

Shareownership in Finland 2015^{*}

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Abstract

This paper studies patterns in ownership of Finnish stocks and bonds in 2015, and changes in shareownership patterns between 1995 and 2015. Our key findings are as follows. (1) In 2015, 12.8% (0.4%) of Finns own stocks (bonds) directly. (2) The median stock portfolio is worth 4,200 euros while the median bond portfolio is worth 15,000 euros. (3) Men account for 58% of shareholders, 70% of individuals' combined investment wealth, and 73% of share millionaires. (4) Shareholders are on average 15 years older than the population. Wealthy investors are even older. (5) The Swedish-speaking minority accounts for 5.3% of the population but owns 17.5% of individuals' directly owned stock wealth. (6) The wealthiest 0.01% (1%) of individual investors owns 12% (46%) of the directly owned share wealth of individuals. (7) Individuals' direct shareownership has become less concentrated since 2003.

Keywords: Shareownership, bond ownership

1. Introduction

This paper presents a descriptive analysis of shareownership patterns in Finnish listed companies in year 2015 using data from Euroclear Finland. Moreover, the paper compares share and bond ownership in 2015 and analyzes trends in shareo-

wnership patterns. In many respects, the paper is an update of Karhunen and Keloharju (2001) which studied shareownership patterns in Finland in year 2000. An important difference between the papers is that Karhunen and Keloharju did not study bond investments. Armed with a much

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longer time series of observations, this paper also provides a more comprehensive analysis of trends in shareownership patterns.

Our study reports the following issues: (1) the breakdown of the number of investors and the proportion of aggregate investment wealth by institutional category; (2) the distribution of individuals' investment wealth by sex, age, mother tongue, municipality, and region; (3) the number and socioeconomic attributes of individuals with at least one million euros of stock wealth; (4) the concentration of individuals' stock wealth; (5) portfolio diversification; (6) the relationship between a stock's ownership structure and exchange listing, industry, market capitalization, and dividend yield; (7) comparison of the socioeconomic characteristics of share- and bondholders; and (8) the extent to which investors hold bonds and shares of companies headquartered in the investor's home municipality or region. Moreover, we report changes in shareownership by institutional category, sex, mother tongue, and region, and analyze trends in ownership concentration and diversification.

The remainder of the paper is organized as follows. The next section describes the data. Section three describes ownership patterns at the beginning of 2015. Section four compares the ownership patterns of stocks and bonds. Section five analyzes trends in shareownership. Section six summarizes the findings.

2. Data

Our data include the initial balance in Euroclear's ownership records on January 1, 1995 and all changes in these records until January 1, 2015 for all publicly quoted companies represented in the paperless system of share ownership and trading, called the Book Entry System. Moreover, the ownership records also include ownership and change of ownership for many other asset classes, including bonds and structured securities. In all, there are about 280 million initial balance records and changes of ownership in our data. Since all

changes in the records are stamped on the settlement day, these data allow us determine the ownership for each stockholder at any point of time between the above two dates. Our paper analyzes registered stockholder ownership records at the annual frequency. This means that our time series consists of 21 annual snapshots.

The Book Entry System entails compulsory registration of holdings for Finnish individuals and institutions. Foreigners are partially exempted from registration as they can opt for registration in a nominee name. This means that their holdings are combined to a larger pool of nominee registered holdings and cannot be separated from each other.

We use the data to generate the following information for each investor and for each point of time:¹

- Investor identification number: from 1 to 1,735,235. Individual investors are initially identified by their social security number and companies and other institutions by their official registration number. With the help of this unique number the holdings of an investor are kept separate from the holdings of other investors. For security reasons, in our data, the unique identifying number is replaced by a unique running number.
- Share class
- Bond issue and issuer
- Number of shares or bonds
- Ownership type. Euroclear classifies ownership into eight types of which only two have practical significance: private ownership and nominee registered ownership.
- Investor category. This identifies the line of business or profession of the investor. It is based on the 73-category institutional classification system by Statistics Finland. Our aggregation of the categories results in six categories or less.
- Dummy variables for males and females (individual investors)

¹ For more details of the data, see Ilmanen and Keloharju (1999) and Grimblatt and Keloharju (2000).

- Birth year (individual investors)
- Mother tongue (individual investors)
- Zip code. We designate investors with a post office box number to the respective zip code.

While our database includes comprehensive data on direct shareholdings, it does not cover indirect shareholdings. Therefore, for example, the holdings of investment companies owned by a single individual are considered to represent institutional ownership. For the same reason, we do not consider individuals' indirect ownership through mutual funds.²

Many companies have listed two share classes of which one is attached with a greater number of votes than the other. This makes the stocks imperfect substitutes for each other and potentially gives rise to different owner clienteles. Therefore, we consider share classes with voting power differences as separate stocks. Unlisted share classes are not analyzed in the paper.

The classification of investor categories changed in 2007. Our classification of the investor categories in year 2015 is based on the most recent classification in the data. However, many of the investors with old category codes do not appear in the data after 2007, i.e. we do not directly observe

their new investor-category codes. The same problem applies to many investors that only have transactions in the new-category domain: for them, we do not observe the old investor-category codes. Moreover, for some investor categories, there is no exact correspondence between the old and new codes. For these investor categories, investors are randomly assigned from old categories to new categories in the same proportion as old-category investors known to have an old and a new category code correspond to various new categories.

To put the data obtained from Euroclear into perspective, we compare it to population statistics detailed on Statistics Finland's web page. Statistics Finland's data also allow us to aggregate zip code level information to municipality and region levels.

3. Ownership Structure in 2015

3.1. Distribution of investment wealth by investor category

Table 1 reports the number of investors by asset class at the beginning of 2015.³ With about 740,000 distinct investors, stocks are

TABLE 1. Number of investors by asset class and investor category at January 1, 2015
Number of privately registered owners in different asset classes. Nominee registered shares are registered in a financial intermediary's name, and are thus excluded from the table. Only foreigners are allowed to register in nominee name.

INVESTOR CATEGORY	SHARES	FINNISH GOVERNMENT BONDS	OTHER BONDS	MEZZANINE SECURITIES	STRUCTURED SECURITIES	DERIVATIVES	EXCHANGE TRADED FUNDS
Domestic							
Institutions							
Corporations	25 668	8	848	144	3 658	812	257
Financial and insurance corporations	493	7	173	47	187	18	25
Government and municipalities	428	0	62	12	89	11	5
Non-profit institutions	5 600	5	550	63	1 030	107	65
Individuals	700 934	915	22 728	399	134 903	8 580	5 763
Foreigners	7 427	4	147	9	490	34	26
Totals	740 550	939	24 508	674	140 357	9 562	6 141
<i>Population share of individual investors</i>	12.8 %	0.02%	0.42%	0.01%	2.47%	0.16%	0.11%

² Keloharju, Knüpfer, and Rantapuska (2012) analyze share and mutual fund ownership between 2004 and 2008. Their analysis is based on a random sample of individuals, not the whole population (including institutional investors) as in this paper.

³ The table only includes asset classes that have been acquired for investment purposes and that are not very short-lived. Therefore, for example, we do not consider subscription rights in our analysis.

by far the largest investor category, followed by structured securities (140,000 investors), bonds (25,000 investors), derivatives (10,000 investors), and exchange traded funds (6,000 investors). As expected, the vast majority of investors in each asset class are individual investors: for example, they account for 94% of stockholders and 96% of owners of structured securities. All in all, 12.8% of Finns own stocks directly. Owners of structured securities (bonds) account for about 2.5% (0.4%) of the population.

Our subsequent analyses focus on shareholders and, to less extent, on bondholders. Analyses of structured securities (that tend to be much more complex than stocks and bonds) and the other asset classes are left for future research.

Table 2 reports on the value of stock and bond portfolios of each investor category. The combined value of the shareholdings is 177 billion euros, i.e. 62 times the combined value of bondholdings (2.9 billion euros). Domestic investors own about half of the stock market capitalization and about four-fifths of the bond market capitalization. Among domestic investor categories, individual investors are the largest investor category, accounting for about 17% of the stockholdings and 31% of the

bondholdings. The median individual investor stock (bond) portfolio is worth 4,200 (15,000) euros. As expected, individual investors' mean stock (bond) portfolio is worth much more than the median portfolio, 41,000 (38,000) euros. The difference between the mean and the median is driven by the fact that there are many investors with large ownership stakes.

Table 2 further investigates the distribution of stock wealth according to the categorization of Statistics Finland. Among domestic institutional owners, the largest shareholders are government and municipalities (14.1%) and corporations (14.0%), followed by non-profit institutions (3.9%) and financial and insurance institutions (3.5%).

3.2. Joint distribution of age and sex and the relationship between share wealth, age, and sex

Table 3 shows the joint distribution of age and sex and for the entire Finnish population and for shareholders. Moreover, the table tabulates the sex and age distribution of investment wealth. The mean age of male investors is 55 years and that of female investors is 58 years; the corresponding numbers for the population are 41 and 43 years,

TABLE 2. Investment wealth in shares and bonds by investor category at January 1, 2015
 Mean, median and total wealth in shares and bonds. Nominee registered shares are registered in a financial intermediary's name. Only foreigners are allowed to register in nominee name.

INVESTOR CATEGORY	INVESTORS' MEAN INVESTMENT WEALTH, 1000 €		INVESTORS' MEDIAN INVESTMENT WEALTH, 1000 €		SUM OF INVESTMENT WEALTH, MILL. €		PROPORTION OF TOTAL INVESTMENT	
	SHARES	BONDS	SHARES	BONDS	SHARES	BONDS	SHARES	BONDS
Domestic								
Institutions								
Corporations	913	276	12.0	100	23 443	236	14.0 %	8.2 %
Financial and insurance corporations	11 960	3 426	253.9	600	5 896	593	3.5 %	20.7 %
Government and municipalities	55 180	5 762	40.2	500	23 617	357	14.1 %	12.4 %
Non-profit institutions	1 180	344	15.1	100	6 609	190	3.9 %	6.6 %
Individuals	41	38	4.2	15	28 428	887	17.0 %	30.9 %
Foreign								
Privately registered	825	167	3.4	20	6 131	25	3.7 %	0.9 %
Nominee registered					73 309	583	43.8 %	20.3 %
Totals					167 434	2 870	100.0 %	100.0 %

TABLE 3. Population, individual investors, and share wealth by age and sex
Population and investor age and wealth figures are from January 1, 2015. Half of the investors are assumed to have born during the first half of each year. Millionaires refer to individual investors with at least EUR 1 million worth of shares.

AGE	INDIVIDUAL INVESTORS							
	POPULATION		# OF INVESTORS		INVESTMENT WEALTH		# OF MILLIONAIRES	
	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
90–	0.2 %	0.8 %	1.6 %	1.7 %	2.5 %	1.7 %	3.1 %	2.5 %
85–89	0.6 %	1.2 %	1.6 %	1.7 %	2.4 %	1.5 %	3.8 %	1.7 %
80–84	1.0 %	1.6 %	2.5 %	2.2 %	3.8 %	1.9 %	6.2 %	2.1 %
75–79	1.6 %	2.1 %	3.7 %	3.1 %	5.4 %	2.6 %	7.3 %	2.5 %
70–74	2.1 %	2.4 %	5.1 %	4.2 %	8.9 %	4.0 %	12.2 %	3.2 %
65–69	3.4 %	3.6 %	6.6 %	5.3 %	9.4 %	4.0 %	11.5 %	3.5 %
60–64	3.3 %	3.5 %	5.4 %	4.2 %	9.9 %	3.1 %	7.9 %	2.1 %
55–59	3.3 %	3.4 %	4.9 %	3.6 %	6.9 %	2.8 %	6.4 %	2.3 %
50–54	3.4 %	3.4 %	4.9 %	3.4 %	6.3 %	2.4 %	5.8 %	2.0 %
45–49	3.3 %	3.2 %	4.5 %	2.9 %	5.1 %	1.7 %	3.2 %	1.4 %
40–44	2.9 %	2.8 %	4.1 %	2.3 %	3.6 %	1.1 %	1.5 %	0.8 %
35–39	3.2 %	3.0 %	3.7 %	2.0 %	2.1 %	1.0 %	1.1 %	0.8 %
30–34	3.4 %	3.2 %	3.1 %	1.6 %	1.4 %	0.8 %	1.0 %	0.6 %
25–29	3.1 %	3.0 %	2.3 %	1.2 %	1.0 %	0.5 %	0.6 %	0.8 %
20–24	3.2 %	3.0 %	1.5 %	0.9 %	0.8 %	0.4 %	0.7 %	0.5 %
15–19	2.8 %	2.7 %	0.9 %	0.7 %	0.3 %	0.3 %	0.4 %	0.2 %
10–14	2.7 %	2.6 %	0.6 %	0.5 %	0.2 %	0.2 %	0.1 %	0.1 %
5–9	2.8 %	2.7 %	0.6 %	0.5 %	0.1 %	0.1 %	0.0 %	0.0 %
0–4	2.8 %	2.6 %	0.2 %	0.2 %	0.0 %	0.0 %	0.0 %	0.0 %
Totals	49.2 %	50.8 %	57.8 %	42.2 %	69.9 %	30.1 %	72.8 %	27.2 %
Mean age	40.7	43.4	55.3	58.0			66.2	65.2

respectively. In other words, investors are on average about 15 years older than the population.

The shareownership patterns of men and women differ from each other. 58% of the individual investors are men and 42% of them are women. Shareownership wealth is more skewed towards men than the number of investors: men own 70% and women 30% of individuals' combined investment wealth.

Table 3 also reports the fraction of the 2,687 investors with at least one million euros worth of shares (henceforth, millionaires) by age and sex. As expected from the investment wealth figures, men are more dominant among millionaires than among investors at large. Men account for 73% for the millionaires, which is 15 percentage

points more than their fraction of all investors. Millionaires also tend to be more senior people than investors in general. Male millionaires are on average 66 years old, i.e. eleven years older than investors at large. Female millionaires are on average 65 years old.

Figure 1 illustrates the proportion of inhabitants and investors in each age and sex category. Figure 2 compares the proportion of inhabitants in each age and sex category to the proportion of investment wealth owned by the investors in this category.

Figure 3 displays individual investors' mean share wealth as a function of their birth year. Older investors are on average wealthier than younger investors: for example, the mean wealth of inves-

FIGURE 1. Proportion of investors or population in age and sex categories at January 1, 2015

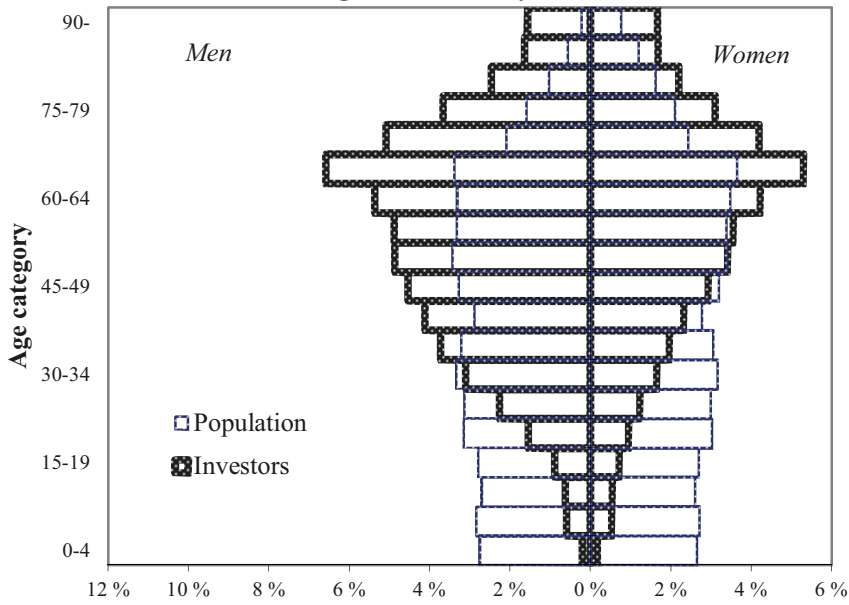


FIGURE 2. Proportion of share wealth or population in age and sex categories at January 1, 2015

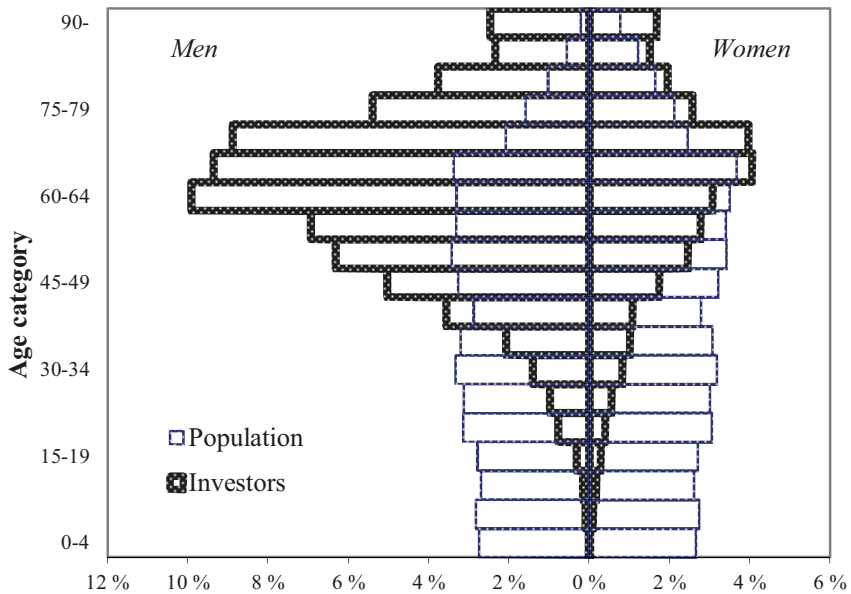
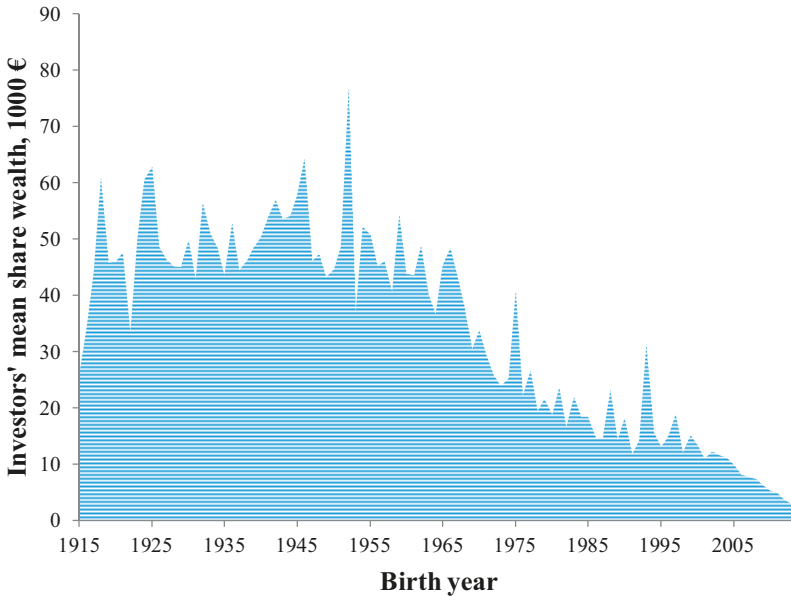


FIGURE 3. Investors' mean share wealth as a function of birth year at January 1, 2015



tors born in 1945 is 58,000 euros, whereas that of investors born in 1990 is 18,000 euros. Overall, mean portfolio size increases with age up to about 70 years, after which it gradually decreases.

3.3. Share investment activity and share wealth by municipality and region

Table 4 shows how investment wealth in Finland is distributed across regions. There are large differences in the relative frequency of investor-inhabitants. In particular, the regions of Ahvenanmaa and Uusimaa stand out: the ratio of investor-inhabitants to all inhabitants is in Ahvenanmaa 28% and in Uusimaa 19% whereas the national average is 13%. The ratio of investor-inhabitants in Uusimaa is largely driven by the Greater Helsinki Area where 21% of the inhabitants own stocks. The next-largest investment activity is in Pohjanmaa where 15% of the inhabitants own stocks. The average investment wealth per shareholder is in

Ahvenanmaa 47,000 euros and in Uusimaa 48,000 euros (in Greater Helsinki Area, 53,000 euros). The national average is 41,000 euros.

Table 4 also reports the distribution of share wealth by region. Owing to its large and wealthy population, Uusimaa accounts for 52% of individuals' aggregate share wealth. Varsinais-Suomi and Pirkanmaa represent the second- and third-most important concentrations of share wealth with 8.1% and 6.6% of aggregate share wealth, respectively.

Figure 4 gives a more accurate description of the geographical distribution of shareownership by illustrating the number of investors per inhabitant figure at the municipality level. The graph shows clear concentration in investment activity in the Greater Helsinki Area, Ahvenanmaa, Pirkanmaa, Pohjanmaa, and Varsinais-Suomi. Figure 5 finds generally similar, but somewhat noisier results using the share wealth per inhabitant metric.

TABLE 4. Share investment activity and share wealth of individual investors by region and form of municipality at January 1, 2015

REGION OR FORM OF MUNICIPALITY	NUMBER OF INDIVIDUAL INVESTORS	NUMBER OF INDIVIDUAL INVESTORS / NUMBER OF INHABITANTS	INVESTORS' MEAN INVESTMENT WEALTH, 1000 €	INVESTORS' MEDIAN INVESTMENT WEALTH, 1000 €	INDIVIDUALS' INVESTMENT WEALTH PER INHABITANT, 1000 €	SUM OF INDIVIDUALS' INVESTMENT WEALTH, MILL. €	PROPORTION OF INDIVIDUALS' TOTAL INVESTMENT WEALTH	PROPORTION OF TOTAL NUMBER OF INDIVIDUAL INVESTORS
<i>Region:</i>								
Uusimaa	304 833	19.2 %	48.0	4.0	9.2	14 642	51.5 %	43.5 %
of which in Greater Helsinki Area *	229 130	21.0 %	52.6	4.4	11.1	12 054	42.4 %	32.7 %
Varsinais-Suomi	54 840	11.6 %	42.0	5.8	4.9	2 306	8.1 %	7.8 %
Satakunta	21 993	9.8 %	35.2	4.9	3.4	773	2.7 %	3.1 %
Kanta-Häme	19 058	10.9 %	24.9	3.4	2.7	475	1.7 %	2.7 %
Pirkanmaa	61 207	12.2 %	30.9	4.3	3.8	1 890	6.6 %	8.7 %
Päijät-Häme	16 694	8.2 %	42.1	5.0	3.5	702	2.5 %	2.4 %
Kymenlaakso	17 980	9.9 %	26.4	3.9	2.6	476	1.7 %	2.6 %
Etela-Karjala	11 044	8.4 %	35.2	5.8	2.9	388	1.4 %	1.6 %
Etela-Savo	12 058	7.9 %	32.7	5.2	2.6	394	1.4 %	1.7 %
Pohjois-Savo	18 098	7.3 %	44.0	5.3	3.2	796	2.8 %	2.6 %
Pohjois-Karjala	12 485	7.5 %	29.5	3.4	2.2	368	1.3 %	1.8 %
Keski-Suomi	26 648	9.7 %	24.2	4.0	2.3	646	2.3 %	3.8 %
Etela-Pohjanmaa	20 513	10.6 %	33.2	4.5	3.5	680	2.4 %	2.9 %
Pohjanmaa	27 504	15.2 %	29.5	2.5	4.5	811	2.9 %	3.9 %
Keski-Pohjanmaa	6 636	9.7 %	24.7	3.2	2.4	164	0.6 %	0.9 %
Pohjois-Pohjanmaa	30 429	7.5 %	39.8	4.2	3.0	1 210	4.3 %	4.3 %
Kainuu	5 539	6.9 %	27.3	4.6	1.9	151	0.5 %	0.8 %
Lappi	13 179	7.2 %	27.6	4.6	2.0	364	1.3 %	1.9 %
Ahvenanmaa - Åland	8 005	27.9 %	46.6	3.4	13.0	373	1.3 %	1.1 %
Unknown	12 191		67.2	4.9		819	2.9 %	1.7 %
Whole country	700 934	12.8 %	40.6	4.2	5.2	28 428	100.0 %	100.0 %
<i>Form of municipality:</i>								
Urban municipality	512 992	13.7 %	42.1	4.4	5.8	21 615	76.0 %	73.2 %
Densely populated municipality	95 864	10.7 %	32.8	3.6	3.5	3 142	11.1 %	13.7 %
Rural municipality	78 043	9.7 %	33.0	3.6	3.2	2 576	9.1 %	11.1 %
Unknown	14 035		78.0	4.5		1 094	3.8 %	2.0 %

* Includes Helsinki, Espoo, Vantaa and Kauniainen

FIGURE 4. Number of share investors per inhabitant by municipality

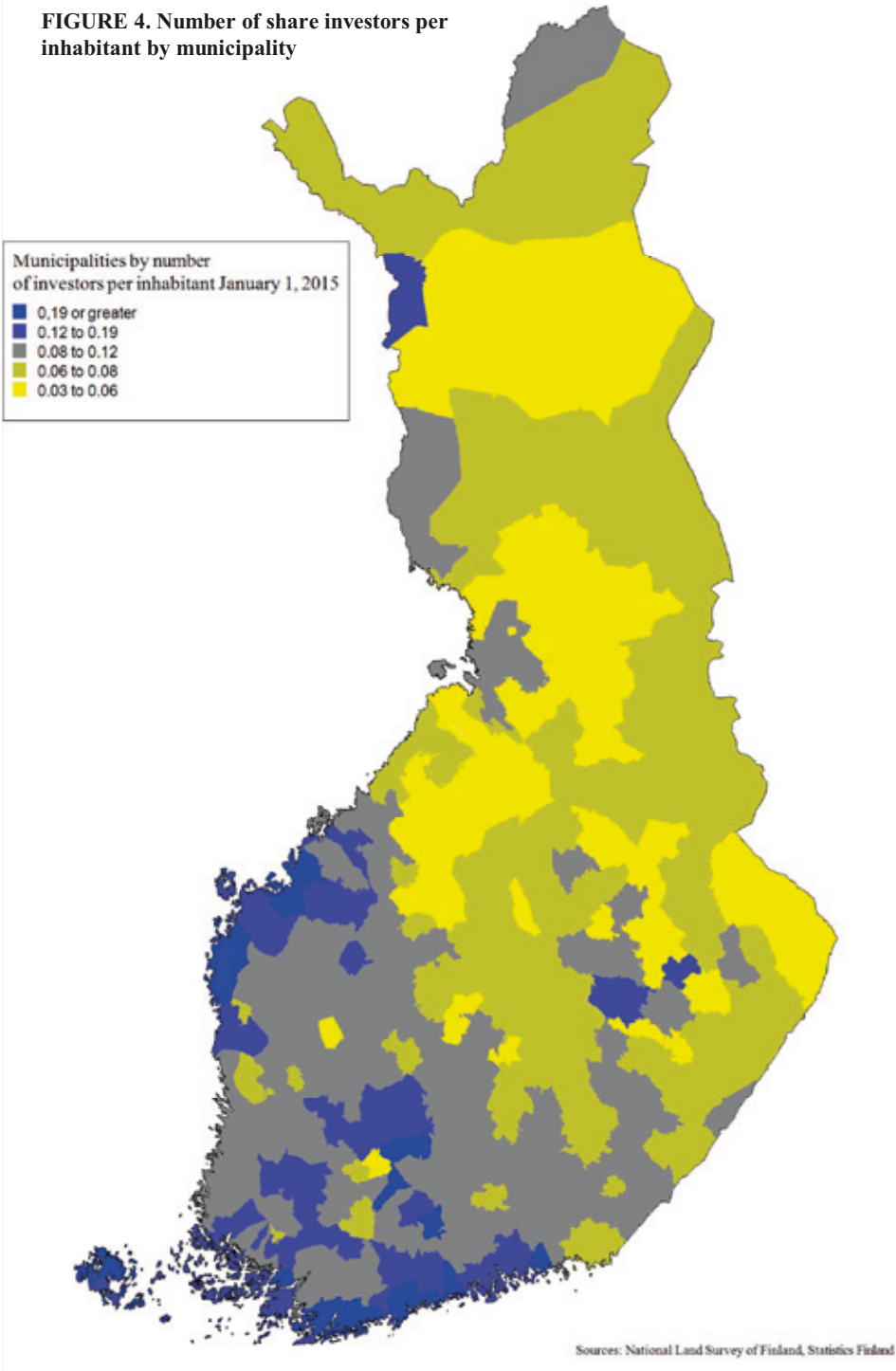
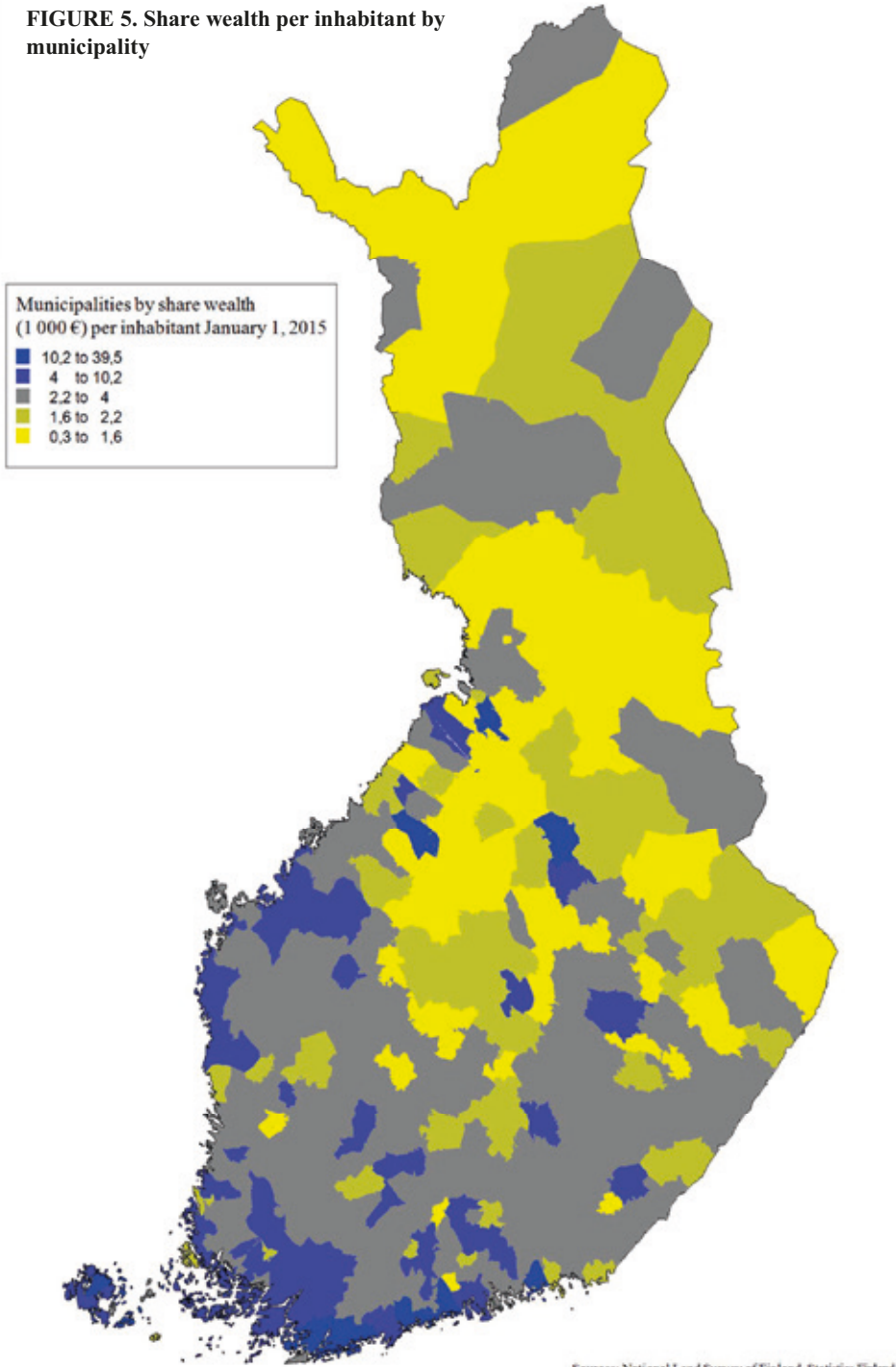


FIGURE 5. Share wealth per inhabitant by municipality



3.4. Share wealth by mother tongue

Table 5 investigates how mother tongue is related to share wealth. The Swedish-speaking minority (5.3% of the Finnish population) is much wealthier than the Finnish-speaking majority (89% of population): the average share wealth of Finnish-speaking Finns owning stocks, 37,500 euros, is one-half of the share wealth of Swedish-speaking Finns owning stocks, 75,000 euros. The ratio of investor-inhabitants to all inhabitants is also much larger for Swedish-speaking Finns (23%) than for Finnish-speaking Finns (13%). As a result, the average stock wealth of Swedish-speaking Finns (17,100 euros) is more than three times as large as that of Finnish-speaking Finns (4,800 euros). In all, Swedish speakers own 18% of the combined share wealth and account for 23% of the millionaires.

More than 5% of Finns have mother tongue other than Finnish or Swedish. Yet, their ownership fraction is very small: 0.4% of the total share wealth. Moreover, only 1.2% of them invest in stocks, which is about 10% of the corresponding fraction of Finnish speakers and 5% of that of Swedish speakers. There are at least two potential reasons for the low investment activity. First, many of the non-Finnish or non-Swedish speakers are recent immigrants and may not have money to invest in stocks. Second, the language coded as their mother tongue may not be the real one: a bank or asset manager may not be able to correspond

with their customers in other than the Finnish or Swedish language, and may code the language of correspondence (probably Finnish) as the mother tongue of the customer. Doing so would mechanically increase the share of Finnish-speaking investors, and decrease the share of other-language speakers.

3.5. Concentration of individuals' share wealth

Table 6 shows the degree of concentration in individuals' shareownership. The richest 0.01% of individual investors (70 individuals) own 12% and the richest 1% (7,009 individuals) 46% of the investment wealth of individuals. Similarly, the richest 0.01% of the entire Finnish population (547 individuals) owns 24% and the richest 1% (54,717 individuals) 77% of the investment wealth of individuals. These numbers are probably conservative estimates of the ownership fraction of the wealthiest investors. Wealthy individuals are more likely than others to own stocks via holding companies, whose ownership is not reflected in the analysis of individuals' ownership.

3.6. Stock portfolio diversification

Table 7 describes the diversification of stock portfolios. Most individual investors hold poorly diversified portfolios: 46% of individual investors have only one stock in their portfolio and 16% hold two stocks. The same applies to institutions of which

TABLE 5. Share wealth by mother tongue at January 1, 2015

MOTHER TONGUE	NUMBER OF INVESTORS	NUMBER OF INVESTORS / NUMBER OF INHABITANTS	INVESTORS' MEAN WEALTH, 1000 €	INVESTMENT WEALTH PER INHABITANT, 1000 €	SUM OF INVESTMENT WEALTH, MILL. €	PROPORTION OF INDIVIDUALS' TOTAL INVESTMENT WEALTH	PROPORTION OF TOTAL NUMBER OF INDIVIDUAL INVESTORS	PROPORTION OF MILLIONAIRES
Finnish	630 349	12.9 %	37.0	4.8	23 336	82.1 %	89.9 %	76.8 %
Swedish	66 656	22.9 %	74.5	17.1	4 969	17.5 %	9.5 %	22.6 %
Other	3 901	1.2 %	30.2	0.4	118	0.4 %	0.6 %	0.6 %

TABLE 6. Proportion of individuals' total share wealth owned by the richest n% of individual investor at January 1, 2015

PERCENTILE	OWNERSHIP (1000 €) AT PERCENTILE OF THE RICHEST N% OF INDIVIDUAL INVESTORS	CUMULATIVE PROPORTION OWNED BY THE RICHEST N% OF INVESTORS	CUMULATIVE PROPORTION OWNED BY THE RICHEST N% OF INDIVIDUALS OF THE POPULATION
0,01	18 751.7	12.4 %	23.5 %
0,1	2 740.1	25.2 %	43.3 %
0,5	815.5	38.6 %	65.5 %
1	488.8	46.4 %	76.5 %
2	285.4	55.6 %	86.7 %
3	203.4	61.6 %	91.7 %
4	157.5	66.0 %	94.6 %
5	127.0	69.6 %	96.3 %
6	106.1	72.5 %	97.5 %
7	90.6	74.9 %	98.3 %
8	78.6	77.0 %	98.9 %
9	69.0	78.8 %	99.4 %
10	61.0	80.4 %	99.8 %
20	24.3	89.9 %	100.0 %
30	12.2	94.2 %	100.0 %
40	6.9	96.5 %	100.0 %
50	4.2	97.8 %	100.0 %
60	3.4	98.7 %	100.0 %
70	2.2	99.4 %	100.0 %
80	1.0	99.8 %	100.0 %
90	0.3	99.96%	100.00%

TABLE 7. Distribution of the number of stocks in portfolio at January 1, 2015

NUMBER OF STOCKS IN PORTFOLIO	PORTFOLIO VALUE, 1000 €				PROPORTION OF INVESTORS	
	INDIVIDUALS		INSTITUTIONS		INDIVIDUALS	INSTITUTIONS
	MEAN	MEDIAN	MEAN	MEDIAN		
1	5.5	2.5	221.4	3.4	45.6 %	50.3 %
2	17.4	4.3	796.0	13.5	16.0 %	12.4 %
3	24.4	7.6	5 842.2	21.1	9.0 %	6.5 %
4	42.8	11.0	284.0	32.7	6.2 %	4.7 %
5	47.8	15.4	511.3	44.3	4.5 %	3.7 %
6	53.3	19.8	404.9	61.0	3.4 %	3.1 %
7	68.4	25.4	574.9	69.8	2.7 %	2.8 %
8	87.9	31.3	2 438.9	80.2	2.1 %	2.1 %
9	107.5	37.2	2 219.3	102.7	1.7 %	1.7 %
10	106.3	43.6	1 348.8	134.2	1.4 %	1.5 %
>10	265.4	86.7	9 806.5	310.2	7.3 %	11.1 %

50% hold only one stock and 12% two stocks. All in all, only 23% of individuals and 26% of institutions hold at least five stocks in their portfolio.

Table 8 reports the average number of stocks in investors' portfolios. The average number of stocks held is 3.6 for individuals and 4.2 for institutions.

Large portfolios tend to be much better diversified than small portfolios. On average, individual investors with at least one million euros worth of shares hold 18 stocks.

3.7. Ownership structure and firm characteristics

Table 9 takes a brief look into how the ownership structure of publicly quoted share classes is related to their exchange listing, industry, market capitalization, and dividend yield. To analyze the general tendencies behind investment in different share classes, the table gives each share class an equal weight. This obviously significantly downplays the role of large companies like Nordea or Nokia, which constitute the bulk of the market capitalization. Internet appendix 1, which is available at the corresponding author's website, reports a detailed list of ownership structure variables by share class.

Like in Japan, foreign investors prefer stocks listed on the main list and those with large market capitalization (see Kang and Stulz (1997)). These are generally also the most liquid stocks. Individual investors tend to invest more in small stocks and those listed on the First North list.

There are also clear differences in individual investors' preferences. Men and younger inves-

tors are more likely to invest in stocks that have a smaller market capitalization, are listed in the First North list, and pay no dividends. For example, the fraction of men increases monotonically from 67% in the largest market capitalization quintile to 80% in the smallest quintile. At the same time, investors' mean age decreases monotonically from 56 years to 52 years. These differences in investment allocation are probably at least partly driven by differences in risk tolerance. For example, Jianakoplos and Bernasek (1998) find that single women are relatively more risk averse in their asset holdings than single men or married couples.

4. Comparison of Share- and Bondholders

4.1. Comparison of the demographic characteristics of share- and bondholders

Table 10 compares shareholders to bondholders. These groups differ from one another in several respects. First, a much larger fraction of shareholders are men (58% vs. 43%). This result is consistent with more risk tolerant investors investing in stocks. Second, shareholders are on average eight years younger than bondholders. This result is consistent with financial planners' standard advice for older people to reduce the share of equity in the portfolio. Third, a larger fraction of stockholders than bondholders live in urban areas (72% vs. 64%). Conversely, a larger fraction

TABLE 8. Stock portfolio diversification by investor category at January 1, 2015⁴

INVESTOR CATEGORY	INVESTORS' MEDIAN INVESTMENT WEALTH, 1000 €	MEAN NUMBER OF STOCKS IN PORTFOLIO
Institutions, total	382.9	4.2
Corporations	49.8	3.9
Financial and insurance corporations	7965.8	9.3
Government and municipalities	27307.1	5.3
Non-profit institutions	295.0	4.9
Individuals, total	14.5	3.6
Men	17.4	4.1
Women	10.7	2.9

TABLE 9. The relationship between a stock's ownership structure and its industry, exchange listing, dividend yield, and market capitalization at January 1, 2015
Dividend yield is calculated from dividends paid during the year 2014.

	EQUALLY WEIGHTED AVERAGE PROPORTION OF SHARES OWNED BY			EQUALLY WEIGHTED AVERAGE PROPORTION OF INDIVIDUAL INVESTORS WHO ARE MEN	EQUALLY WEIGHTED AVERAGE OF MEAN AGE	NUMBER OF SHARE CLASSES
	INSTITUTIONS	INDIVIDUALS	FOREIGN INVESTORS			
<i>Stock exchange listing</i>						
Main list	45%	34%	21%	72%	54.3	129
Basic materials	43%	25%	32%	73%	55.2	14
Consumer goods	44%	32%	24%	72%	54.2	14
Consumer services	58%	34%	9%	65%	57.0	13
Financials	53%	28%	19%	68%	55.2	16
Health care	31%	49%	20%	65%	54.2	7
Industrials	43%	34%	23%	75%	53.8	43
Oil & gas	62%	12%	25%	69%	56.5	1
Technology	40%	45%	15%	75%	51.3	18
Telecommunications	53%	27%	21%	58%	60.7	2
Utilities	59%	8%	33%	68%	53.8	1
First North Helsinki	47%	40%	13%	82%	48.3	10
Pre-list	27%	72%	0%	72%	65.6	2
<i>Market capitalization quintile</i>						
1 (largest)	41%	18%	41%	67%	56.0	29
2	43%	31%	26%	69%	55.2	28
3	50%	33%	17%	72%	54.6	28
4	48%	42%	9%	76%	52.4	28
5 (smallest)	44%	51%	5%	80%	51.8	28
<i>Dividend yield quintile</i>						
1 (largest)	44%	32%	24%	70%	54.6	20
2	38%	36%	26%	69%	55.3	20
3	53%	22%	25%	72%	55.1	19
4	42%	36%	21%	70%	55.6	19
5 (smallest)	48%	36%	16%	71%	54.0	19
No dividend in year 2014	45%	40%	15%	77%	52.0	44

TABLE 10. Comparison of individual shareholders and bondholders at January 1, 2015

	NUMBER OF INVESTORS	PROPORTION OF INVESTORS WHO ARE MEN	PROPORTION OF INVESTORS WHO ARE SWEDISH SPEAKING	MEAN AGE	PROPORTION OF INVESTORS WHO LIVE IN CITIES	PROPORTION OF INVESTORS WHO LIVE IN DENSELY POPULATED MUNICIPALITIES	PROPORTION OF INVESTORS WHO LIVE IN RURAL MUNICIPALITIES
Bondholders	23 420	43%	18.3 %	64.6	63.6 %	17.6 %	17.7 %
Shareholders	700 934	58%	9.5 %	56.4	71.6 %	14.1 %	11.8 %

of bondholders than stockholders (18% vs. 12%) live in rural municipalities. Fourth and finally, Swedish speakers are much more likely to invest directly in bonds than Finnish speakers. The fraction of Swedish-speaking investors is almost twice as large (18.3% vs. 9.5%) among bondholders than among stockholders.

4.2. The influence of headquarters location on share- and bondownership

Past research has documented that investors tend to prefer to invest in stocks that are headquartered close to the municipality where the investor lives.⁴

This so called home bias may arise, among others, because investors are more familiar with these companies, because they have superior information of these companies, or because they have invested in these companies due to an employee or customer relationship.

Table 11 provides a simple analysis of the preference of investors to invest in stocks and bonds that are headquartered in the same municipality or region the investor lives in. To our knowledge, we are the first to analyze this effect for bondholders.⁵

Following Grinblatt and Keloharju (2001), we compute the following ratio to measure this preference for shareholders:

$$\frac{\text{Firm } i\text{'s shareowner weight for investors in the municipality of its headquarters}}{\text{Firm } i\text{'s shareowner weight among all investors in Finland}}$$

The numerator is simply the number of individual shareowners of firm *i* residing in the municipality the firm is headquartered in, divided by the sum, across all firms, of the number of shareholdings in that same municipality. The denominator is the comparable ratio for all of Finland. In the absence of home bias, the ratio equals one.

As an example of the computation of the ratio, take Ponsse, a company producing harvesters. Ponsse has 1,003 individual shareowners, 116 of whom live in its headquarters municipality of Vieremä. Summing the number of individual investors' shareholdings over all firms, we find that Vieremä has 7,686 shareholdings, while Finland has 2,259,234 shareholdings.⁶ The numerator for Ponsse's ratio is thus 116 / 1,003 while the denominator is 7,686 / 2,259,234, making Ponsse's ratio 34.

The results suggest that individual investors living in the headquarters municipality (region) of a median company are 6.0 (3.7) times as likely to own the stock of that company as the stock of other companies, provided that the company is headquartered outside of the Greater Helsinki Area. For all of these 40 companies, an investor living in the headquarters municipality of the company is more likely to invest in that company than in other companies. Greater Helsinki Area headquartered companies display much less home bias than other companies. This is probably largely due to the fact that these companies tend to be larger and more nationally known, attracting investors from all over Finland.

Home bias is not confined to shareholdings. Individual investors living in the headquarters municipality (region) of a median bond issuer are 22 (7) times as likely to own bonds issued by that issuer as bonds of other issuers, provided that the issuer is headquartered outside of the Greater Helsinki Area.⁷

For 17 of these 20 companies, an investor living in the headquarters municipality of the company is more likely to invest in that company than in other companies. Thus, if anything, the home bias in bondholdings appears to be larger than that in shareholdings. Similar to stocks, the home bias in bondholdings is weaker for issuers headquartered in the Greater Helsinki Area.

⁴ See, for example, Coval and Moskowitz (1999) and Grinblatt and Keloharju (2001).

⁵ Fidora, Fratzscher, and Thimann (2007) and Demoor and Vanpée (2013), among others, analyze home bias in bond investments, but they focus on country-level rather than within-country bias.

⁶ The total number of shareholdings is somewhat smaller than the product of the number of individual investors and the mean number of shares in their portfolio. This is because we restrict the home bias analysis to those investors for whom we have information on location.

⁷ This analysis drops government bonds from the sample.

TABLE 11. The influence of headquarters location on share and bond ownership

SUMMARY STATISTICS FOR THE RATIO NUMERATOR/ DENOMINATOR NUMERATOR = FIRM I'S WEIGHT AMONG INVESTORS IN ITS HEADQUARTERS MUNICIPALITY OR REGION DENOMINATOR = FIRM I'S WEIGHT AMONG ALL INVESTORS IN FINLAND			
INVESTOR IN SAME MUNICIPALITY AS HEADQUARTERS			
INVESTOR IN SAME REGION AS HEADQUARTERS			
INVESTOR CATEGORY			
Panel A: Shares	Individuals	Individuals	Institutions
<i>Median for firms of following type:</i>			
Helsinki area headquartered companies (N=93)	1.02	1.00	1.09
Rest of Finland headquartered companies (N=40)	5.95	3.68	3.95
All companies (N=133)	1.17	1.08	1.13
<i>Fraction greater than 1 for firms of following type:</i>			
Helsinki area headquartered companies (N=93)	0.57	0.51	0.68
Rest of Finland headquartered companies (N=40)	1.00	0.95	0.95
All companies (N=133)	0.70	0.64	0.76
Panel B: Bonds			
<i>Median for firms of following type:</i>			
Helsinki area headquartered companies (N=32)	1.59	1.28	1.03
Rest of Finland headquartered companies (N=20)	21.56	7.31	7.35
Bond issuer is not a bank (N=23)	1.59	1.19	0.93
Bond issuer is a bank (N=29)	19.25	5.22	4.64
	3.03	1.59	1.56
<i>Fraction greater than 1 for firms of following type:</i>			
Helsinki area headquartered companies (N=32)	0.53	0.53	0.44
Rest of Finland headquartered companies (N=20)	0.85	0.85	0.95
Bond issuer is not a bank (N=23)	0.52	0.52	0.39
Bond issuer is a bank (N=29)	0.76	0.76	0.83
All companies (N=52)	0.65	0.65	0.63

Both individual and institutional investors display home bias. For both stocks and bonds, institutions' home bias appears to be about as large as that of individual investors. A relatively small number of institutional investors adds noise to the institutional home bias numbers. This is also the reason why we do not report the home bias for institutions at the municipality level.

What accounts for the home bias in bondholdings? We suspect that recommendations of the is-

suers play a role here. Over half of the bond issuers are banks, many of them local banks, and their customers are more likely to live close to the headquarters of the bank. The home bias is far stronger for bonds issued by banks than those of other issuers. Individual and institutional investors living in the headquarters region of a median bank-based issuer are both five times as likely to own bonds issued by that issuer as bonds of other issuers. When the bond is issued by institution other than

a bank, the corresponding ratios are close to one. Our results are consistent with a scenario where financial advisors at the bank recommend their customers to buy bonds issued by the bank, and the customers follow this recommendation.

5. Trends in Shareownership

5.1. Trends in ownership structure by main investor categories

Figure 6 shows how the distribution of stock ownership has changed across the main investor categories during the time period. There are large swings in ownership, in particular among domestic institutions and foreigners. For example, foreign owners accounted for about 74% of the market capitalization in 2001, while the corresponding fractions in 1995 and 2013 were 33% and 41%, respectively. Much of these swings can be attributed to Nokia, whose market capitalization varied greatly during the sample period and which at its peak was more than 90% foreign owned. Internet appendix 2 reports the results formally as a table.

5.2. Trends in the number of shareholders

Figure 7 shows how the number of investors has changed during our sample period. The number increased from 475,000 in 1997 to 746,000 in 2000 because of a flurry of initial public offerings and listings, and because Sampo joined the share registry. After that the increase in the number of shareholders has been much smaller; there have even been decreases in the number of shareholders, as there was between 2002 and 2008 when the number of stockholders decreased from 753,000 to 642,000.

Figure 7 also reports how the number of millionaires has fluctuated during our sample period. Here, the key determinant of the fluctuation is change in market prices. For example, the number of millionaires dropped from 2,707 at the beginning of 2008 (when the stock prices were close to a local high) to 1,206 at the beginning of 2009 (when stock prices were hit by the financial crisis). The number of millionaires was at its highest, at 3,224, at the beginning of 2000, which was close to the peak of the IT bubble. Internet appendix 3 reports more details of the time series variation of the number of investors at various parts of the wealth distribution.

FIGURE 6. Distribution of stock ownership by investor category as percentage of total market capitalization, 1995-2015

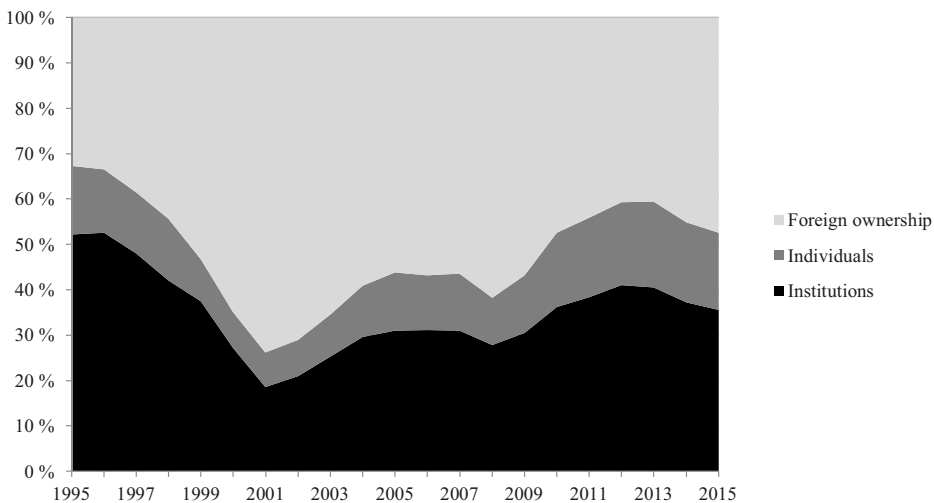
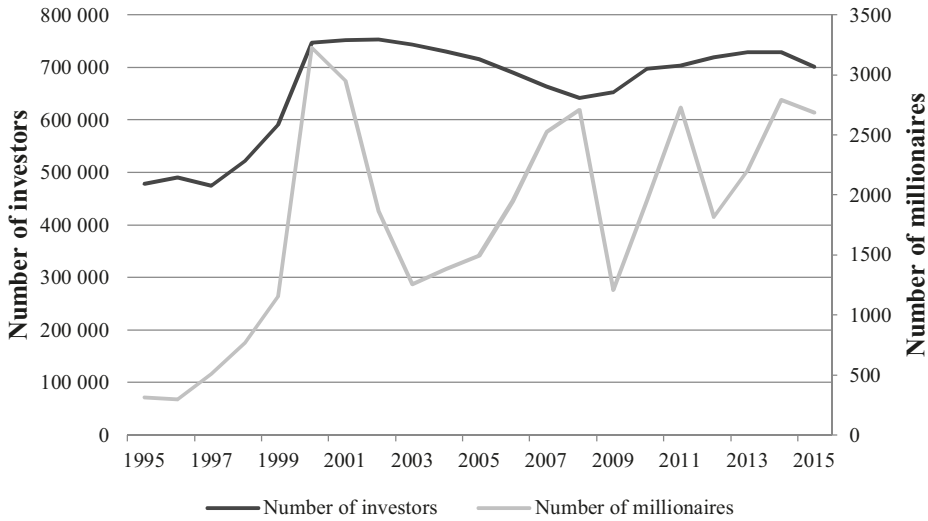


FIGURE 7. Number of individual share investors and millionaires, 1995-2015



5.3. Trends in shareownership concentration

Figure 8 reports the fraction of share wealth owned by four investor categories: 1) the wealthiest 0.01% of investors, 2) the wealthiest 0.1% of investors (excluding the top 0.01% of investors), 3) the wealthiest 0.5% of investors (excluding the top 0.1% of investors), and 4) the wealthiest 1% of investors (excluding the top 0.5% of investors). Of these four investor categories, the wealthiest three exhibit most variation during the sample period. In particular, the wealthiest 0.01% of investors display remarkable variation: their ownership fraction more than doubled from 8% in year 1995 to 19% in year 2004, and decreased to 12% in 2015. The two next-wealthiest investor categories increased their ownership fraction from 13% and 15% in 1995 to 17% and 18% in 2001, after which the ownership fraction decreased to 13% in 2015. For the wealthiest 1% of investors (excluding the top 0.5% of investors), the ownership fraction varied between 7.5% and 9.0% during the sample period. Their ownership fraction reached its peak already in 1999.

Figure 9 shows how the concentration of ownership has evolved over time. A useful summary measure of ownership concentration is the gini coefficient. By definition, the gini coefficient varies between 0 and 1, with larger numbers indicating larger degrees of concentration.⁸

Figure 9 shows that individual investors' shareownership concentration increased almost monotonically from 1995 to 2003, and decreased almost monotonically from 2003 to 2015. The gini coefficients, computed from ownership among investors, increased from 0.860 in 1995 to 0.895 in 2003, and fell back to 0.866 in 2015. The gini coefficients based on the entire population are larger, and their variation also reflects variation in the number of shareholders. At the end of the sample period, the gini coefficient for Finnish individuals was 0.983. Internet appendix 4 reports the results as a table.

⁸ Following Deltas (2003), the gini coefficient is estimated as $2cov(y, r_i) / (nE(y))$, where n is the number of individuals sampled and $cov(y, r_i)$ is the covariance between shareownership wealth, y , and the ranks of individuals according to their shareownership wealth, r_i , from the poorest ($r_i = 1$) to the richest ($r_i = n$).

**FIGURE 8. Top wealth shares, 1995-2015
(shareholdings only)**

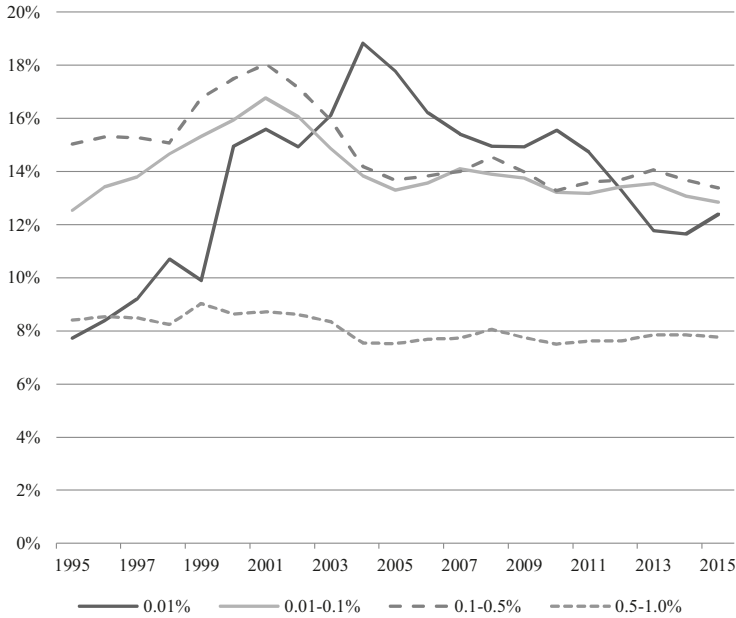


FIGURE 9. Gini coefficients for shareownership, 1995-2015

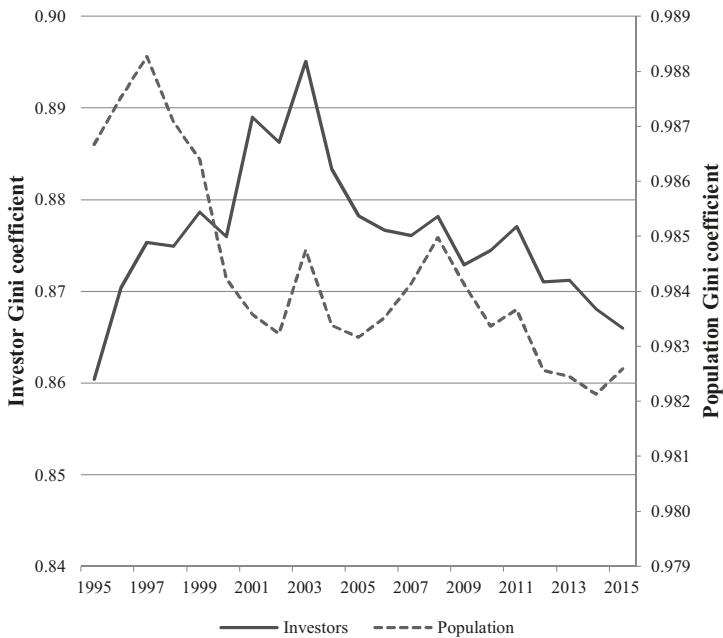


Figure 9 showed that the total portfolio share of the wealthiest 0.01% of investors has fluctuated considerably over time. Although not reported formally, we check whether this affects our results on the negative trend of the gini coefficient after 2003. The answer is by and large no: although the negative trend flattens somewhat after 2004, the overall trend pattern is very similar. This suggests that changes e.g. in the extent to which the very wealthiest investors invest in stocks directly vs. through holding companies is unlikely to explain the negative trend in ownership concentration.

How do our results compare with other time-series evidence on the concentration of wealth? We compare our results to Statistics Finland's wealth study, which keeps track of gini coefficients for different combinations of asset classes. The study is conducted every four or five years for a sample of individuals, and it complements data obtained from administrative registers with that from interviews.

Statistics Finland's wealth study finds that financial assets have become more concentrated over time. For example, the gini coefficient increased from 0.793 in 2004 to 0.818 in 2013. This contrasts with our evidence, which finds a decrease in concentration since 2003.

What accounts for the difference in the direction of change in ownership concentration between our and Statistics Finland's study? One difference between the studies is that Statistics Finland's study is based on a sample while ours is based on the whole population of investors. A sample may not give an accurate picture of the portfolios of the wealthiest investors, who may be reluctant to participate in the survey. Another difference is that we do not have data on ownership of holding companies; some wealthy investors are known to have channelled at least part of their shareholdings to holding companies. Statistics Finland has information on nonlisted holdings, although their value is estimated imperfectly, particularly in the earlier years. A third (and in our opinion probably the most important) difference is that Statistics Finland's study pools all financial assets together, while we focus on only one (albeit

very important) asset class. It is possible that the gini coefficients have decreased because wealthy investors have moved some of the assets tied into direct stockholdings into other asset classes, e.g. mutual funds or exchange traded funds issued by foreign investment houses. Because we do not observe investments in these assets, we cannot test this conjecture directly. The next subsection will attempt to shed light on this issue indirectly by studying trends in ownership patterns in different regions.

5.4. Trends in shareownership structure by region

Table 12 examines trends in ownership patterns by region, focusing on the changes in their ownership fractions between 1995 and 2003 and between 2003 and 2015. (Details of region-level ownership changes can be found from Internet appendix 5). The largest relative changes in the ownership fraction in the first period were the increase from 1.3% to 2.7% (a 109% increase) for Ahvenanmaa and the increase from 2.5% to 4.5% (a 78% increase) for Pohjois-Pohjanmaa. The first result can at least partly be attributed to Viking Line joining the Euroclear registry in 1999, while the latter was probably driven by the listings of many information technology companies in the Oulu area.

The 2003–15 period is interesting in the sense that it is associated with a trendlike decrease in the gini coefficient. Here, it is of interest to study the development of the ownership fractions in Ahvenanmaa and Uusimaa, the two regions with the largest per capita portfolios and the greatest fraction of investors in the population. These statistics hint that the investors residing in these regions are more likely than others to be informed of other asset classes. The investors in these regions also turn out to have decreased their ownership fraction of individuals' total share wealth more than investors in the other regions, in Ahvenanmaa from 2.7% in 2003 to 1.3% in 2015 (a 51% drop) and in Uusimaa from 55.3% to 51.5% (a 7% drop). Although we do not know what has caused the decreases in ownership fraction in these two regions, our re-

TABLE 12. Changes in individuals' share wealth by region

REGION:	PROPORTION OF TOTAL INVESTMENT WEALTH			CHANGES IN THE PROPORTION OF TOTAL INVESTMENT WEALTH	
	1995	2003	2015	1995–2003	2003–2015
Uusimaa	55.3 %	55.3 %	51.5 %	-0%	-7%
Greater Helsinki Area*	47.7 %	46.1 %	42.4 %	-3%	-8%
Varsinais-Suomi	7.9 %	6.8 %	8.1 %	-15%	19%
Satakunta	2.6 %	2.1 %	2.7 %	-21%	31%
Kanta-Häme	1.7 %	1.6 %	1.7 %	-6%	5%
Pirkanmaa	6.9 %	6.4 %	6.6 %	-7%	4%
Päijät-Häme	2.5 %	2.2 %	2.5 %	-12%	13%
Kymenlaakso	1.8 %	1.5 %	1.7 %	-18%	15%
Etelä-Karjala	1.5 %	1.2 %	1.4 %	-18%	9%
Etelä-Savo	1.3 %	1.2 %	1.4 %	-7%	14%
Pohjois-Savo	1.9 %	2.1 %	2.8 %	10%	33%
Pohjois-Karjala	1.2 %	1.3 %	1.3 %	7%	-1%
Keski-Suomi	2.2 %	2.1 %	2.3 %	-4%	9%
Etelä-Pohjanmaa	1.8 %	1.8 %	2.4 %	2%	31%
Pohjanmaa	2.7 %	2.6 %	2.9 %	-6%	10%
Keski-Pohjanmaa	0.9 %	0.5 %	0.6 %	-42%	14%
Pohjois-Pohjanmaa	2.5 %	4.5 %	4.3 %	78%	-6%
Kainuu	0.6 %	0.5 %	0.5 %	-9%	1%
Lappi	1.4 %	1.1 %	1.3 %	-22%	19%
Ahvenanmaa – Åland	1.3 %	2.7 %	1.3 %	109%	-51%
Unknown	2.0 %	2.6 %	2.9 %	27%	12%
Totals	100%	100%	100%		

* Includes Helsinki, Espoo, Vantaa and Kauniainen

sults are nevertheless broadly consistent with the idea that at least part of the decrease in the gini coefficient can be attributed to reallocation of stock wealth to other asset classes.

5.5. Trends in shareownership by sex and language

Table 13 reports growth rates in shareownership by sex and mother tongue. The number of shareholding men increased at the rate of 2.3% per year, while the number of shareholding women increased by 1.5% per year. Men's portfolios also increased at a faster rate than those of women: the growth rates were 7.8% and 6.3%, respectively. Men's portfolio values increased more than those

of women at all studied parts of the wealth distribution (top-10%, 50%, bottom-10%), but the growth gap between male and female portfolios was the largest among the wealthiest investors. As a result of these demographic changes, men's share of the number of investors increased from 54% in 1995 to 58% in 2015, and their ownership fraction increased from 61% to 70%.

The results for growth by mother tongue are mixed. On the one hand, the number of Finnish-speaking investors increased at a lower rate (1.9%) than that of Swedish speakers (2.4%), but on the other hand the value of the portfolios of the Finnish-speaking investors increased at a higher rate (7.6% vs. 5.7%). All in all, Finnish speakers's

TABLE 13. Annualized growth rates in share wealth by sex and mother tongue
Annualized geometric growth rates calculated over 20 years by sex and mother tongue.

PANEL A: 1995-2015	SEX		MOTHER TONGUE	
	MEN	WOMEN	FINNISH	SWEDISH
Number of investors	2.3 %	1.5 %	1.9 %	2.4 %
Average wealth	7.8 %	6.3 %	7.6 %	5.7 %
Total wealth	10.2 %	8.0 %	9.6 %	8.2 %
Wealth, least wealthy decile	6.6 %	6.4 %	7.4 %	1.2 %
Wealth, median investor	7.1 %	6.0 %	7.0 %	3.1 %
Wealth, wealthiest decile	7.6 %	6.0 %	7.4 %	4.0 %

PANEL B: 1995-2003	SEX		MOTHER TONGUE	
	MEN	WOMEN	FINNISH	SWEDISH
Number of investors	5.9 %	5.4 %	5.8 %	4.3 %
Average wealth	8.9 %	6.1 %	7.5 %	10.2 %
Total wealth	15.4 %	11.8 %	13.7 %	15.0 %
Wealth, least wealthy decile	10.3 %	13.1 %	11.8 %	9.1 %
Wealth, median investor	2.8 %	-1.2 %	1.1 %	1.1 %
Wealth, wealthiest decile	4.8 %	2.4 %	4.0 %	5.0 %

PANEL C: 2003-2015	SEX		MOTHER TONGUE	
	MEN	WOMEN	FINNISH	SWEDISH
Number of investors	-0.1 %	-1.0 %	-0.7 %	1.1 %
Average wealth	7.0 %	6.5 %	7.8 %	2.8 %
Total wealth	6.9 %	5.5 %	7.0 %	4.0 %
Wealth, least wealthy decile	4.2 %	2.1 %	4.5 %	-3.8 %
Wealth, median investor	10.1 %	11.1 %	11.0 %	4.5 %
Wealth, wealthiest decile	9.5 %	8.5 %	9.8 %	3.3 %

share of directly owned share wealth increased from 78% in 1995 to 82% in 2015.

We also study the growth rates in two subperiods, between 1995 and 2003, and between 2003 and 2015. Men have higher growth rates than women in both periods both in the number of shareholders and in average portfolio sizes. The growth rates by mother tongue are mixed. In the first subperiod, the number of Finnish-speaking investors grew faster than that of Swedish speakers, while in the latter subperiod the opposite happened. Portfolio size growth patterns are the opposite to those of stock market participation. In the first subperiod, the average portfolio size of Swedish speakers increased at a faster rate than

that of Finnish speakers, while in the latter the average portfolio size of Finnish speakers increased at a faster rate than that of Swedish speakers.

What explains these patterns? We can think of at least the following explanations for the differences in the growth rates of men and women. First, Keloharju et al. (2012) find that women invest relatively more in mutual funds than men. As mutual funds have become more popular, women may have channelled a relatively larger fraction of their assets to indirect shareholdings. Second, men tend to earn more than women. If this allows them to save more, and if these savings are channelled to direct shareholdings, their portfolios can grow faster. Third, men may earn a higher return

on their portfolios than women. We consider this unlikely, as Barber and Odean (2001) find stock portfolios of men to underperform those of women after transaction costs.

When it comes to explaining the differences in the growth rates between Finnish and Swedish speakers, it is easier to focus on the 2003–15 sub-period that was more stable both in terms of corporate events and stock market volatility.⁹ Here, the most interesting statistic is the growth rate in portfolio size: 7.8% for Finnish speakers vs. 2.8% for Swedish speakers. The difference is about equally large for all portfolio size categories.

We can think of two potential explanations for this result. First, the average size of Swedish-speakers' portfolio is twice as large as that of Finnish speakers. At the same time, the income differences between Finnish and Swedish speakers, and differences in their ability to inject additional capital to shareholdings, are likely to be much smaller. As a result, we would expect the wealth differences between Finnish and Swedish speakers to decrease over time. Second, it is possible that Swedish speakers have channelled a relatively larger fraction of their wealth to other asset classes. Banks and asset managers probably have marketed their services (which may include diversifying into other asset classes) more actively to the wealthy Swedish speakers. Moreover, their greater wealth has also given Swedish speakers a greater incentive to become informed of other asset classes.

5.6. Trends in stock portfolio diversification

Household portfolios have become better diversified over time. Figure 10 shows that the average number of stocks held by individuals increased from 2.0 in 1995 to 3.6 in 2015. At the same time, the average number of stocks in institutional portfolios increased from 3.3 to 4.2.

We can only speculate what accounts for the increase in the average number of stocks in indi-

viduals' portfolios. One possibility is that these portfolios have become larger over time, encouraging investors to diversify them better. Another possibility is that investors with poorly diversified portfolios have liquidated their stock positions. Many of these portfolios stem from demutualizations of Sampo and local telephone companies, not from active purchase decisions, so the investors may have been less keen to hold on to these positions than investors on average.

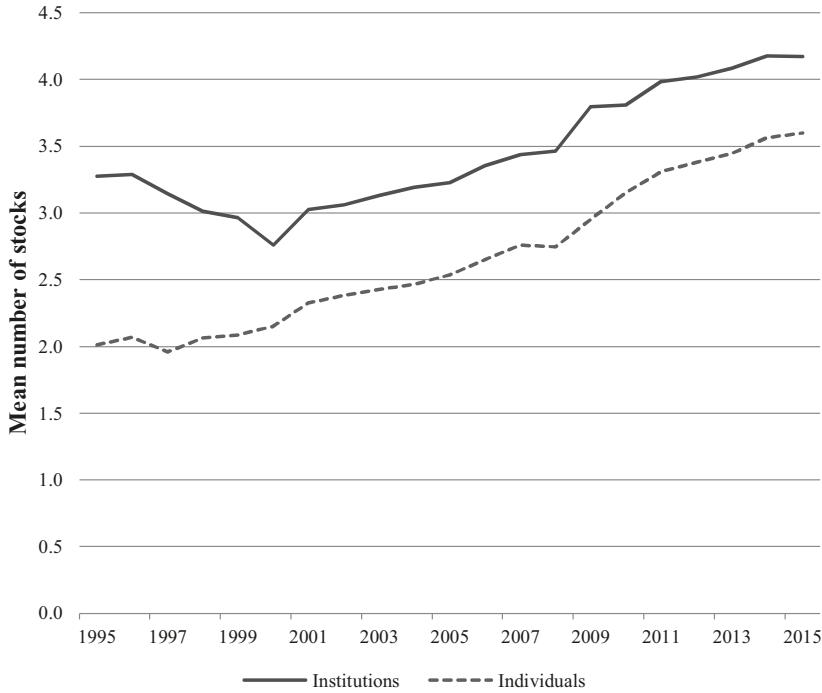
4. Conclusions

This study documents patterns in the direct ownership of Finnish shares and bonds on January 1, 2015 and changes in shareowner patterns since the beginning of 1995. Our main findings are as follows:

- Finnish listed companies have altogether about 740,000 Finnish investors. Of them about 700,000 are individuals. Structured securities have about 140,000 investors and bonds about 25,000.
- Domestic investors own about half of the stock market capitalization and about four-fifths of the bond market capitalization. Among domestic investor categories, individual investors are the largest investor category, accounting for about 17% of the stockholdings and 31% of the bondholdings. Among domestic institutional owners, the largest shareholders are government and municipalities, and non-financial corporations. Both of them own about 14% of the stock market capitalization.
- The median individual investor stock portfolio is worth 4,200 euros. The median individual investor bond portfolio is worth 15,000 euros. The average stock (bond) portfolio is much larger: 41,000 (38,000) euros.
- Men account for 58% of shareholders, 70% of individuals' combined investment wealth, and 73% of share millionaires.

⁹ The first subperiod was characterized by a flurry of IPOs, listings, and demutualizations and the boom and the bust around the millennium. These events might have had asymmetric effects for Finnish and Swedish speakers.

FIGURE 10. Mean number of stocks in portfolio by institutional status, 1995-2015



- Investment wealth tends to be concentrated to the more senior citizens. Investors are on average about 15 years older than the population on average. Wealthy investors are even older.
- There are substantial differences in the relative frequency of investor-inhabitants across regions. In Ahvenanmaa, 28% of the inhabitants own stocks. In Uusimaa, 19% of the population owns stocks. The national average is 13%. The differences in investment wealth per investor across regions are smaller.
- Uusimaa accounts for the majority, 52%, of share wealth. Varsinais-Suomi and Pirkanmaa and represent the second- and third-most important concentrations of share wealth with 8.1% and 6.6% ownership fractions, respectively.
- The Swedish-speaking minority accounts for 5.3% of the population but owns 17.5% of individuals' directly owned stock wealth. Swedish speakers are almost twice as likely to invest in stocks as Finnish speakers, and their portfolios are on average twice as large as those of Finnish speakers.
- The wealthiest 0.01% of individual investors owns 12% of the directly owned share wealth of individuals. The wealthiest 1% of individual investors owns 46% of the directly owned share wealth of individuals.
- There are 2,687 investors with a stock portfolio worth at least one million euros. There are 330 investors with a stock portfolio worth at least five million euros. The number of millionaires peaked in year 2000.

- Most investors hold poorly diversified stock portfolios: only 23% of individuals and 26% of institutions hold at least five stocks in their portfolio. The average number of stocks held is 3.6 for individuals and 4.2 for institutions.
- Foreign investors prefer stocks which have large market capitalization and those listed on the main list. Individual investors are relatively more likely to invest in stocks with low market capitalization, and those listed in the First North list.
- There are also clear differences in individual investors' preferences. Women and older investors invest relatively more in bonds, stocks listed on the main list, and those with large market capitalization, whereas men and younger investors invest relatively less in bonds and more in small stocks, those listed in the First North list, and those that pay no dividends.
- Individual investors living in the headquarters municipality of a median company are six times as likely to own the stock of that company as stocks of other companies, provided that the company is headquartered outside of the Greater Helsinki Area. The corresponding fraction for bond investors is even greater, 22. Institutions exhibit about as strong home bias as individuals.
- Men have increased their direct ownership of stocks more than women. Men's share of the number of investors increased from 54% in 1995 to 58% in 2015, and their ownership fraction increased from 61% to 70%.
- Individuals' direct shareownership has become less concentrated since 2003. Residents of Ahvenanmaa and Uusimaa have decreased their ownership fraction relatively most since 2003.

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