

MATTI KELOHARJU, SAMULI KNÜPFER and ELIAS RANTAPUSKA

Mutual Fund and Share Ownership in Finland*

ABSTRACT

This paper uses a unique combination of data sets to document patterns in Finnish individuals' ownership of stocks and mutual funds between 2004 and 2008. Our key findings are as follows. (1) In 2008, 13% of Finnish individuals owned stocks and 16% mutual funds. (2) The median stock portfolio was worth 3,658 EUR while the median fund portfolio was worth 2,567 EUR. (3) Mutual fund ownership has increased in popularity compared with direct ownership in stocks. (4) The average stock portfolio has three stocks and the average mutual fund owner owns two funds. (5) Ownership of mutual funds is less concentrated than ownership of stocks. (6) Older investors tend to invest in stocks directly while younger investors tend to invest via mutual funds. (7) Women tend to invest in less risky funds than men. (8) Institutional investors and university and business educated and wealthy individuals are more likely to invest in funds that have lower fees.

Keywords: Mutual funds, portfolio choice, stock market participation, asset allocation

* We would like to thank the Finnish Tax Administration and Statistics Finland for providing us with the data and the participants at the Aalto University seminar for helpful comments. Financial support from the NASDAQ OMX Nordic Foundation and OP-Pohjola Foundation is gratefully acknowledged. We also thank Antti Lehtinen, Tomi Fyrqvist, Petri Hukkanen, and Visa Penttilä for superb research assistance.

MATTI KELOHARJU,

Aalto University and CEPR • e-mail: matti.keloharju@aalto.fi

SAMULI KNÜPFER,

London Business School • e-mail: sknupfer@london.edu

ELIAS RANTAPUSKA,

Aalto University • e-mail: elias.rantapuska@aalto.fi

1. INTRODUCTION

This paper uses a unique combination of data sets to document patterns in Finnish individuals' ownership of stocks and mutual funds between 2004 and 2008. Our research is the first to report patterns on mutual fund ownership in Finland and to compare mutual fund ownership to direct ownership of shares. In addition, the study updates many of the results reported in Ilmanen and Keloharju (1999) and Karhunen and Keloharju (2001), which analyze share ownership in Finland in 1997 and 2000.

We report on the following patterns: (1) aggregate holdings of financial assets, broken down by asset type; (2) propensity to own financial assets; (3) average and median holdings of financial assets; (4) portfolio diversification; (5) investment across funds and fund families; (6) distribution of financial wealth; (7) portfolio composition by type of individual investor; and (8) comparison of individual and institutional investors' fund holdings. We focus on ownership at the end of 2008, but also report changes in ownership patterns and concentration between 2004 and 2008.

The remainder of the paper is organized as follows. The next section describes the data. Section 3 presents the results. Section 4 summarizes our findings.

2. DATA

Our panel data on asset ownership come from the Finnish Tax Administration. Mutual fund management companies are required to report their clients' fund holdings to the tax authorities at the end of each year. In addition to mutual fund holdings, the data record holdings in directly held stocks, non-government bonds, and derivatives. These data originate from Euroclear Finland that delivers the information directly to the tax authorities.

Each record in the asset ownership data includes identifiers for the investor and the security. We match the funds to the Mutual Fund Report to extract information on funds' asset class (money market, bond, equity, balanced, other), distribution channel (retail bank vs. other), fee structure (performance fee vs. no performance fee), and the number of investors holding the fund (including institutional investors that are not in the tax data). Information on management style (active vs. passive) and funds of funds are collected from the funds' web sites and other internet sources. We leave out derivatives and bonds from the analyses due to incomplete price data. Our data on socioeconomic variables are from a random sample of Finnish individuals. These data come from Statistics Finland and they are matched to the asset ownership data using the unique personal identification number, given to each individual at birth.

We supplement our microdata with additional data sources. We collect aggregate data on cash, deposits, and derivatives from Statistics Finland and on life insurance and private pension

products from the Federation of Finnish Financial Services. Stock price data come from NASDAQ OMX and Datastream.

3. RESULTS

3.1. Aggregate holdings

We start our analysis by documenting the aggregate value of assets held by households by asset class. The five columns on the left in Table 1 Panel A report the values of the assets at the end of years 2004 through 2008, while the five rightmost columns break down asset values in terms of percent. Deposits are by far the largest asset class, accounting for about half of all assets in all sample years. Directly held stocks come next, accounting for 18–20% of total assets in all years except for 2008, when their share plunged to 12% due to a decline in stock market values. Life insurance and private pensions are the third-most important asset class and account for 16–17% of total assets in all years.

Mutual funds account for 11–16% of aggregate assets. Equity funds and money market funds are the two largest fund classes in all years except for 2008. Balanced funds are the third-largest class and bond funds the smallest class. Risky assets, defined as total financial assets excluding cash, deposits, and money market funds, account for 44–50% of total assets in all years except for 2008, when the stock market decline dropped their share to 36%.

Table 1 Panel B subdivides mutual fund wealth into smaller segments based on fund characteristics. In 2008, about 98% of all individual fund holdings were invested in actively managed funds, 69% in funds that invest in the underlying securities directly, 82% in funds sold by fund families with a wide retail distribution network (a bank branch network), and 96% in funds whose management fees are not contingent on their returns. A closer look at the annual patterns in fund holdings, however, reveals that each of these fund types lost market share during the sample period and that the loss of market share was monotonous for all fund types except for actively managed funds. As a result, passively managed funds increased their market share from 0.7% to 2.3%, funds of funds from 22% to 31%, funds without retail distribution from 14% to 18%, and funds with performance fees from 2.0% to 4.3%.

TABLE 1. Aggregate value of assets held by households
 This table reports liquid financial assets owned by Finnish household investors at the end of the years 2004–08. The aggregate data for deposits and insurance and voluntary pension savings are from the Federation of Finnish Financial Services. The data for mutual funds and stocks are from the Finnish Tax Administration. The data for bonds, derivatives, cash and deposits are from Statistics Finland and data on life insurance and private pension products from the Federation of Finnish Financial Services. Panel A includes all asset classes. Panel B includes equity funds, balanced funds, bond funds, money market mutual funds and other funds.

	Panel A: By asset type									
	Billion EUR				Percent of total					
	2004	2005	2006	2007	2008	2004	2005	2006	2007	2008
Risky assets										
Directly held stocks	17.5	21.4	25.8	25.9	14.2	18.1	19.0	20.4	19.5	11.8
Life insurance and private pensions	16.5	18.9	20.7	21.6	19.4	17.0	16.8	16.4	16.3	16.1
Equity funds	2.4	3.9	4.8	4.5	2.2	2.5	3.4	3.8	3.4	1.8
Balanced funds	1.7	2.6	3.6	3.7	2.5	1.8	2.3	2.9	2.8	2.1
Bond funds	0.7	1.1	1.6	1.7	1.3	0.8	1.0	1.3	1.3	1.0
Bonds	3.1	3.6	5.3	3.5	4.1	3.2	3.2	4.2	2.6	3.4
Other funds	0.2	0.3	0.4	0.4	0.2	0.2	0.3	0.3	0.3	0.2
Derivatives	0.18	0.28	0.39	0.14	0.03	0.2	0.3	0.3	0.1	0.0
Risk-free assets										
Deposits	49.8	54.9	56.6	63.0	70.6	51.4	48.8	44.8	47.5	58.5
Cash	2.0	2.5	2.5	3.0	3.3	2.0	2.2	2.0	2.3	2.8
Money market mutual funds	2.7	3.0	4.6	5.1	2.8	2.8	2.7	3.6	3.9	2.3
Total	96.9	112.6	126.3	132.6	120.6	100	100	100	100	100
Total risky assets	42.5	52.2	62.6	61.5	43.9	43.8	46.3	49.6	46.3	36.4

TABLE 1. (continued)

		Panel B: By mutual fund characteristics									
		Billion EUR				Percent of total fund holdings					
		2004	2005	2006	2007	2008	2004	2005	2006	2007	2008
Management style											
Passive		0.05	0.08	0.10	0.07	0.21	0.7	0.7	0.6	0.4	2.3
Active		7.75	10.88	14.94	15.42	8.72	99.3	99.3	99.4	99.6	97.7
Fund type											
Direct		6.11	8.05	10.80	10.98	6.19	78.3	73.4	71.8	70.9	69.3
Fund of fund		1.69	2.91	4.23	4.51	2.74	21.7	26.6	28.2	29.1	30.7
Distribution channel											
Retail		6.74	9.38	12.77	13.14	7.31	86.3	85.6	84.9	84.9	81.9
Non-retail		1.07	1.58	2.26	2.35	1.62	13.7	14.4	15.1	15.1	18.1
Performance fee											
No performance fee		7.65	10.65	14.50	14.88	8.55	98.0	97.2	96.4	96.1	95.7
Performance fee		0.16	0.31	0.53	0.61	0.38	2.0	2.8	3.6	3.9	4.3

3.2. Shares of fund and share holders, average holdings, and portfolio diversification

Table 2 Panel A reports the number of investors in the five sample years and compares it to the number of individuals in the total population. Fund ownership increased from 658,000 investors in 2004 to 838,000 investors in 2008. Meanwhile, the number of stockholders decreased from 725,000 to 671,000. The number of mutual fund owners surpassed the number of shareholders in 2005.

Panel B reports the fraction of individuals investing in stocks and mutual funds. In 2008, 13% of the Finnish population owned shares directly while the fraction of mutual fund holders was 16%. In total, 22% of the Finnish population owned stocks or funds.

Panel C reports the mean value of portfolios at the end of years 2004 through 2008. In 2008, the average Finn owned EUR 4,271 worth of stocks and mutual funds. Given that the vast majority of individuals neither own stocks nor mutual funds, the average portfolio size conditional on ownership is much larger, EUR 29,255 for stocks and EUR 19,427 for mutual funds. Panel D shows that the median portfolios are much smaller. Conditional on ownership of either stocks or funds, the median stock portfolio is worth EUR 3,658 while the median fund portfolio is worth EUR 2,567. A typical stock portfolio is thus somewhat larger than a typical fund portfolio.

Panel E reports the average number of stocks in investors' portfolios. Conditional on stock ownership, it increased almost monotonically from 2.6 in 2004 to 3.0 in 2008. The trend towards better diversified portfolios has continued at least since early 1997, when individuals owned on average 2.0 stocks (Ilmanen and Keloharju, 1999). In year 2000, the average number of stocks held by individuals was 2.4 (Karhunen and Keloharju, 2001).

Panel F reports the number of funds owned by Finnish individuals. The average number of funds, conditional on fund ownership, remained fairly stable in the 2004–08 period; in 2008, it was 2.0. At the same time, the number of funds per inhabitant increased by 29%, from 0.24 to 0.31. Given that funds tend to be much better diversified than individuals' portfolios, the increase in mutual fund ownership has also made individuals' portfolios more diversified.

TABLE 2. Ownership propensity and mean and median holdings of stocks and mutual funds

This table reports the number and fraction of Finnish individuals investing in stocks and mutual funds, the mean and median value of their portfolios, and the mean number of stocks and funds in these portfolios.

Panel A: Number of observations					
	2004	2005	2006	2007	2008
Population	5,236,611	5,255,580	5,276,955	5,300,484	5,326,314
Investors with any securities	1,017,770	1,101,535	1,169,554	1,234,008	1,165,462
Investors with stocks	725,312	702,728	677,001	656,923	670,771
Investors with mutual funds	657,508	763,312	853,354	930,917	837,940
Investors with stocks and funds	229,789	245,918	255,756	257,710	246,028
Panel B: Fraction of individuals investing in stocks and mutual funds					
	2004	2005	2006	2007	2008
Population	100 %	100 %	100 %	100 %	100 %
Investors with any securities	19 %	21 %	22 %	23 %	22 %
Investors with stocks	14 %	13 %	13 %	12 %	13 %
Investors with mutual funds	13 %	15 %	16 %	18 %	16 %
Investors with stocks and funds	4 %	5 %	5 %	5 %	5 %
Panel C: Mean portfolio value, EUR					
	2004	2005	2006	2007	2008
Population	4,743	6,052	7,602	7,688	4,271
Investors with any securities	24,324	28,772	34,159	32,877	19,426
Investors with stocks	30,723	39,863	51,861	53,508	29,255
Investors with mutual funds	23,619	28,042	35,137	32,667	19,427
Investors with stocks and funds	54,287	69,216	94,990	93,785	51,847
Panel D: Median portfolio value, EUR					
	2004	2005	2006	2007	2008
Population	0	0	0	0	0
Investors with any securities	3,210	3,753	4,078	3,900	2,392
Investors with stocks	3,544	4,695	6,206	6,369	3,658
Investors with mutual funds	3,800	4,342	4,507	4,161	2,567
Investors with stocks and funds	13,889	17,386	20,173	19,700	11,209
Panel E: Mean number of stocks					
	2004	2005	2006	2007	2008
Population	0.30	0.31	0.31	0.30	0.33
Investors with any securities	1.56	1.47	1.40	1.29	1.52
Investors with stocks	2.55	2.66	2.76	2.75	2.95
Investors with mutual funds	1.15	1.09	1.04	0.94	1.07
Investors with stocks and funds	3.28	3.38	3.48	3.39	3.65
Panel F: Mean number of funds					
	2004	2005	2006	2007	2008
Population	0.24	0.29	0.33	0.35	0.31
Investors with any securities	1.24	1.37	1.48	1.50	1.43
Investors with stocks	0.77	0.91	1.03	1.05	0.97
Investors with mutual funds	1.91	1.98	2.03	1.98	1.99
Investors with stocks and funds	2.43	2.61	2.73	2.67	2.65

3.3. Investment across funds and fund families

Table 3 Panel A reports how investors divide their holdings across different mutual funds. In 2008, 57.8% of fund investors invested only in one fund, 20.6% in two different funds, and 9.3% in three different funds. Wealth is positively related to diversification across funds. For example, investors with one fund have a median wealth of EUR 1,059 while those with two funds have a median wealth of EUR 2,632. This pattern is consistent with the idea that investors with larger amounts of money have greater incentive to tailor their investments to their needs. Alternatively, wealthy investors may receive better investment advice. Minimum investment requirements are for most fund families so small that they do not prevent investors from diversifying their holdings.

Table 3 Panel B shows that investors rarely diversify their holdings across several fund families. For example, only 7.6% invested in two different families and 1.6% in three or more families. Wealth is also positively related to investment across fund families. For example, the median portfolio of investors investing in one fund family is less than one fourth of the median portfolio of investors investing in two fund families. The incentive to diversify fund investments beyond one family (most often, that offered by the house bank) increases when one has more money to invest.

TABLE 3. Investment across funds and fund families

This table reports the extent to which investors diversify their holdings across funds (Panel A) and fund families (Panel B). The sample is restricted to individuals who held mutual funds in 2008.

Panel A: Diversification across funds				
Number of funds	Median portfolio value, EUR	Mean portfolio value, EUR	Number of observations	Proportion of investors (%)
1	1,059	4,811	483,998	57.8
2	2,632	9,082	172,802	20.6
3	4,766	14,865	77,593	9.3
4	6,944	20,492	40,961	4.9
≥ 5	14,286	48,477	62,672	7.5
Panel B: Diversification across fund families				
Number of fund families	Median portfolio value, EUR	Mean portfolio value, EUR	Number of observations	Proportion of investors (%)
1	1,721	8,104	761,108	90.8
2	7,333	27,658	63,850	7.6
3	16,659	64,633	10,015	1.2
4	29,128	93,416	2,152	0.3
≥ 5	54,401	163,057	901	0.1

3.4. Distribution of financial wealth

The three leftmost number columns in Table 4 Panel A report the degree of concentration in share, mutual fund, and total financial wealth. In 2008, the richest 1% of *shareholders* owned 49.3% of

TABLE 4. Wealth distribution of financial asset ownership

Panel A of this table reports the proportion of individuals' investment wealth owned by the richest n% of individual investors and by the richest n% of the population in 2008. Panel B reports the corresponding portfolio values at each reported percentage point of the wealth distribution. The three leftmost number columns report wealth, conditional on ownership of the asset analyzed, for stocks, mutual funds, and for all financial assets, including stocks, mutual funds, bonds, and derivatives. The three rightmost columns report the corresponding numbers in the entire population.

Panel A: Proportion of individuals' investment wealth owned by the richest n% of individual investors						
Richest n%	Shareholders	Mutual fund		Shareholders – population	Mutual fund investors – population	Investors – population
		investors	Investors			
0.1	27.2	14.8	23.8	46.9	28.3	35.6
0.5	41.4	26.1	37.2	68.6	49.0	54.5
1	49.3	33.1	44.9	78.8	61.4	64.7
5	74.3	60.3	70.2	96.4	91.4	89.3
10	81.7	70.3	78.3	99.8	98.7	96.5
20	90.3	83.8	88.6	100.0	100.0	99.9
30	94.2	90.6	93.4	100.0	100.0	100.0
40	96.3	94.4	96.0	100.0	100.0	100.0
50	97.5	96.8	97.6	100.0	100.0	100.0
60	98.4	98.3	98.7	100.0	100.0	100.0
70	99.2	99.2	99.4	100.0	100.0	100.0
80	99.7	99.7	99.8	100.0	100.0	100.0
90	99.9	99.9	100.0	100.0	100.0	100.0
100	100.0	100.0	100.0	100.0	100.0	100.0

Panel B: Individuals' investment wealth at different points of the wealth distribution, EUR at group minimum value						
Richest n%						
0.1	5,911,723	1,575,364	4,357,325	312,388	162,565	423,765
0.5	496,945	204,775	403,006	78,900	54,935	120,755
1	276,851	124,490	227,232	38,326	32,036	67,050
5	54,066	33,893	48,874	3,408	4,838	11,175
10	30,236	21,330	29,026	662	1,022	3,293
20	11,736	9,718	12,159	0	0	340
30	5,974	5,274	6,368	0	0	0
40	3,517	3,180	3,690	0	0	0
50	2,173	1,979	2,229	0	0	0
60	1,845	1,225	1,710	0	0	0
70	1,405	728	994	0	0	0
80	751	388	503	0	0	0
90	258	143	178	0	0	0
100	1	0	0	0	0	0

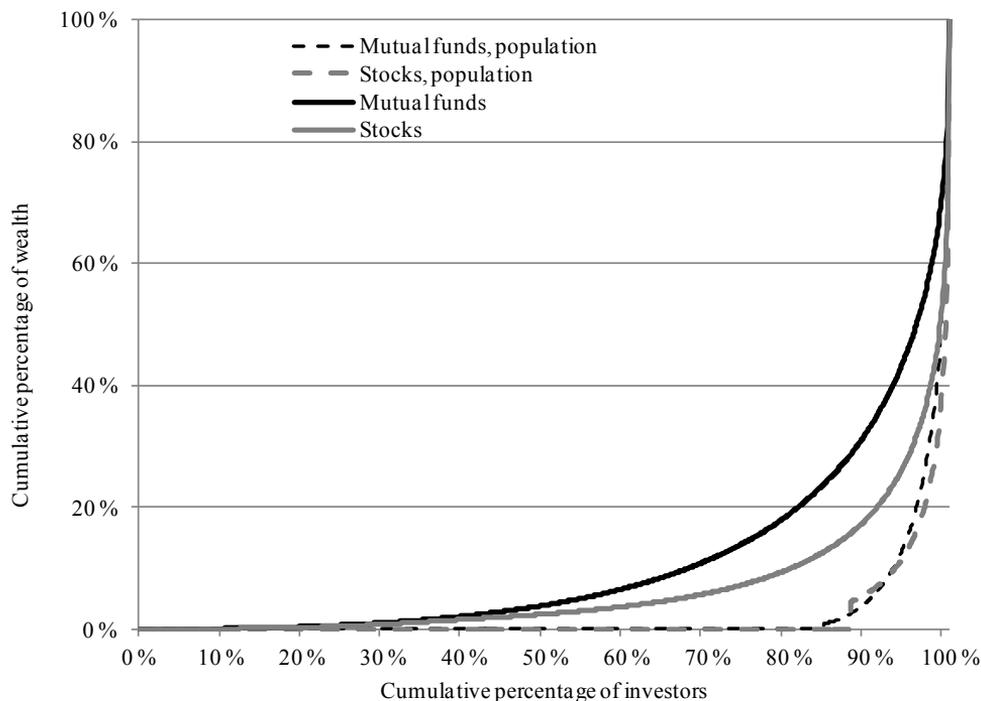


FIGURE 1. Lorenz curve comparison. This figure depicts Lorenz curves for ownership of stocks and mutual funds in 2008, separately for the owners of these assets and the entire population.

individuals' combined share wealth, the richest 1% of *mutual fund investors* owned 33.1% of individuals' combined mutual fund wealth, and the richest 1% of *investors* owned 44.9% of individuals' combined financial wealth. The three rightmost columns report the results for the Finnish *population*. The richest 1% of the Finnish population owned 78.8% of directly owned share wealth, 61.4% of mutual fund wealth, and 64.7% of total investment wealth.

These results are consistent with the notion that mutual fund ownership is less concentrated than the ownership of stocks. Figure 1, which illustrates the concentration of ownership using the Lorenz curve, shows that fund ownership is more equally distributed than share ownership regardless of the fraction of the wealthiest investors one uses to measure ownership concentration.¹

¹ The only exception is the initial discrete jump for stocks driven by Elisa, originally a telephone co-operative that was demutualized in 1997. Given that virtually all members of the cooperative were allocated the same number of shares and most members did not own any other shares, the demutualization generated a cluster of tens of thousands of investors with identical portfolios. This cluster remained still in 2008, i.e. almost ten years after the demutualization.

Table 4 Panel B reports the size of the portfolio in 2008 at different points of the wealth distribution. The richest 10% of all investors had a portfolio worth at least EUR 29,000, and the richest 1% of all investors had a portfolio worth at least EUR 227,000.

We next report how ownership concentration has changed over time and how it differs across asset categories. Ownership concentration is measured using the Gini coefficient, which is defined as two times the area between the straight line and the Lorenz curve. By definition, the Gini coefficient varies between 0 and 1, with larger numbers indicating larger degrees of ownership concentration.

Table 5 Panel A reports Gini coefficients for the entire Finnish population. In 2008, the Gini coefficient was 0.964 for all financial assets, 0.984 for directly held stocks, and 0.975 for mutual funds. The Gini coefficients for individual fund-level asset classes are larger than those for mutual funds in general. This is because a significant fraction of the variation in the population-level Gini coefficient is driven by variation in whether an investor invests in a given asset class in the first place, not just by how concentrated the ownership is among the holders of the asset. This also explains why the less popular fund classes (money market, bond, and other funds) have higher Gini coefficients than the more popular fund classes (balanced and equity funds).

Table 5 Panel B reports Gini coefficients for owners of various kinds of assets. These Gini coefficients are considerably smaller than those in Panel A because they are computed conditional on ownership. Mutual funds have lower ownership concentration than directly owned shares, while the concentration of financial assets in general (conditional on ownership) lies between funds and directly owned shares.

The difference in the ownership concentration between stocks and funds can perhaps be best understood in light of the origin of ownership. Many large ownership stakes belong to the firms' founding families which often are reluctant to dilute their ownership and control of the company. History and control motivations do not play a similar role in mutual fund ownership.

Table 5 Panels A and B also allow us to evaluate trends in concentration of ownership. Panel B suggests that while there is no clear trend in ownership concentration of stocks, ownership of funds (conditional on ownership) became more concentrated between 2004 and 2008. This pattern applies for all fund categories for almost all years. Panel A shows that there is no similar trend in concentration at the population level. These two seemingly conflicting results can be explained by the fact that fund ownership became more commonplace during the sample period. At the population level, the increase in propensity to own funds was enough to offset the effect of increase in concentration among fund owners.

TABLE 5. Gini coefficient for financial assets

This table reports Gini coefficients for mutual funds, stocks, and combined financial assets for 2004–08. Panel A reports Gini coefficients for the entire population, Panel B for stocks and different kinds of mutual funds conditional on ownership of the asset class analyzed, and Panel C for investors who held any financial assets.

	2004	2005	2006	2007	2008
Panel A: Population (%)					
All mutual funds	97.7	97.4	97.4	97.2	97.5
Money market fund	99.0	98.9	99.1	99.0	99.3
Bond fund	99.6	99.5	99.5	99.5	99.6
Balanced fund	98.4	98.2	97.9	97.7	97.9
Equity fund	98.5	98.4	98.3	98.3	98.3
Other mutual fund	99.9	99.9	99.9	99.9	99.9
Directly held stocks	98.3	98.4	98.5	98.5	98.4
All financial assets	96.5	96.3	96.3	96.3	96.4
Panel B: Investors holding a particular type of asset (%)					
All mutual funds	81.4	81.7	83.8	83.9	84.2
Money market fund	70.3	69.7	76.1	75.7	77.6
Bond fund	71.5	70.4	74.1	73.0	75.2
Balanced fund	71.3	72.8	73.9	73.8	73.1
Equity fund	76.6	78.1	79.1	79.7	79.0
Other mutual fund	70.2	72.1	76.0	75.9	76.5
Directly held stocks	87.7	87.6	87.6	87.9	87.1
Panel C: Investors holding any type of asset (%)					
All financial assets	86.9	89.2	91.1	90.8	84.3

3.5. Portfolio composition by type of household investor

Table 6 reports the portfolio composition of individuals by wealth decile.² Wealthy individuals tend to allocate relatively more of their combined fund and stock wealth in stocks than less wealthy individuals. For example, the wealthiest ten percent of investors allocate more than half of their assets in stocks while individuals with below-median wealth invest about one-third of their assets in stocks. Wealthy investors compensate for their higher direct equity ownership by investing relatively less in balanced funds and, in particular, equity funds. On the other hand,

² Table 6 and Figure 2 exclude Elisa.

TABLE 6. *Portfolio composition of Finnish individuals by wealth decile*

This table reports the average percentage of investment wealth allocated to stocks and different types of mutual funds by Finnish individuals in 2008 by wealth decile. The percentage allocated in each type of asset is first calculated at the individual investor level and then equally weighted across investors. The sample is restricted to individuals who held stocks or mutual funds in 2008. The reported portfolio values are at the lower boundary of the wealth decile. The table excludes Elisa, a telephone cooperative demutualized in 1997.

Wealth decile	Portfolio composition (%)				Mutual fund investments by fund type (%)				Aggregate portfolio statistics					
	Directly held stocks	Mutual funds			Passive fund	Fund of fund	Non-retail	Performance fee	Median portfolio value	Mean number of stocks	Mean number of funds	Number of investors		
		Money market	Bond	Balanced									Equity	Other
Lowest	30.9	9.3	2.6	26.4	30.3	0.4	0.3	46.1	1.0	1.0	0	0.4	0.8	116,547
2	31.2	6.5	2.7	24.7	34.5	0.4	0.3	44.9	1.0	1.0	150	0.4	0.9	116,547
3	29.6	6.4	3.0	27.6	33.1	0.4	0.4	46.4	1.1	1.1	422	0.5	1.0	116,546
4	30.0	6.6	3.3	29.7	30.0	0.4	0.4	47.7	1.1	1.1	826	0.6	1.1	116,546
5	33.3	7.9	3.8	28.7	25.7	0.5	0.5	46.9	1.1	1.1	1,448	0.7	1.2	116,546
6	34.8	8.9	4.1	27.6	24.0	0.6	0.5	44.6	1.1	1.1	2,392	1.0	1.3	116,546
7	37.1	11.1	5.1	27.1	19.0	0.6	0.5	44.7	1.1	1.1	4,019	1.3	1.5	116,546
8	39.4	13.9	6.2	24.8	14.9	0.7	0.5	42.8	1.2	1.2	7,020	1.8	1.7	116,546
9	42.0	16.2	7.2	21.8	11.9	0.9	0.6	40.1	1.5	1.5	13,196	2.7	2.0	116,546
Highest	53.1	14.8	6.9	14.4	9.6	1.2	1.1	32.1	3.2	3.2	30,848	5.9	2.8	116,546
Population	36.1	10.2	4.5	25.3	23.3	0.6	0.5	43.6	1.3	1.3	2,392	1.5	1.4	1,165,462

they allocate relatively more of their assets in money market, bond, and other funds, including hedge funds.

Wealthy investors also tend to select different types of funds than the investor population at large. They are more likely to invest in passive funds, funds investing directly in securities, funds distributed without a retail network, and funds with performance fees. While most of these patterns are by and large monotonous in wealth, they are by far the most apparent for the wealthiest ten percent of investors. For example, they are about twice as likely to invest in passive funds, funds distributed without a retail network, and funds with performance fees as the investors belonging to the second-wealthiest decile.

Figure 2 reports the likelihood to invest in stocks or mutual funds as a function of investment wealth. The figure suggests that the relation between total investment wealth and the propensity to invest in mutual funds is quite weak while the relation between wealth and the propensity to invest in stocks is strong. The wealthier an investor is, the more likely she invests in stocks. This

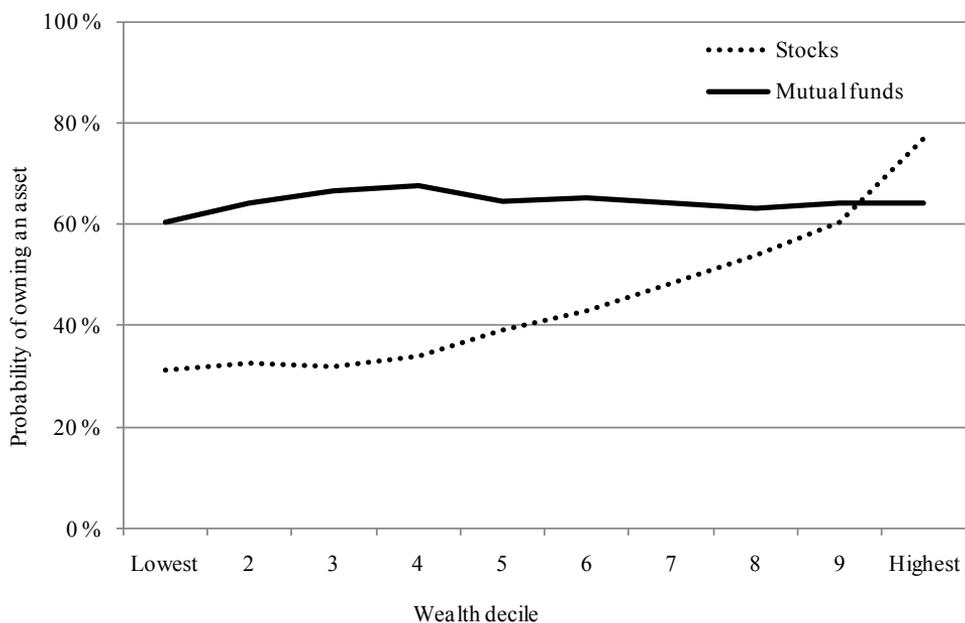


FIGURE 2. *Propensity to own stocks and mutual funds by wealth decile. This figure depicts the probability to own stocks and mutual funds as a function of portfolio value decile. The data include all individuals who owned stocks or mutual funds at the end of 2008 except for stockholders of Elisa, a telephone cooperative demutualized in 1997.*

result echoes the empirical evidence in Grinblatt, Keloharju, and Linnainmaa (2011), who study stock market participation in year 2000.

Table 7 Panel A reports portfolio composition by age. The table (as well as Table 7 Panel B that studies portfolio composition by other socioeconomic attributes) differs from the earlier tables in that it is based on a representative sample of investors, not the entire investor population. Age has a significant effect on portfolio composition; older investors are much more likely to invest in stocks than young investors. For example, 58% of investment wealth for investors above 75 years is in stocks, while the corresponding fraction among investors who are 20 to 24 years old is 31%. This result is even more striking for investors who do not invest themselves. For example, only 16% of investment wealth of 10–14 year olds is in stocks; the fraction is less than ten percent for investors who are less than ten years old.

Age also influences the type of funds investors choose in their portfolios. Young investors tend to compensate their smaller direct shareholdings with a greater allocation to balanced funds and, in particular, equity funds. For example, investors who are more than 75 years old allocate 8% of their investment wealth in equity funds and 16% in balanced funds, while the corresponding fractions for investors who are 20 to 24 years old are 23% and 28%, respectively. The fraction of wealth allocated to money market and bond funds – and thus the fraction of wealth allocated to equity – is largely independent of age. Instead, age influences the way investors allocate their wealth to equity: directly or indirectly. Direct investments into stocks are preferred by older investors while younger investors prefer indirect investments via mutual funds.

Our data does not tell why older investors prefer direct stock investments. However, it is possible that their preferences are driven by age-related differences in willingness or ability to adopt financial innovations. Finnish mutual funds were introduced in 1987 and started to gain popularity only in the late 1990s. By then older investors had already got used to investing in stocks directly, and may have been reluctant to learn about a new form of investing via mutual funds. Younger generations carry less such baggage.

TABLE 7. Portfolio composition of a sample of Finnish individuals by other investor characteristics

This table reports the average percentage of investment wealth allocated to stocks and different types of mutual funds by Finnish individuals in 2008 by age (Panel A) and other socioeconomic characteristics (Panel B). The percentage allocated in each type of asset is first calculated at the individual investor level and then equally weighted across investors. The sample is restricted to individuals who held stocks and/or mutual funds in 2008.

Panel A: Age														
Age	Portfolio composition (%)						Mutual fund investments by fund type (%)				Aggregate portfolio statistics			
	Directly held stocks			Mutual funds			Passive fund	Fund of fund	Non-retail	Per-mance fee	Median portfolio value	Mean number of stocks	Number of investors	
	Money market	Bond	Balanced	Equity	Other									
75-	58.2	11.8	4.7	16.2	8.3	0.7	0.1	43.9	3.8	0.7	5,070	2.0	1.0	7,803
70-74	54.5	10.9	4.3	18.7	11.0	0.5	0.2	44.4	3.0	1.0	4,885	2.1	1.1	7,039
65-69	52.3	9.1	4.4	19.8	14.0	0.4	0.3	45.2	3.2	1.1	4,539	2.1	1.3	8,564
60-64	49.9	9.5	4.1	20.2	15.8	0.6	0.3	44.7	3.4	1.4	4,110	2.1	1.4	13,188
55-59	44.2	9.4	3.9	22.4	19.6	0.5	0.2	45.4	3.1	1.4	2,816	1.8	1.4	13,674
50-54	41.2	9.5	4.0	23.4	21.3	0.5	0.3	46.5	3.8	1.6	2,235	1.6	1.4	15,429
45-49	41.4	9.3	3.5	23.2	22.0	0.5	0.4	45.2	4.7	1.9	1,958	1.6	1.4	14,303
40-44	42.8	8.4	3.3	22.1	22.9	0.5	0.5	44.4	5.5	1.6	1,845	1.6	1.3	12,757
35-39	39.8	7.8	3.3	22.7	26.0	0.5	1.0	42.6	7.0	1.8	1,783	1.5	1.4	10,259
30-34	33.7	8.8	3.4	25.0	28.6	0.5	1.1	43.7	6.3	1.6	1,256	1.3	1.5	10,009
25-29	32.5	10.0	3.9	27.4	25.7	0.6	0.9	46.6	5.1	1.2	949	1.1	1.4	8,031
20-24	31.4	12.6	4.1	28.0	23.4	0.5	0.4	43.8	3.9	1.2	876	1.0	1.2	3,108
15-19	27.4	10.4	3.5	29.5	28.8	0.4	0.5	42.4	1.9	0.9	1,243	0.7	1.2	865
10-14	15.7	8.0	3.0	35.7	36.0	1.7	0.9	41.2	3.5	1.3	1,380	0.5	1.2	358
5-9	9.9	2.3	9.0	40.7	37.5	0.5	0.0	42.0	0.7	0.6	1,091	0.3	1.4	129
0-4	5.0	3.1	2.5	27.2	62.2	0.0	0.0	36.0	2.9	0.0	639	0.4	1.3	40
Total sample	43.5	9.4	3.8	22.4	20.3	0.5	0.5	44.8	4.4	1.4	2,255	1.7	1.3	125,556

TABLE 7. (continued)

	Panel B: Other investor attributes													
	Portfolio composition (%)				Mutual fund investments by fund type (%)				Aggregate portfolio statistics					
	Directly held stocks	Money market	Bond	Balanced	Equity	Other	Passive	Fund of fund	Non-retail	Performance fee	Median portfolio value	Mean number of stocks	Mean number of funds	Number of investors
Gender														
Male	48.5	7.4	3.4	18.9	21.3	0.5	0.7	42.8	5.8	1.8	2,586	2.1	1.4	66,128
Female	37.9	11.7	4.4	26.3	19.3	0.6	0.3	46.8	3.1	1.1	2,009	1.2	1.3	59,428
Mother tongue														
Finnish-speaking	42.2	9.9	3.9	23.0	20.4	0.6	0.5	46.4	4.0	1.4	2,198	1.6	1.4	113,392
Other	50.6	5.8	3.4	18.1	21.7	0.3	0.6	26.1	9.9	1.5	3,075	2.3	1.4	9,195
Place of residence														
Top 5 city	52.1	9.3	3.9	17.7	16.6	0.6	0.9	40.1	7.8	1.9	2,566	2.0	1.3	38,824
Other	38.6	9.7	3.9	25.0	22.4	0.5	0.3	46.9	3.0	1.3	2,121	1.5	1.4	83,763
Level of education														
Graduate degree	49.8	7.5	3.6	18.1	20.5	0.5	1.2	39.8	8.7	2.1	3,375	2.4	1.5	31,417
Other	41.4	10.1	3.9	23.8	20.3	0.5	0.3	46.4	3.1	1.2	2,035	1.4	1.3	94,139
Field of education														
Business degree	49.9	6.8	3.0	16.7	22.8	0.7	1.8	36.6	12.0	2.8	3,092	2.7	1.7	5,408
Other	43.2	9.6	3.9	22.6	20.2	0.5	0.4	45.2	4.1	1.4	2,222	1.6	1.3	120,148

Figure 3 displays individual investors' wealth in 2008 as a function of their birth year. Older investors are on average wealthier than younger investors: for example, the mean (median) wealth for individuals born in 1945 is EUR 37,831 (EUR 4,477) and for individuals born in 1985 EUR 7,316 (EUR 710). Mean and median wealth increase steadily until investors are in their late 50s and peak when they are in their late 70s.

Table 7 Panel B studies the effect of other socioeconomic attributes on portfolio allocation. Men prefer riskier investments than women: they invest relatively more in stocks and equity funds and less in balanced funds, bond funds, and money market funds. Men also are more likely to invest in passive funds, funds not distributed via retail network, funds investing directly in securities, funds distributed without a retail network, and funds with performance fees. In other words, their portfolio preferences resemble those of wealthy investors. The difference in many of these attributes is quite large; for example, men are more than twice as likely to invest in passive funds

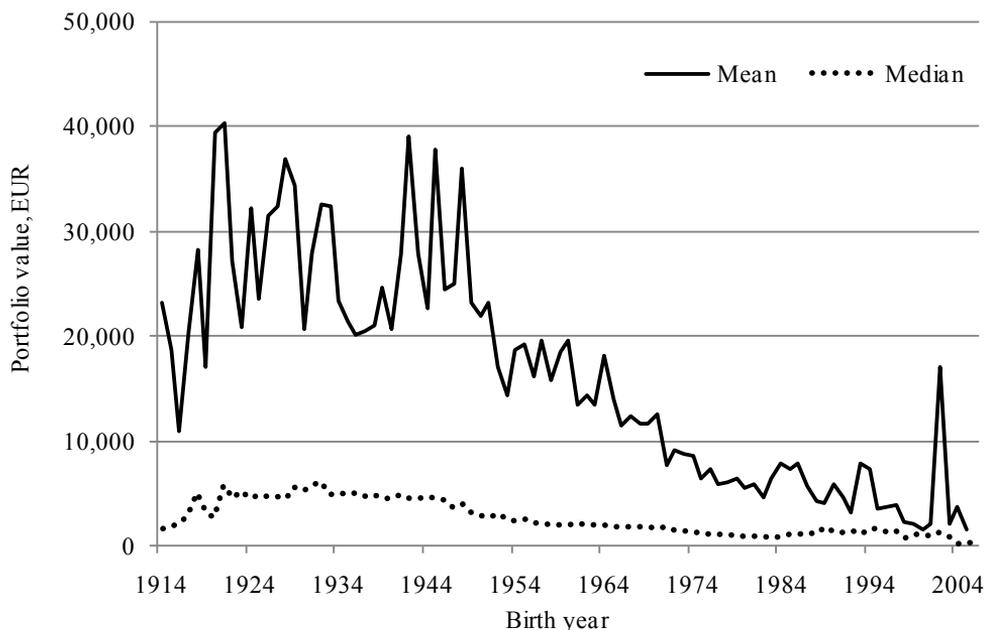


FIGURE 3. Mean and median portfolio value by birth year. The figure above plots the mean and median portfolio value in EUR in 2008 as a function of birth year. The wealth data cover all investment wealth for a random sample of individuals with data on birth year. One outlier has been removed from the computation of mean.

as women. While we are reluctant to speculate about the origin of this result, it is unlikely to be explained by the difference between male and female wealth, which is smaller than the difference between two wealth deciles.

It is also interesting to compare the portfolios of Finnish speakers with those whose mother tongue is not Finnish (most often Swedish). Finnish speakers have smaller portfolios than non-Finnish speakers: the median portfolio sizes are EUR 2,198 and EUR 3,075, respectively. Non-Finnish speakers tend to invest more in directly owned stocks and in equity funds, while they have smaller portfolio allocations in other asset classes. The difference in portfolio size and propensity to own stocks is consistent with Karhunen and Keloharju (2001) who find Swedish speakers to have larger portfolios and a higher propensity to own stocks than Finnish speakers. Non-Finnish speakers also are more likely to invest in funds investing directly in securities and in funds distributed without a retail network. The latter result can probably be explained by the fact that many non-bank related asset management houses were founded by members of the Swedish-speaking community and catered originally to the Swedish-speaking clientele.

Table 7 Panel B also splits the sample to individuals who live in the five largest cities (Helsinki, Espoo, Vantaa, Tampere, and Turku) and those who do not. Inhabitants of large cities invest relatively more in stocks and relatively less in equity and balanced funds. Along with large investors and males, they are also more likely to invest in passive funds, funds investing directly in stocks, funds distributed without a retail network, and funds with performance fees.

Finally, the table splits the sample according to the level and the field of education, i.e., whether an investor has a graduate degree or a business degree. Individuals with graduate and business degrees invest relatively more in directly held stocks and less in money market and balanced funds. Their other fund choices resemble those of wealthy investors, males, and large-city inhabitants and are likely to lead them to pay lower fees on their fund holdings. This result is consistent with Grinblatt, Ikkäheimo, Keloharju, and Knüpfer (2011), who find university and business educated individuals to pay lower management fees on their mutual fund investments.

3.6. Comparing individual and institutional investors' fund holdings

Table 8 compares individual and institutional investors' holdings in different types of mutual funds at year end 2008. We equal weight all fund holdings in all funds. The number of institutional holdings is estimated by subtracting the number of holdings by individuals reported by the Finnish Tax Administration from the total number of holdings as reported in the Mutual Fund Report. The analysis is based on 209 funds and covers 48% of the combined net asset value of funds domiciled in Finland. It excludes data on two fund families whose funds are likely to have a significant number of foreign investors (Nordea and Handelsbanken), and funds not reporting the total number of investors.

TABLE 8. Individual and institutional investors' holdings in mutual funds by fund type

This table compares individual and institutional investors' holdings in different types of mutual funds in 2008. We equal weight all fund holdings in all funds. Data on individuals' fund holdings come from the Finnish Tax Administration. The number of institutional holdings is estimated by subtracting the number of individuals' holdings from the total number of holdings reported in the Mutual Fund Report. The analysis excludes data on two fund families whose funds are likely to have a significant number of foreign investors (Nordea and Handelsbanken), and funds not reporting the total number of investors.

	Distribution of mutual fund investments by asset class (%)					Mutual fund investments by fund type (%)			
	Money market	Bond	Balan- ced	Equity	Other	Passive	Fund of fund	Non- retail	Perfor- mance fee
Individuals	12.5	3.7	33.3	48.8	1.7	0.7	38.2	8.0	2.9
Institutions	20.5	14.1	13.1	48.7	3.5	3.0	16.3	34.6	6.7

The results suggest that institutional investors invest much more often in bond, money market, and other funds than individual investors. At the same time, institutions invest much less in balanced funds. Institutions also shun actively managed funds, funds of funds, funds without a performance fee, and funds managed by banks with a nationwide retail distribution network. A comparison of the results in Table 8 with the results in Table 7 suggests that institutional portfolios are in these respects similar to the portfolios of wealthy individuals and those with a business or a graduate degree.

4. CONCLUSION

This paper uses a unique combination of data sets to document patterns in Finnish individuals' ownership of stocks and mutual funds between 2004 and 2008. Our main findings are as follows:

- At the end of 2008, 13% of Finnish individuals owned stocks and 16% mutual funds. Stock and fund owners are two largely separate groups. Only 5% of population own both stocks and mutual funds.
- Typical portfolio sizes are quite small. Conditional on ownership of stock or funds, the median stock portfolio was in 2008 worth EUR 3,658 while the median fund portfolio was worth EUR 2,567.
- Mutual fund ownership has increased in popularity compared with direct ownership in stocks. The number of individuals investing in mutual funds exceeded the number of stockowners in 2005.
- The average stock portfolio has three stocks. The average number of stocks has increased over time.

- The average mutual fund owner owns two funds. About 9% of fund owners diversify their fund holdings in at least two fund management companies.
- Ownership of stocks and mutual funds are concentrated but ownership of mutual funds is less concentrated than ownership of stocks. In 2008, the richest 1% of stockowners owned 49.3% of individuals' combined stock wealth while the richest 1% of fund owners owned 33.1% of individuals' combined fund wealth.
- Older investors tend to invest in stocks directly while younger investors tend to invest in them via mutual funds.
- Women tend to invest relatively less in risky fund types and stocks than men.
- Institutional investors, large-city inhabitants, university and business educated, and wealthy individuals, and men are less likely to invest in actively managed funds, funds of funds, and funds distributed through a wide branch network. They also are more likely to invest in funds whose fees depend on fund performance. ■

REFERENCES

- GRINBLATT, MARK, SEPPÖ IKÄHEIMO, MATTI KELOHARJU, and SAMULI KNÜPFER**, 2011, IQ and mutual fund choice, UCLA working paper.
- GRINBLATT, MARK, MATTI KELOHARJU, and JUHANI LINNAINMAA**, 2011, IQ and stock market participation, *Journal of Finance* 66, 2121–2164.
- ILMANEN, MATTI and MATTI KELOHARJU**, 1999, Shareownership in Finland, *Finnish Journal of Business Economics* 48, 257–285.
- KARHUNEN, JUSSI and MATTI KELOHARJU**, 2001, Shareownership in Finland 2000, *Finnish Journal of Business Economics* 50, 188–226.