	0.751 (0.063)**	0.899 (0.006)**	0.721 (0.014)**	0.637 (0.015)**
<i>Netherlands</i>	0.351 (0.104)**	0.911 (0.006)**	0.506 (0.053)**	0.538 (0.073)**
<i>Germany</i>	0.498 (0.100)**	0.919 (0.006)**	0.488 (0.055)**	0.554 (0.067)**
<i>France</i>	0.408 (0.109)**	0.899 (0.006)**	0.650 (0.030)**	0.606 (0.034)**
<i>Austria</i>	0.146 (0.100)	0.889 (0.006)**	0.139 (0.084)	0.329 (0.148)*
<i>Switzerland</i>	0.524 (0.107)**	0.886 (0.006)**	0.551 (0.052)**	0.557 (0.058)**
<i>Italy</i>	0.177 (0.103)	0.894 (0.006)**	0.114 (0.085)	0.265 (0.158)
<i>Greece</i>	0.221 (0.107)*	0.896 (0.006)**	0.375 (0.070)**	0.479 (0.094)**

**Table 4 - continued**  
**Probit regressions for direct and total stockholding**

III financial quartile				
<i>Sweden</i>	0.824 (0.043)**	0.923 (0.005)**	0.775 (0.007)**	0.683 (0.013)**
<i>Denmark</i>	0.802 (0.049)**	0.904 (0.006)**	0.740 (0.008)**	0.649 (0.013)**
<i>Netherlands</i>	0.548 (0.096)**	0.919 (0.006)**	0.611 (0.038)**	0.594 (0.050)**
<i>Germany</i>	0.598 (0.090)**	0.921 (0.006)**	0.570 (0.044)**	0.585 (0.054)**
<i>France</i>	0.577 (0.096)**	0.903 (0.006)**	0.719 (0.014)**	0.640 (0.017)**
<i>Austria</i>	0.269 (0.108)*	0.895 (0.006)**	0.331 (0.073)**	0.450 (0.105)**
<i>Switzerland</i>	0.735 (0.069)**	0.891 (0.006)**	0.641 (0.034)**	0.597 (0.035)**
<i>Italy</i>	0.381 (0.109)**	0.896 (0.006)**	0.431 (0.063)**	0.478 (0.094)**
<i>Spain</i>	0.338 (0.108)**	0.893 (0.006)**	0.490 (0.056)**	0.501 (0.085)**
<i>Greece</i>	0.519 (0.107)**	0.890 (0.006)**	0.494 (0.061)**	0.537 (0.068)**
IV financial quartile				
<i>Sweden</i>	0.889 (0.019)**	0.932 (0.005)**	0.774 (0.007)**	0.697 (0.013)**
<i>Denmark</i>	0.858 (0.029)**	0.909 (0.006)**	0.746 (0.007)**	0.662 (0.012)**
<i>Netherlands</i>	0.720 (0.070)**	0.926 (0.005)**	0.710 (0.019)**	0.655 (0.023)**
<i>Germany</i>	0.774 (0.057)**	0.927 (0.005)**	0.685 (0.024)**	0.637 (0.031)**
<i>France</i>	0.720 (0.071)**	0.910 (0.006)**	0.743 (0.008)**	0.657 (0.013)**
<i>Austria</i>	0.470 (0.107)**	0.897 (0.006)**	0.510 (0.055)**	0.549 (0.064)**
<i>Switzerland</i>	0.857 (0.028)**	0.893 (0.006)**	0.728 (0.010)**	0.632 (0.013)**
<i>Italy</i>	0.593 (0.094)**	0.898 (0.006)**	0.647 (0.031)**	0.613 (0.029)**
<i>Spain</i>	0.519 (0.097)**	0.898 (0.006)**	0.638 (0.032)**	0.614 (0.028)**
<i>Greece</i>	0.617 (0.092)**	0.897 (0.006)**	0.587 (0.044)**	0.572 (0.052)**
Observations	12758	5715	12758	5715

**Table 5**  
**Second step regressions for the asset share invested in stocks**

The dependent variable is the share of total stocks (direct plus indirect) in total financial assets. The first step is the probit reported in Table 4. Asymptotic standard errors are reported in parenthesis. Two stars indicate statistical significance at the 1% confidence level, one star at the 5% level.

	Full sample	Couples
Age	0.001 (0.000)**	0.001 (0.001)
Female	0.003 (0.009)	0.051 (0.098)
Financial wealth	-0.004 (0.011)	-0.006 (0.013)
Health status	-0.016 (0.004)**	-0.020 (0.006)**
Homeownership	0.005 (0.010)	0.010 (0.015)
Leave an inheritance	0.029 (0.011)**	0.037 (0.016)*
College		
<i>Sweden</i>	0.037 (0.015)*	0.026 (0.022)
<i>Denmark</i>	-0.012 (0.021)	-0.014 (0.027)
<i>Netherlands</i>	-0.034 (0.024)	-0.034 (0.030)
<i>Germany</i>	0.064 (0.022)**	0.079 (0.028)**
<i>France</i>	0.034 (0.025)	0.034 (0.031)
<i>Austria</i>	0.165 (0.044)**	0.153 (0.062)*
<i>Switzerland</i>	0.125 (0.033)**	0.174 (0.047)**
<i>Italy</i>	0.089 (0.049)	0.060 (0.070)
<i>Spain</i>	0.121 (0.043)**	0.095 (0.072)
<i>Greece</i>	0.087 (0.045)	0.046 (0.057)
Constant	0.134 (0.040)**	0.171 (0.056)**
Observations	12758	5715

**Table 6**  
**Accounting for differences in stockholding across countries**

The decomposition is obtained from an OLS regression of total stockownership using the same specification as in Table 4. The first column reports the contribution of each variable to total stockownership in Sweden. Other columns show deviations of Sweden with respect to each country (percentage values).

		Denmark	Netherlands	Germany	France
Endowment	College	-0.03	-0.01	-0.02	0.00
	I financial quartile	-0.74	-0.58	-0.30	-0.36
	II financial quartile	0.31	1.10	0.20	1.11
	III financial quartile	0.58	0.28	0.87	0.32
	IV financial quartile	0.40	-0.49	-0.55	-0.94
	Age	-0.21	-0.36	-0.23	-0.09
	Female	0.01	-0.05	-0.04	0.00
	Social activities	0.11	0.31	0.83	0.79
	Numeracy	0.22	0.01	-0.05	0.78
	Health status	-0.04	0.06	0.04	0.06
	Homeownership	0.06	0.53	0.70	0.01
	Leave and inheritance	-0.25	0.56	0.40	-0.12
	Total difference in endowments	0.42	1.35	1.83	1.57
Coefficients	College	-1.89	-2.62	-2.16	-0.68
	I financial quartile	5.53	11.41	11.01	10.38
	II financial quartile	4.88	15.75	16.03	10.83
	III financial quartile	3.71	16.28	14.59	7.75
	IV financial quartile	1.74	10.14	8.40	3.17
Total difference in coefficients	13.97	50.95	47.87	31.46	
Total	14.39	52.30	49.71	33.03	

		Austria	Switzerland	Italy	Spain	Greece
Endowment	College	-0.01	-0.02	0.05	0.04	0.01
	I financial quartile	-1.61	-0.23	0.01	0.26	-1.44
	II financial quartile	2.51	0.07	0.93	-0.62	-2.84
	III financial quartile	0.55	1.02	-0.93	1.42	7.14
	IV financial quartile	-0.51	-0.69	-0.15	-1.19	-1.28
	Age	-0.03	-0.06	-0.26	0.32	-0.39
	Female	0.13	0.02	0.01	0.14	0.01
	Social activities	0.88	0.16	1.48	1.96	1.53
	Numeracy	0.02	-0.14	1.04	1.86	0.22
	Health status	0.01	-0.02	-0.14	-0.03	-0.15
	Homeownership	0.48	0.72	-0.32	-0.50	-0.52
	Leave and inheritance	0.60	-0.10	-0.56	0.69	-0.51
	Total difference in endowments	3.02	0.73	1.15	4.36	1.77
Coefficients	College	-2.86	-2.71	-1.10	-1.49	0.22
	I financial quartile	13.47	11.15	12.14	11.12	9.83
	II financial quartile	17.62	14.96	19.29	20.43	20.56
	III financial quartile	19.93	12.91	20.23	17.40	13.07
	IV financial quartile	15.98	4.93	12.13	13.49	15.27
Total difference in coefficients	64.14	41.24	62.69	60.95	58.96	
Total	67.16	41.97	63.84	65.31	60.73	

**Table 7**  
**Financial Transparency and Investors' Literacy**

Variables' definition: Financial institutions' transparency is widely developed in your country? (refers to 2002). Source: World Competitiveness Yearbook 2002. Economic literacy is generally high among the population? (refers to 2002). Source: World Competitiveness Yearbook 2002. Number of computers per 1000 people (refers to 2001). Source: Computer Industry Almanac. Number of internet users in per 1000 people in 2001. Source: Computer Industry Almanac.

	<i>Financial institutions' transparency</i>	<i>Economic literacy</i>	<i>Computers per thousand people</i>	<i>Internet users per thousand people</i>
Sweden	7.50	7.21	626	554
Denmark	7.90	7.10	608	541
Germany	7.22	5.11	436	308
Netherlands	7.66	7.21	510	448
France	6.10	4.64	419	209
Austria	7.30	6.30	429	390
Switzerland	7.00	6.50	600	467
Italy	5.01	3.98	347	307
Spain	5.80	4.80	231	199
Greece	5.50	4.80	112	156
United Kingdom	6.89	4.44	492	402
United States	8.06	6.35	639	522

**Table A.1**  
**Observations that require amount imputation as a percentage of all observations**

	Primary Residence	Mortgage	Other Real Estate	Bank Accounts	Bonds	Stocks	Mutual Funds
Sweden	5.5	3.0	3.2	13.4	3.8	6.9	10.5
Denmark	5.1	5.8	1.7	17.7	7.0	7.5	4.8
Germany	10.6	4.9	3.3	33.0	9.1	9.1	9.0
Netherlands	5.1	12.3	2.0	27.6	4.6	7.1	6.8
France	16.1	4.0	6.2	33.4	5.9	8.4	10.7
Switzerland	11.9	11.3	6.0	32.7	10.3	12.0	9.4
Austria	12.1	3.3	3.4	29.8	4.3	3.6	3.7
Italy	20.9	2.1	6.8	27.5	6.1	4.1	4.9
Spain	25.2	5.8	9.5	43.9	4.2	5.4	5.1
Greece	17.2	1.3	7.7	21.8	3.9	4.7	3.9

Country	IRAs	Contractual Savings	Life Insurance	Value of Own Business	Share of Own Business	Cars	Financial Liabilities
Sweden	15.3	1.4	17.6	6.1	0.6	4.7	2.7
Denmark	15.4	2.5	13.3	4.4	1.2	8.5	3.9
Germany	8.6	9.6	14.6	4.9	2.0	17.4	4.9
Netherlands	2.9	6.5	13.5	4.6	1.9	8.6	3.7
France	18.1	12.4	11.1	4.1	1.9	14.9	5.1
Switzerland	8.5	6.5	13.8	5.4	1.9	12.8	3.0
Austria	3.6	11.4	9.1	2.9	1.1	12.0	4.0
Italy	3.7	2.9	5.3	4.5	1.4	14.0	3.3
Spain	7.4	4.3	6.8	6.6	3.3	15.1	6.5
Greece	5.5	3.4	4.1	3.5	0.4	10.3	2.6

**Note:** No sampling weights used. Numbers represent percentage points and refer to individuals.