9 The Population Ageing in Italy: Facts and Impact on Household Portfolios

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9.0 Abstract

This paper aims to assess the impact of ageing on household portfolios in Italy and hence ultimately on financial markets. To this end, the analysis is carried out in two steps. First, the dimension of population ageing in Italy is assessed by means of both historical and forecast data on the structure of Italian population. Second, based on data taken from the Bank of Italy Survey of Household Income and Wealth (SHIW) over the last decade, we analyse the average household portfolio in relation to demographic characteristics. The main findings are: first, Italy turns out to be one of the countries most affected by ageing; second, financial choices of Italian households are sensibly affected by age. Thus, the exceptional ageing in Italy might have relevant consequences on the Italian financial market.

9.1 Introduction

Ageing can sensibly affect financial markets, since elderly people usually have lower saving rates and higher average risk aversion. Thus, ageing is going to bring about a progressive evolution of financial needs and investment requirements, which may in turn translate into changes in prices and returns of existing financial instruments and in the need for new ones. A lively debate on the financial effects of ageing is ongoing among both academics and practitioners and has originated a vast literature constituted by both theoretical and empirical contributions. The latter in particular have sensibly increased over the last few years, also fostered by the increasing availability of suitable survey-datasets. Furthermore, a particular strand of this empirical literature has recently focussed on the effects that ageing may have on financial asset returns and portfolio allocations: see, among others, Yoo (1994), Poterba (2001, 2004), Davis and Li (2003) and Ameriks and Zeldes (2004).

These works are far from being homogeneous with regards to both the methodology used and the results obtained. As for the methodology, the empirical investigations are carried out using different approaches, which in the present paper are grouped into three main categories and are addressed as follows: (i) the "explorative approach", which analyses and interprets trends in survey data; (ii) the "econometric approach", which runs time-series or panel data analyses; and (iii) the "simulation approach", which performs empirical simulations on suitably structured overlapping-generation models. As for the results, while some authors report significant effects of ageing on

financial markets (e.g Yoo, 1994), others find only a weak, if any, relationship between demographic and financial variables (e.g. Poterba 2001, 2004). Moreover, up to date empirical studies analyse the Italian case only rarely and quite marginally and this despite Italy is, together with Japan, one of the countries where the ageing phenomenon is more accentuated.

Based on the latter observation, the specific aim of this paper is to asses the impact of ageing on household portfolio allocation in Italy. To this end, the analysis is carried out in two steps.

First, the ageing in Italy is analysed by means of both historical and forecast data on the structure of Italian population. More specifically, the phenomenon of ageing is described using data on the evolution of median age as well as dependency ratios over the last fifty years. In addition, data on birth, mortality and immigration rates are employed to better identify the main causes of the demographic evolutions occurred in Italy.

Second, the effects that the demographic characteristics of Italian households may have on their financial portfolios are studied. We follow Guiso and Jappelli (2001) and employ data taken from subsequent issues of the Bank of Italy Survey of Households Income and Wealth (SHIW). Our analyses differ from the previous one by Guiso and Jappelli (2001) in three extents: first, we consider a subsequent period of time; second, we propose a risk-classification of financial assets and third, we refine the analyses by separating households by both age-classes and Net Wealth quartiles, thereby testing the robustness of age-effect on financial choices.

The paper is structured as follows. In the next section the main stylized facts about ageing in Italy are analysed and discussed at a comparative level with respect to the rest of the world and in particular with Europe. The investigation over the effects of ageing on household portfolios in Italy is presented in section 9.3. The final section concludes.

9.2 Population ageing around the world and in Italy

Although population is a world-wide phenomenon, its size sensibly differs across countries. The first step of our research assesses the magnitude of the phenomenon in Italy with respect to other developed countries and in particular to the European ones. Data are taken from two international databases, namely those provided by United Nations (UN), for the comparison with the major world-regions, and Eurostat, used instead for the analyses specifically focussed on Italy[1].

The changes in the population age-structure can be assessed by means of different measures, which can either relate only to the demographic structure

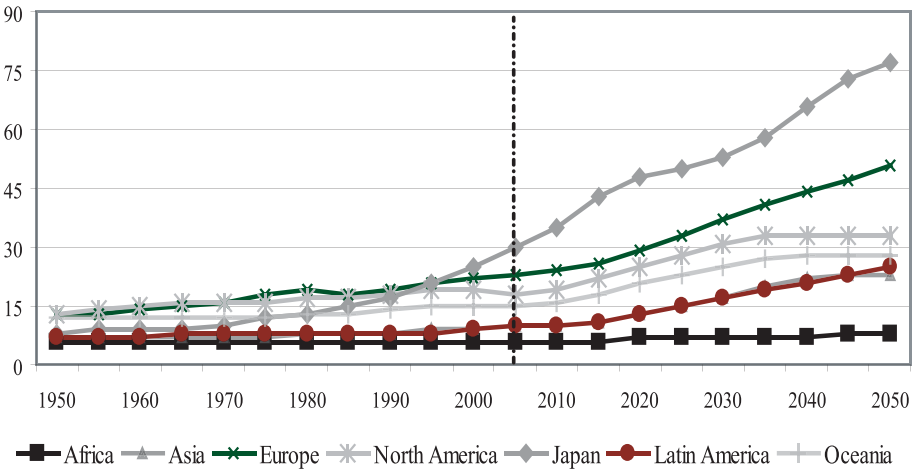
1 Data are available on the United Nation Population Division website: http://esa.un.org/unpp/ and on the Eurostat website: http://epp.eurostat.cec.eu.int/

of the population, and are thus univocally defined, or depend also on institutional factors (e.g. pension systems) beside the demographic ones. As for the former type of measure, the most widespread ones are: the median age, the average age and the life expectancy at birth. As for the latter, the most well known is probably the old-dependency ratio that is the relative amount of retired people to the working-age population.

9.2.1 A comparative analysis

The comparative analysis of the demographic evolution occurring in Europe and in the rest of the world is performed using data over the period 1950-2050 and taken from the UN demographic dataset[2]. In particular, here we focus on the following demographic measures: (i) median age; (ii) life-expectancy; and (iii) old-dependency ratio, defined as the ratio of aged 65 or more to aged 15-64. Main findings are summarised in Figure 9.1 and in table 9.1.

Figure 9.1 Old-dependency ratio from 1950 to 2050: major world-regions.



Data Source: United Nations Population Prospects.

2 Both UN and Eurostat databases provide several demographic "projections variants", obtained combining different hypotheses on fertility, mortality and net migration rates. Data used in the following analyses refer to the variants refereed to as the most likely for the future in the two databases, namely "Constant-fertility" for UN and "Baseline" for Eurostat.

Table 9.1 Past, present and future demographic measures: major world-regions

World-Zone	Years	Median Age	Life Expectancy	Old-dependency ratio
Africa	1950	19	38.4	6
	2005	18.9	50	6
	2050	18.6	65.3	8
Asia	1950	22	41.4	7
	2005	27.7	68.7	10
	2050	32.8	76.9	23
Europe	1950	29.7	65.6	13
	2005	39	74.3	23
	2050	50.1	80.7	51
Latin America	1950	20.2	51.4	7
	2005	25.9	72.9	10
	2050	33.1	79.4	25
North America	1950	29.8	68.8	13
	2005	36.3	78.2	18
	2050	40	82.7	33
Oceania	1950	28	60.4	12
	2005	32.3	75	15
	2050	35.9	80.5	28
Japan	1950	22.3	63.9	8
	2005	42.9	82.8	30
	2050	56.2	88.3	77

Data Source: United Nations Population Prospects.

The most severe population ageing is being experienced by Japan and Europe: in both countries median age and old-dependency ratios have increased much more than in the rest of the world. We thus restrict our attention to these two areas and we disaggregate the analysis for the 25 countries of the European Union to further focus on the case of Italy. For reasons of space we report only the old-dependency ratio: Table 9.2 ranks countries according to the value expected for this demographic indicator in 2050[3].

3 Similar tables made according to other demographic measures (available upon request) are consistent with table 9.2

Table 9.2 Old-dependency ratios.

Country	1950	2005	2050	Country	1950	2005	2050
Japan	8	30	77	Lithuania	15	23	52
Italy	13	30	75	Malta	10	20	52
Spain	11	24	72	Belgium	16	27	50
Czech Republic	12	20	64	France	17	25	48
Slovenia	11	22	64	Estonia	17	24	47
Austria	16	25	58	Finland	11	24	47
Greece	11	27	57	Netherlands	12	21	45
Portugal	11	25	57	Sweden	15	26	44
Slovakia	10	17	57	Ireland	18	16	43
Latvia	18	25	55	United Kingdom	16	24	40
Poland	8	18	55	Cyprus	10	18	38
Germany	14	28	54	Denmark	14	23	38
Hungary	11	22	53	Luxembourg	14	21	36

Data Source: United Nations Population Prospects.

Two observations are in order. First, the process of population ageing seems to be quite strong in several of the new EU members, especially Slovenia and Czech Republic[4]. Second, Italy is the sole country whose projections are as high as Japan's.

In fact, Italy is first together with Japan for the future value of median age, which by 2050 is expected to attain the value of 56.2 in both countries. The same holds for old-dependency ratio, whose value is second only to Japan. As for life expectancy in 2050, Italy (85.1) is third after Japan (88.3) and Sweden (85.5), whereby the latter already experiences one among the highest life expectancies in Europe.

In sum, two separate conclusions can be drawn. First, Europe emerges together with Japan as one of the world areas most afflicted by population ageing. Second, within Europe Italy definitely emerges for the strength of the undergoing transformations of its age-structure.

9.2.2 What is peculiar in Italy?

4 A huge debate is currently ongoing on the population ageing in the Eastern European countries and on the policy implications that it may have on the whole European Union. See, among others, Kucera et al. (2000) and the studies performed within the research program "Demographic & Social Change in Eastern Europe" carried out by the Department of Development Sociology of Cornell University, the Demography and Geodemography Department of the Charles University of Prague and the Department of Sociology of the University of Bucharest in Romania together with the Universities of Central Florida and Kansas State and the Echo Survey Sociological Research Institute (Hungary).

In order to better understand the peculiarity of the Italian case we analyse in deeper details the following features:

1) the past and future dynamics median age, life expectancy and old-dependency ratio;

2) the distribution of different age-classes over the entire population at different points in time, namely 1950, 1975, 2005, 2025 and 2050. Initially, the standard three age-classes are considered, i.e. young, middle-aged and old, whereby the definitions of each category are as in the previous section. Then, the population age-structure and its evolution are further detailed and twenty 5-year age-classes are considered rather than the three macro-classes considered so far.

3) the factors that typically underlie demographic transitions, i.e. fertility, mortality and migration. The trend of each factor is observed over the last 50-year period, in order to see if and to what extent each element has a role in the Italian ageing. Note that for this point we turned to Eurostat dataset as it supplies more detailed demographic measures.

As for the first point, Table 9.3 reports the past (1950), the current (2005) and the projected future values (2050) for Italian median age, life expectancy at birth and old-dependency ratio.

Table 9.3 Main demographic measures for Italy, 1950-2050.

Demographic Measure	1950	2005	2050
Median Age	29	42.3	56.2
Life Expectancy	66	80.6	85.1
Old-dependency Ratio	13	30	75

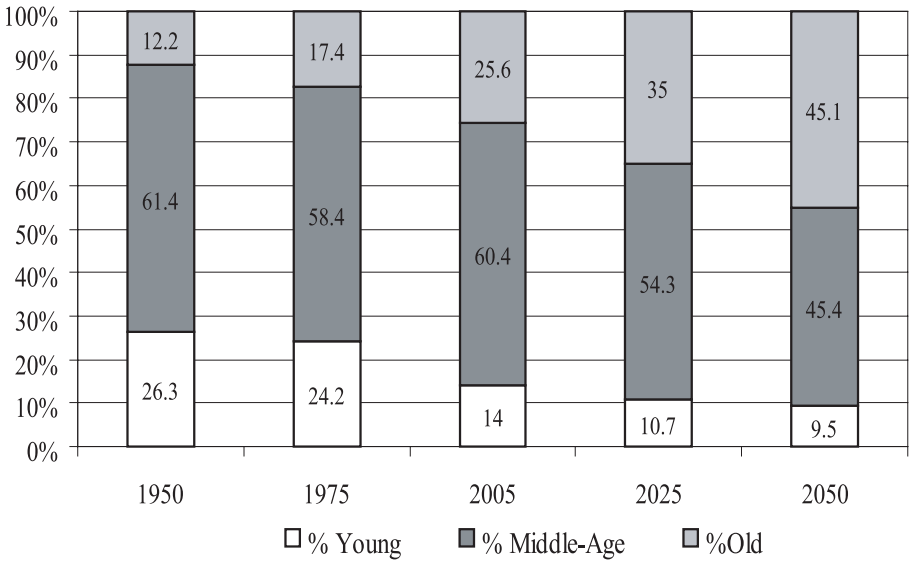
Data Source: United Nations Population Prospects.

Since the mid of last century Italian median age has risen from 29 to 42.3 years and a similar increase is expected to occur by 2050, when it is projected to reach 56.2 years. Analogously, life expectancy has also increased (on average three months every year) and a further enhancement is estimated over the next 50-year period. The most remarkable change has been recorded by the old-dependency ratio, jumped from 13 in 1950 to 30 in 2005 and expected to more than double by 2050 when, according to UN projections, in Italy there will be around 75 retired every 100 working people.

As for the dynamics of different age classes, the dramatic Italian demographic evolution is highlighted by Figure 9.2, where the shares of young, middle-aged and old people over the entire Italian population are plotted at five different points in time, two in the past (1950 and 1975), one current (2005) and two in the future (2025 and 2050).

During the last 50 years, the share of middle-aged has remained almost unchanged while young people have decreased by more than 10 percentage points. Conversely, the proportion of elderly has undergone a progressive enlargement, raising from the 12.2% of the total Italian population of 1950 to the 25,6% reached in 2005. The projections for the next 50-year period point towards a further enhancement of the phenomenon. The working-age population is likely to shrink more and more relatively to inactive individuals and in particular to elderly people: the greying population is enlarging up to 35% in 2025 and to more than 45% by 2050, when they will be nearly as numerous as middle-aged people.

Figure 9.2 Shares of young, middle-aged and old individuals in Italy.

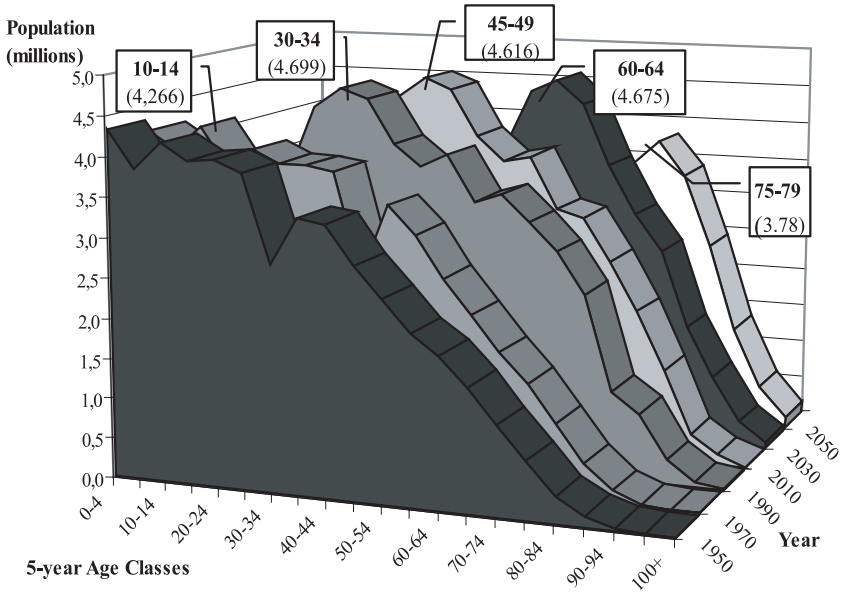


Data Source: United Nations Population Prospects.

Figure 9.3 represents the Italian demographic evolution more in details as smaller age-classes, of 5 years each, are used. The distribution of Italian population is represented at various points in time, namely 1950, 1960, 1990, 2010, 2030 and 2050. The baby boom, occurred in Italy during the 1960s, is clearly visible as the population peak, which represents the baby boomers generation, moves as a wave: in 1970s it corresponds to the very young (around 10-14 years old) part of the population, at the beginning of the new century it represents the middle-aged (30-34) and late-middle-aged (45-49) and at the end of 2050s those aged around 75-79: thus, up to the mid of this century the baby boomers will still represent the most conspicuous age-class

of the population, being almost 4 million people.

Figure 9.3 Italian population distribution by age-classes: evolution.



Data Source: United Nations Population Prospects.

Finally, in order to single out the major causes of this exceptional demographic transition, we examine the three main factors that drive demographic changes: i.e. fertility, mortality and migration flows. In fact, population ageing might stem from a relative decrease in fertility, a relative lower mortality (i.e. greater longevity) and/or a relative decline in the net migration. The directions that each factor is expected to take to lead to population ageing are summed up in the third column of Table 9.4.

In order aim to clarify which among them has played the major role in the Italian ageing experience, the historical evolution of each factor is observed over the last 50-year period (15-year for migration) by means of different measures. More specifically, fertility is assessed by means of birth rate (ratio of births to average population) and total fertility rate (average number of children born to a woman), mortality by means of life expectancy and death rate (ratio of deaths to average population) and migration flows by net migration (difference between immigrants and emigrants) and net migration rate (net migration to country population)[5].

5 Others measures could have been considered. Fertility measures include the absolute number of births and the net (gross) reproduction rate, i.e. the average number of daughters that would be born to a woman subjected to the current fertility and (neglecting) mortality conditions. Similarly, mortality can be assessed by means of the absolute number of deaths. Here, we select relative rather than absolute and complete rather

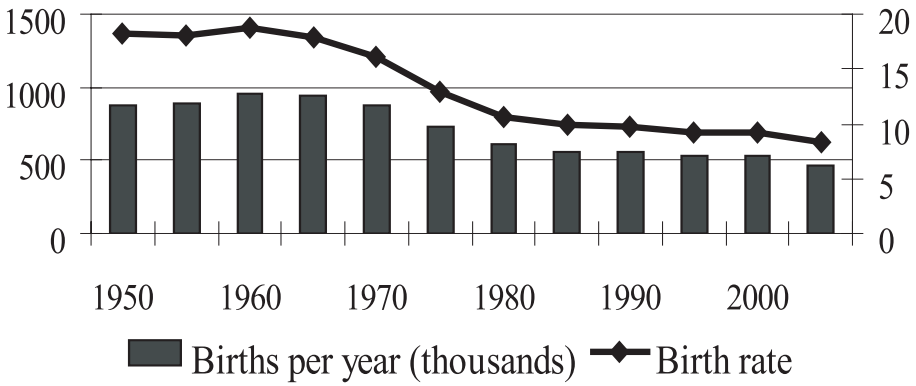
Table 9.4 Factors underlying ageing: theoretical and effective changes.

Factor	Measure	Expected change	Effective Change (1950-2005)
Fertility	Birth rate	↓	- 10.1
	Total fertility rate	↓	- 1.04
Mortality	Death rate	↓	+ 0.8
	Life expectancy	↑	+ 14.6
Migration	Net migration flows	↓	+170,000
	Net migration rate	↓	+ 0.3%

Note: data for migration refer to the period 1985-2000 only.
Source: authors' computations on Eurostat Demographic Database.

Figure 9.4 plots the evolution of absolute number of (live) births and of the birth rate from 1950 to 2005. Both births and birth rate follow an "s" pattern. First, a peak is highlighted between 1955 and late 1960s, which clearly denotes the baby boom occurred in Italy after the Second World War. Immediately after, there is a substantial drop which makes the birth rate more than halve before stabilizing around the current level of 8.2. A very similar pattern is followed by the total fertility rate (see Figure 9.5). According to the expectations, all the indicators examined point towards a substantial decline in fertility.

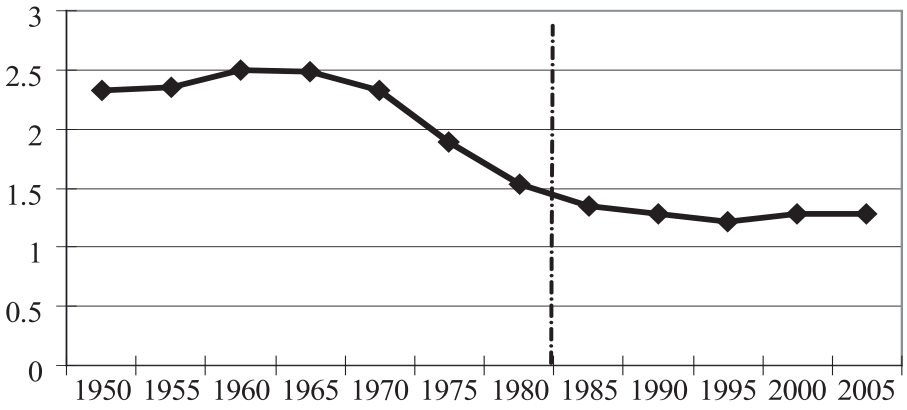
Figure 9.4 Absolute number of births and birth rate in Italy, 1950-2005.



Note: values for births are on the left scale; those for birth-rate are on the right-hand-side one.
Data Source: Eurostat Demographic Database.

than partial measures (e.g. reproduction rates consider the number of daughters only).

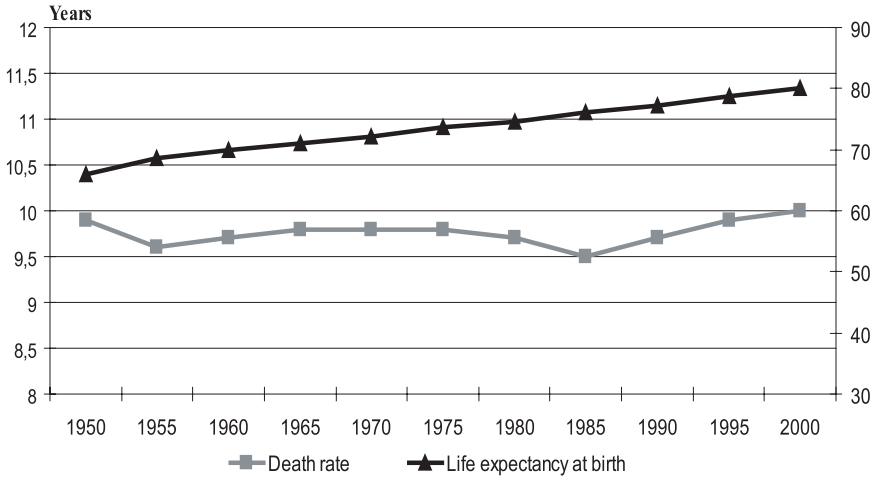
Figure 9.5 Total fertility rate in Italy, 1950-2005.



Data Source: Eurostat Demographic Database.

Figure 9.6 plots life expectancy and the death rate in Italy over the period 1950-2005. While the latter has only slightly increased Both increased over the last 50 years (by 0.8 percentage points), life expectancy has risen form the 66 years that a newborn in 1950 was expected to live to the current 80.6 years, thereby more than offsetting the negative effects that the death rate increase could have had on population ageing.

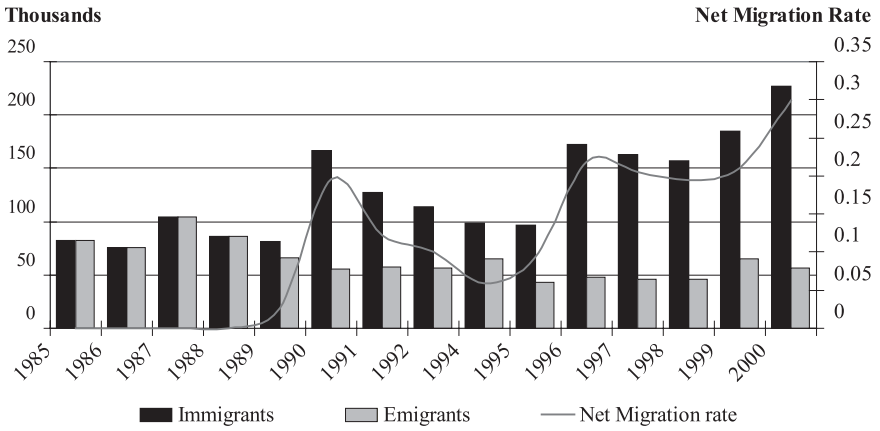
Figure 9.6 Life Expectancy and death rate in Italy, 1950 to 2005.



Data Source: Eurostat Demographic Database.

Finally, the number of immigrants, the number of emigrants and the net migration rate over the period 1985-2000 are plotted in Figure 9.7. While the number of emigrants has remained almost unchanged, the number of immigrants has progressively increased, reaching more than 200,000 units. As a result, net migration flows have boosted from around zero in the late 1980s to more than 170,000 net migrants recorded in 2000. As a consequence, net migration rate jumped from zero to 0.3.

Figure 9.7 Immigrants, emigrants and net migration rate in Italy, 1985-2000.



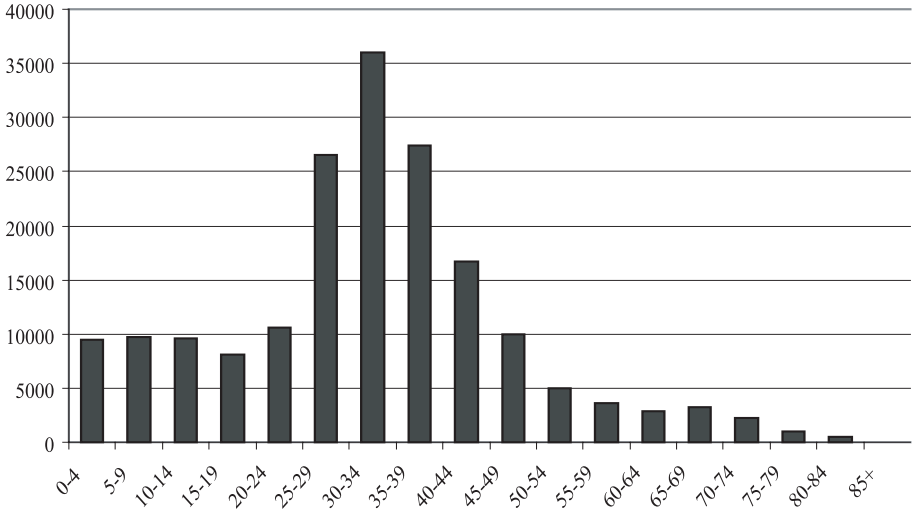
Note: values for immigrants and emigrants (columns) can be read on the left scale; those for the net migrants (line) on the right-hand-side one.
Data Source: Eurostat Demographic Database.

The distribution of immigrants and emigrants by 5-year age-group has been examined for each year of available data (from 1989 to 2000 included). However, since the distribution seems to remain unchanged across all years, in what follows we report only the results referred to the most recent data, i.e. 2000.

As reported in Figure 9.7, net migration typically occurs during working-age: in effect, in 2000 the most conspicuous group of net migrants was aged between 35 and 39 years, and more than 68.5% of all net migrants were between 25 and 50. According to this evidence, the increase in net migration flows recorded in Italy in the last years has mitigated the effects of population ageing by widening the working-age population[6].

6 The mitigating effect that an increased net migration has on population ageing is only temporary. As time goes by in fact immigrants grow older and join the domestic retired population. Additionally, evidence suggests that immigrating households tend to adapt their fertility choices to those of the destination country, thereby cancelling out the initial dampening effect on ageing. On this issue and specifically for Italian case see, among others, Martire and Zincato (2005) and reference therein.

Figure 9.8 Net migrants in Italy in 2000, by 5-year age-classes.



Data Source: Eurostat Demographic Database.

To sum up, in the last 50-year period (restricted to a 15-year period for migration) in Italy: net migration flows have sensibly increased, mortality has undergone only a small decline (death rate has increased but life expectancy has also considerably lengthened) and fertility has recorded a significant drop. Based on this evidence, the reduced fertility is thus recognised as the main determinant for the unique Italian population ageing.

9.3 Ageing and portfolio choices of Italian Households

In this section we present some evidence on the relationship between demographic dynamics and household financial portfolio in Italy. To this end, we first frame our analysis within the existing literature and then we illustrate methodology, dataset and results.

9.3.1. The approach and the literature

In order to test the relationship between demographic changes and household financial portfolio three different approaches are in principle possible: (i) the "explorative approach", in which trends in survey data are analysed and interpreted; (ii) the "econometric approach", which essentially runs time-series or panel data analyses; and (iii) the "simulation approach", which carries out empirical simulations on suitably structured overlapping-generation models. In this paper we take the first approach to depict what has changed so

far in the financial portfolios of Italian households and whether these changes can be traced back to demographic factors.

The literature on the issue is not yet vast and, as far as we know, Guiso and Jappelli (2001) is the only empirical contribution specifically focussed on the Italian case. As a first step, the authors provide a detailed account of Italian household portfolio evolution since the beginning of 1990s, using data from the 1989, 1991, 1993, 1995, 1998 editions of the Bank of Italy Survey of Household Income and Wealth. Next, they try to depict the primary determinants of its composition. The authors group the various financial assets in three main categories: safe (e.g. bank accounts), fairly safe (e.g. T-Bills and similar) and risky (e.g. stocks, long-term government bonds and mutual funds) and use this classification in both the "explorative" and the "econometric" analyses. As for the former, they observe the trends of the portfolio shares invested in each category along the period under analysis and report that the composition of Italian household portfolio has dramatically changed. More specifically, the share of safe and fairly safe assets has reduced from 45.7% to 25% while that of risky assets is higher than ever before: at the beginning of 1990s stocks represented around 16% of total financial wealth while at the end of the decade they represented around 47%. According to the authors, several "macroeconomic" circumstances may have taken part in these changes: the decline in short-term bond nominal yield coupled with the increase of equities returns that characterize the entire 1990s, the liberalization of capital market which encouraged international diversification starting from 1989, the birth of mutual funds in 1984 and the privatisation in 1992 which most likely boosted market capitalization, as well as the social security reforms which fostered the development of life insurances and pension funds. Nevertheless, specific household features, such as wealth, education and age may also have affected these changes in portfolio allocation. Guiso and Jappelli (2001) thus focus on the 1989-1995 period and study whether or not these factors played a role in determining the riskier portfolio allocation. They distinguish between the decision concerning whether or not to hold risky assets, referred to as "participation decision", and the (subsequent) one regarding the final portfolio allocation, named "allocation decision". The authors report that that age, wealth and education may actually have determined the participation decision. As for age in particular, they report hump-shaped profile: the share of people investing in risky assets increases from around 15% of the young (i.e. those aged less than 30) to almost 20% of the middle-aged (between 30 and 59 years old) and then falls once again to around 10% for the 60-69 and to less than 7% for the over-70s. Conversely, the decision concerning the final portfolio allocation seems to be affected by none of these factors. The authors turn then to an econometric analysis based on both cross-sectional and panel data. Both descriptive and regression analyses prove that age, together with

wealth and education, may have a substantial influence on the choice concerning whether or not to invest in risky assets, while once this decision is taken these factors only slightly affect the final portfolio allocation[7].

9.3.2 Methodology

Data span over the 1995 – 2004 decade and are taken from the Historical Archive of the Bank of Italy Survey of Household Income and Wealth (HA-SHIW). Among other things, the dataset offers a detailed picture of the financial portfolio held by the interviewed households, as it provides the amounts (expressed in Italian lira until 2000 and in Euro thereafter) invested in a variety of financial assets.

In order to allow a better comparability across time, we translate amounts into percentages. Furthermore, all the assets are grouped into different classes according to their risk profiles, in order to avoid reporting residual items separately and to allow thus a clearer exposition. In the risk classification, the focus is centred on two kinds of risks only, namely credit risk and market risk.

As for the former, we distinguish two different levels. Specifically, the "Lower" level is assigned to financial assets issued by both the domestic sovereign (i.e. Italian government) and by banks, securities firms and cooperatives, based on the always more stringent supervising regulations introduced by the Basel II Accord and of the several security provisions provided for by the law specifically aimed to make banks and financial systems as safe as possible. The "Higher" level is instead associated to all the assets issued by the remaining agents, basically corporations. Foreign activities are treated separately as the amounts provided by the HA-SHIW are not distinguished by resided and non-residents issuers, so that a more precise credit-risk classification for these assets is not possible.

As far as market risk is concerned, three main forms are considered, i.e.:

- Exchange-rate risk, concerning the foreign activities only
- Interest-rate risk, associated with all bonds securities
- Price risk, associated to stocks and shareholdings

7 Guiso and Jappelli (2001) argue that participation costs, such as minimum investment requirements, transaction and information costs are quite substantial in Italy and may thus interpret these results. Participation costs do not directly change with age; however, only investors who are holding risky assets for a relatively long time will actually face them. Conversely, those who need more liquid assets, i.e. those with a higher probability of liquidating risky assets, will be more reluctant to buy. As a consequence, households with short-term liquidity needs are less likely to buy assets that require fixed entry costs. Typically, households with liquidity needs are either those young facing liquidity constraints or high income variability, or those retired, who face uninsured health risks. In sum, health risk and credit market imperfections, which single out retired and young households respectively, may be at the base of the hump-shaped participation.

In addition, a fourth market-risk category, referred to as "mixed", is created for those kinds of investments where bonds (interest-rate risk) and stocks (price risk) are mixed together (see Table 9.5).

Table 9.5 Financial assets classification, by credit and market risk

Credit \ Market	-	Interest Rate	Mixed	Price	Exchange Rate
Lower	Current accounts Savings deposits Certificate of deposits Postal deposits Cooperative loans	Postal bonds BOT CCT BTP CTZ Other government bonds	REPO Investment Funds Personal asset managements Life insurances Non-life insurances Health insurances Pension Funds		
Higher		Bonds		Stocks SRL shares Partnerships' shares	
-					Foreign Assets

Note: Shaded cells indicate comparable risk-profiles: light grey denotes safer assets, more intense grey indicates fairly safe assets and dark grey gathers the risky ones.

Six main financial-asset groups beside cash are thus identified[8]:

1. DEPOSITS: lower credit risk and no market risk
2. GOVERMENT BONDS: lower credit risk and interest-rate risk
3. CORPORATE BONDS: higher credit risk and interest-rate risk
4. MANAGED INVESTMENTS: lower credit risk and mixed market-risk
5. STOCKS: higher credit risk and price-risk
6. FOREIGN ASSETS: exchange-rate risk

Two observations are in order. First, in the following analyses values for life-insurances and pension funds will be presented separately, as the focus of this study makes their single evolutions particularly interesting. Second,

8 This classification is only indicative as it neglects all the other forms of risk that actually characterize financial assets, such as liquidity risk. On the other hand, a more rigorous classification was not possible because of lack of information. As an example, the risk profiles of government bonds may be high or low depending, among other things, on their time-to-maturity. The data however do not provide any information about the duration of these instruments, so that all government bonds have to be placed in the same risk-class. Nevertheless, this simplification seems consistent with the perceptions of the majority of households, which typically associate a comparable level of risk to all government bonds.

following Guiso and Jappelli (2001) financial assets will be in some cases further grouped in three risk-categories: "clearly safe", "fairly safe" and "risky". Differently from the previous study, clearly safe assets include cash and deposits, fairly safe assets include government bonds and managed investments and risky assets comprise corporate bonds, stocks and foreign activities (see Table 9.5)[9].

The survey data analysis will thus be articulated into three phases.

As a first step, the evolution of the average portfolio of Italian households is observed across all the five waves considered. The aim of this first step is twofold: on one hand, it will highlight the main features of the average Italian household portfolio and in particular its low degree of diversification. On the other, it allows examining whether and to what extent the average allocation of financial wealth has actually changed over the last decade.

In order to depict a possible age-effect on Italian household portfolio, the households are then divided into six age-classes (<30, 30-39, 40-49, 50-59, 60-69 and >70) and for each of them the average portfolio is examined. The placement in the age-classes is made according to the age of the head-of-the-household[10].

Household financial choices are affected by many other elements beside age: among these, the overall economic condition certainly plays a focal role. Based on this observation, we further refine the analysis in Guiso and Jappelli (2001) by dividing the households into both age-classes and Net Wealth (NW) quartiles, whereby NW is defined as the sum of real and financial activities net of the financial liabilities[11]. In this way, the robustness of the age-effect on household financial portfolio is tested even under different economic conditions. In addition, the top 5% richest households are separately studied, in order to see whether the age-effect persists also in extremely favourable economic conditions. Dividing the households into quartiles has a twofold utility. On one hand, it keeps the grouping comparable across time, without requiring adjustments for inflation or for the shift Italian lira - Euro occurred in the middle of the decade under analysis. On the other, it creates four groups with the same sample numerousness, so that statistics computed on household average financial portfolios are all equally statistically significant. In sum, the last step of our analysis consists in examining the average portfolio composi-

9 Further details on the financial asset risk-classification are reported in Appendix.

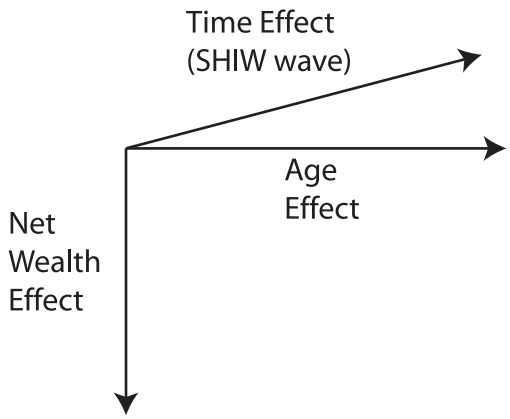
10 According to the HA-SHIW, the head of the household could be either: the person who is the "most responsible of the financial and economic choices of the household" ("declared" definition), the person who earns the highest income ("income" definition), or the person who represents the reference point to establish the relationships among all members of the household ("Eurostat" definition). Here, the first definition is preferred as it is probably the most appropriate for the analyses performed.

11 Alternatively, the "household income" could have been used, defined as the sum of the personal incomes of all the members, including capital and labour income as well as public transfers. Nevertheless, including real activities as well as eventual liabilities, the NW definitely provides a more complete measure of the actual economic condition of the household.

tion of all the interviewed households divided by age-classes and net wealth quartiles and to observe their evolution across the last decade.

The data presented in this phase of the study can be read in three directions (see Figure 9.9): (i) if read "vertically", the data highlight the differences in financial allocations of households belonging to the same age-class but to different NW quartiles; (ii) reading the data "horizontally" allows depicting the possible effect of age on the composition of household financial portfolio, since the compositions are compared across different age-classes but comparable economic conditions; (iii) finally, reading the data "transversally" across the SHIW waves might highlight whether the average portfolio allocation of households of the same age-class and net wealth quartile has modified or not, depicting in this way a possible time-effect. This intertemporal reading can be particularly interesting as it might reveal "indirect" effects of ageing, e.g. those induced by the several radical reforms brought to the social security system during the last decade and called for by the striking ageing of the Italian population.

Figure 9.9 SHIW data: effects depicted by different reading directions.

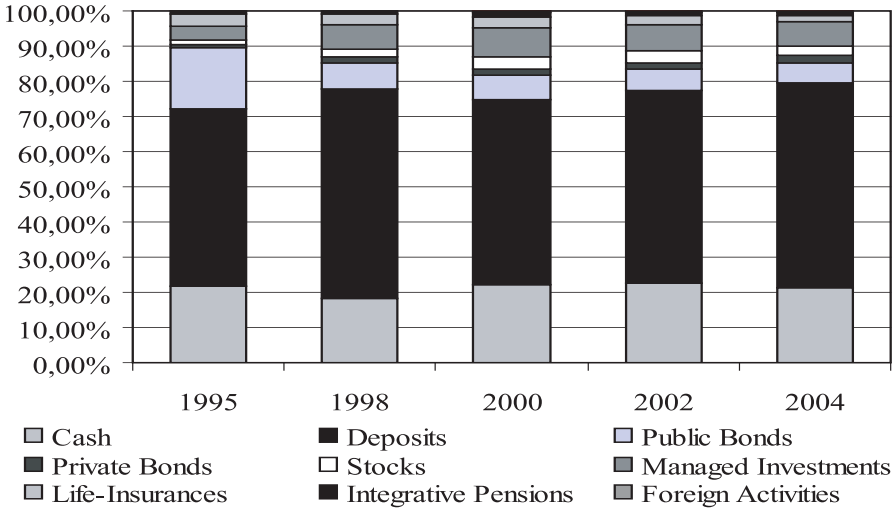


9.3.3 Main results

9.3.3 The Italian household average portfolio in 1995-2004

As a first step, the survey data are used to determine the average portfolio of Italian households in each of the five waves available in the HA-SHIW for the decade 1995-2004. From this preliminary inspection it immediately emerges the scarce degree of diversification of Italian household portfolios: during all the decade in fact Italian households hold on average more than 70% of their financial wealth in cash and deposits (see Figure 9.10).

Figure 9.10 Average Household Portfolio by SHIW wave.



Source: own elaborations on HA-SHIW data.

This peculiarity was already mentioned by Guiso and Jappelli (2001), who for the 1989-1995 period reported that "*the portfolios of Italian households span few assets. A large fraction of the sample holds very few types of financial instruments and tends to concentrate wealth in safe assets*". This observation is thus confirmed also for the decade 1995-2004 (see Table 9.6)[12].

Table 9.6 Households holding liquidity only, by SHIW wave.

	1995	**1998**	**2000**	**2002**	**2004**
Households in sample:	8,126	7,146	7,993	8,011	8,012
Of which holding:					
Cash only:	1158 (14.25%)	875 (12.24%)	1318 (16.49%)	1360 (16.98%)	1286 (16.05%)
Cash and deposits:	3291 (40.49%)	3167 (44.31%)	3867 (48.38%)	4323 (53.96%)	4325 (53.98%)

Data Source: HA-SHIW.

Table 9.7 reports the average shares invested by Italian households in each financial-asset category as from the waves available between 1995 and 2004.

12 Ameriks and Zeldes (2004) perform similar analyses on US household portfolio and discard those units with such a low degree of diversification. As the limited diversification is a typical feature of Italian households' portfolios, in this study all households are kept into the sample in order to get the outline of the average portfolio as realistic as possible.

Table 9.7 Average household portfolio by SHIW, various editions.

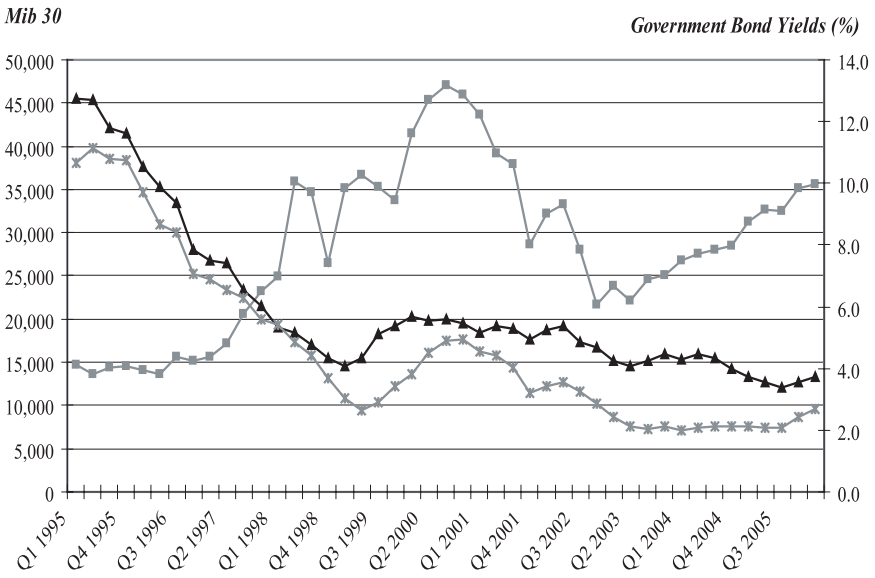
Financial Assets	1995	1998	2000	2002	2004
Cash	21.75	18.15	22.20	22.57	21.12
Deposits	50.41	59.80	52.45	54.90	58.41
Government bonds	17.51	7.43	7.29	5.88	5.88
Corporate bonds	0.83	1.54	1.72	2.07	2.10
Stocks	1.14	2.40	3.49	3.19	2.61
Managed Investments	4.20	6.95	8.22	7.46	6.78
Life-Insurances	3.14	2.67	2.88	2.65	1.79
Pensions Funds	0.97	0.91	1.49	0.99	1.03
Foreign Activities	0.10	0.14	0.25	0.29	0.28
Total	100.0	100.0	100.0	100.0	100.0

Note: for each asset group, the table reports the share over total financial assets. Shares are computed as weighed averages using sample weights as from HA-SHIW.

Several observations are here in order. First, the share of cash has remained almost unchanged over the entire decade (around one fifth of the average portfolio). By contrast, the incidence of government bonds has drastically reduced: in 2004 their share was only one third of the average value observed a decade before. Most likely, this change can be ascribed to the drastic reduction of Italian government bonds yields: in 1995 yields on short-term and long-term government bonds were respectively 10.7% and 12.7%, four years later they were respectively 2.7 and 3.7 and, after a first recover around 2000-2001, both kept gradually decreasing during all the following years(see Figure 9.11). On the other hand, investments in corporate bonds have progressively increased, especially starting from 1998. The privatization process in this case might have played an important role: although started in 1992, in effect, the peak of privatizations occurred at the end of 1990s[13].

13 For more details on the Italian major privatizazion see, among others, Goldstein (2003).

Figure 9.11 Mib30 and Government Bonds Yields over 1995-2005.



Note: values for Mib30 (left scale) are in index points while government yields (right scale) are percentages.
Data Source: Datastream

Survey data also prove that the average investment in stocks has undergone several changes, which in large part occurred according with the major market fluctuations of the last decade. Stock share has progressively increased until 2000, up to more than doubling in 5-year time, and then it has shrunk again, along with the contraction of Italian stock market (see Mib30 trend in Figure 9.11).

The same holds for managed investments, whose share increased from 4.2% in 1995 to 8.22% in 2000 and then shrunk back to 6.78% in 2004, although their weight has overall increased during the last decade.

As far as precautionary savings are concerned, survey data highlight how the share invested in life-insurances has progressively reduced (from 3.14% in 1995 to 1.79% in 2004). The average share of pension funds shows instead a particular increase around 2000: in fact, although they were introduced by the Dini Reform in 1995, they were enforced by appropriate laws only a couple of years later. Nevertheless, the launch of this form of complementary social security does not seem to have worked particularly well in Italy: after the initial increase, the pension fund share has reduced back to around 1%, i.e. the very same value recorded in the year of their introduction. Furthermore, although during the last decade the gap between life insurances and pension

funds has progressively thinned, the former are still somehow preferred with respect to the latter.

9.3.3.2 The average portfolio by age

Tables 9.8 to 9.12 report the average Italian household financial portfolios by age-class for every wave available for the last decade in the HA-SHIW.

Table 9.8 Average portfolio by age-class, 1995.

	<30	30-39	40-49	50-59	60-69	>70
Cash	19.18	18.06	16.17	17.08	24.28	32.67
Deposits	58.45	52.55	50.20	51.59	47.18	48.96
Government bonds	11.01	15.35	18.59	18.96	21.05	14.98
Corporate bonds	0.84	0.65	0.94	0.99	0.92	0.62
Stocks	0.32	1.04	1.11	2.06	1.00	0.64
Managed Investments	5.01	5.75	5.62	4.67	3.52	1.57
Life-Insurances	3.53	4.97	5.48	3.51	1.57	0.38
Pension funds	1.66	1.59	1.73	0.96	0.42	0.11
Foreign Activities	0.00	0.04	0.17	0.16	0.06	0.08
	100.00	100.00	100.00	100.00	100.00	100.00

Table 9.9 Average portfolio by age-class, 1998.

	<30	30-39	40-49	50-59	60-69	>70
Cash	16.78	12.27	13.70	14.93	20.62	27.47
Deposits	67.09	62.02	61.08	59.81	56.31	58.67
Government bonds	3.23	5.42	7.43	7.82	9.26	7.79
Corporate bonds	2.49	1.84	1.54	1.42	2.06	0.86
Stocks	0.94	2.83	2.79	3.12	2.31	1.43
Managed Investments	4.93	8.73	7.85	8.79	7.47	3.13
Life-Insurances	3.79	4.57	4.04	3.04	1.48	0.52
Pension funds	0.76	2.05	1.42	0.87	0.41	0.08
Foreign Activities	0.00	0.28	0.15	0.21	0.07	0.06
	100.00	100.00	100.00	100.00	100.00	100.00

Table 9.10 Average portfolio by age-class, 2000.

	<30	30-39	40-49	50-59	60-69	>70
Cash	26.03	18.02	20.09	21.02	22.68	27.04
Deposits	47.28	55.31	53.40	50.64	50.83	53.34
Government bonds	5.61	5.93	6.65	8.04	8.64	7.30
Corporate bonds	0.93	1.92	1.80	1.91	2.30	1.00
Stocks	5.09	4.00	3.96	4.08	2.95	2.38
Managed Investments	9.02	8.38	8.19	9.61	8.86	6.28
Life-Insurances	3.11	3.83	3.90	2.88	2.33	1.77
Pension funds	2.38	2.30	1.71	1.52	1.22	0.77
Foreign Activities	0.56	0.31	0.31	0.30	0.18	0.11
	100.00	100.00	100.00	100.00	100.00	100.00

Table 9.11 Average portfolio by age-class, 2002

	<30	30-39	40-49	50-59	60-69	>70
Cash	26.77	18.86	16.87	19.14	21.54	33.17
Deposits	57.45	58.13	56.73	52.99	55.61	51.54
Government bonds	3.43	3.97	4.42	7.09	7.48	6.76
Corporate bonds	1.65	1.64	2.04	2.81	2.24	1.76
Stocks	1.15	4.09	4.19	3.59	3.61	1.29
Managed Investments	4.49	6.72	9.03	10.26	7.92	4.48
Life-Insurances	4.32	4.37	4.59	2.66	0.97	0.71
Pension funds	0.74	1.83	1.61	1.28	0.30	0.17
Foreign Activities	0.00	0.39	0.52	0.18	0.33	0.12
	100.00	100.00	100.00	100.00	100.00	100.00

Table 9.12 Average portfolio by age-class, 2004.

	<30	30-39	40-49	50-59	60-69	>70
Cash	22.37	15.91	19.36	16.29	22.22	29.00
Deposits	66.41	63.96	58.85	57.96	54.40	56.07
Government bonds	2.27	3.80	4.87	7.39	6.11	7.42
Corporate bonds	1.04	1.80	1.88	2.34	3.09	1.80
Stocks	0.27	1.97	3.43	3.16	3.58	1.62
Managed Investments	4.32	7.12	7.28	8.68	8.83	3.63
Life-Insurances	1.25	3.64	2.42	2.16	1.08	0.27
Pension funds	2.07	1.60	1.62	1.28	0.51	0.11
Foreign Activities	0.00	0.20	0.28	0.73	0.17	0.08
	100.00	100.00	100.00	100.00	100.00	100.00

With no exception, the average shares invested in each asset category vary across the age-classes according with the risk-attitude changes suggested by the life-cycle theory. More specifically, the shares invested in the safest assets (i.e. cash and deposits) are particularly high for both very young and very old households: the former having not yet accumulated wealth enough to afford a more diversified portfolio, the latter preferring less risky and more liquid assets to finance their retirement consumption. In addition, as households grow older the weights of government bonds tend to increase constantly, proving that older generally prefer fairly safe rather than risky assets.

Conversely, the path followed by corporate bonds across the age-classes is humped-shaped: their shares are smaller in both young- and older-household portfolios and higher in those of middle-aged. The age-effect is even more evident when even riskier financial activities are considered, namely stocks and foreign assets. The latter in fact appear in the financial portfolios of middle-aged household only. Similarly, the shares invested in stocks are almost negligible in younger-household portfolios, peak instead in those of late-middle-age households, and shrink once again when the households reach the retirement age. The sole exception occurs in 2000, when the highest share invested in stocks does not belong to middle-aged rather to households aged 30 or less. The exceptional boom experienced by the Italian stock market in those years may have fostered the investments in these kinds of assets both at a general level and specifically for very young households.

Especially in the last years, managed investments seem to be the investment preferred by any age-class. They in fact provide a good compromise for the younger households and their typical trade-off between a higher risk-tolerance and a lower level of available wealth. On the other hand, the high diversification that they offer makes them quite appealing also to middle-aged households. Overall their shares gradually decrease only with the retirement age and in three out of five waves (i.e. 1990, 2000 and 2004) their average shares reduce substantially only in the very last age-class.

Life insurances and pension funds are particular forms of managed investments. Their specific precautionary motive however affects substantially their distribution across the different age-classes: their weights are in fact larger for young and middle-aged households and lower for older ones, who receive from rather than pay out contributions to these instruments. Besides, the predominance of life insurances on pension funds is generally maintained: with the sole exception of households aged 30 or less in 2004 life insurance shares can be from 2 to 5 times those of pension funds, although the gap between the two forms of precautionary savings has significantly reduced in the last years.

In sum, the data provide evidence in favour of the life-cycle theory over the whole past decade. Risky assets are in fact preferred by middle-aged

investors while older households tend to disinvest risky financial instruments, abandon specifically focussed managed investments, such as life insurances and pension funds, and turn to less risky assets, such as government bonds and liquidity. Thus, despite the numerous changes occurred in the last decade (e.g. the reduced profitability of both government bonds and deposits or the big fluctuations of the Italian stock market), the financial choices of Italian households seem to have kept consistent with the life-cycle theory, thereby proving the very important effect of age on the household financial choices.

Our results are not directly comparable with Guiso and Jappelli (2001). In fact, when analysing the age-effect on portfolio the authors pool 1989-95 data and focus on risky assets sorted according to their classification. Nevertheless, the conclusion drawn is fully consistent with what observed by Guiso and Jappelli (2001), who report that "Over the life cycle the unconditional share of risky assets has a hump-shaped profile".

Combining this conclusion with the facts on Italian population ageing presented in the previous section, for the next decades one may expect a progressive but substantial shift from risky assets towards safer ones.

9.3.3.3 The average portfolio by age and Net Wealth

The last step of our study aims to take into account one of the aspects that, besides age, most significantly affect the final household portfolio: its overall economic situation, here measured by means of the Net Wealth (NW).

Tables 9.13 and 9.14 report the average household portfolios by net wealth quartile and age-classes for 1995 and 2004 wave respectively[14].

As expected, NW plays a focal role in household portfolio choices. The average financial portfolio of households below the first NW quartile has quite low degrees of diversification and riskyness. In 1995, at all age-classes more than 80% of financial wealth was held in pure liquidity, i.e. cash and deposits. The remaining 20% was invested mainly in government bonds and, to a lesser extent, in managed investments and precautionary savings, i.e. life insurance and pension funds. The same holds for 2004, whereby the only difference is that managed investments (around 3-4% depending on the age-class) tend to prevail on government bonds (2-3%). Riskier activities such as corporate bonds, stocks and foreign activities generally remain outside these portfolios. Most likely, the financial choices of households in the first NW quartile are mainly shaped by the financial constraints they face, which force them towards very safe and liquid financial activities.

Turning households falling within the two central quartiles, both the average degree of diversification and riskyness progressively increase. In both

14 The intermediate waves have also been examined and generally lead o very similar conclusions. Missing tables are available upon request.

waves reported the aggregate share of cash and deposits reduces of around 10 percentage points. Conversely, both government and corporate bonds become more relevant: note however that while in 1995 government bonds were also the 18-20% of the total financial wealth, in 2004 they merely reach 6-8%.

The incidence of managed investments also increases in the intermediate household portfolios, reaching for younger households peaks of 8% in 1995 and of 11% in 2004. Besides, the weight of the precautionary savings increases too: in both waves in fact, the aggregate share of life insurances and pension funds increases by a couple of percentage points with respect to the first quartile. Nevertheless, two important differences arise comparing data for 1995 and those for 2004: first, the gap between the average shares of life-insurances and pension funds has generally reduced; second, the aggregate share of these two forms of complementary social security has overall reduced (from around 6-7% in 1995 to no more than 3-4% in 2004).

The highest degrees of diversification and riskyness are displayed by the portfolios of households above the third quartile. Financial resources are in this case drained from totally safe activities, i.e. cash and deposits, and directed instead towards riskier activities, such as stocks, whose shares for the first time go beyond the 2%. Yet, managed investments are those that generally increase the most moving upward across NW, reaching for richer households also 10-14% of the total financial wealth. Finally, note that the relative weights of life insurances and pension funds turn back to be unbalanced: across the whole decade in fact richer households seem to prefer life-insurances to pension funds.

Guiso and Jappelli (2001) also examined the wealth-effect on portfolio. However, they sort households into wealth (financial plus non-financial activities) rather than NW quartiles. Accordingly, they include into the portfolio also non-financial assets. On the other hand, they focus only on the effect of wealth, while in this step of our analysis portfolios are examined distinguishing by both NW quartile and age-class. Hence, a straight comparison is not really feasible. Yet, the evidence found is qualitatively consistent: financial allocation is affected by the level of wealth and, in particular, the wealthier the household, the riskier and more diversified the portfolio.

The "horizontal" reading of the data highlights how, despite the observed discrepancies due to different economic conditions, age can still have a relevant effect on the allocation of household financial wealth (see Figures 9.12 and 9.13).

Table 9.13 Average portfolio by Net Wealth quartile and age-class, 1995. Data Source: HA-SHIW.

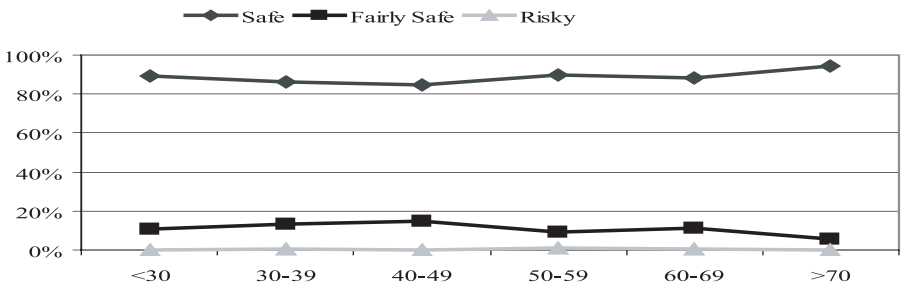
Quartile	Assets	<30	30-39	40-49	50-59	60-69	>70
Below 1st	Cash	28,19	35,84	35,26	41,60	47,23	47,37
	Deposits	61,21	50,43	49,53	48,04	41,24	46,89
	Government bonds	5,29	5,02	5,73	3,94	8,01	5,03
	Corporate bonds	0,00	0,29	0,00	0,17	0,00	0,00
	Stocks	0,00	0,07	0,20	0,85	0,37	0,00
	Managed Investments	1,96	1,53	2,00	2,21	0,72	0,61
	Life-Insurances	2,68	5,59	4,90	2,55	1,79	0,10
	Pension funds	0,67	1,23	2,38	0,63	0,64	0,00
	Foreign Activities	0,00	0,00	0,00	0,00	0,00	0,00
Between 1st and 2nd	Cash	18,86	14,81	19,67	24,77	32,38	36,51
	Deposits	44,02	54,31	52,62	52,79	50,07	45,32
	Government bonds	18,51	17,82	16,86	14,72	13,65	15,35
	Corporate bonds	3,58	0,60	0,15	1,36	1,27	0,78
	Stocks	0,36	1,13	0,13	0,14	0,16	0,69
	Managed Investments	8,55	4,82	2,50	1,66	1,07	1,19
	Life-Insurances	2,80	5,11	6,77	4,10	1,33	0,15
	Pension funds	3,32	1,31	1,31	0,47	0,07	0,02
	Foreign Activities	0,00	0,08	0,00	0,00	0,00	0,00
Between 2nd and 3rd	Cash	10,17	10,14	11,55	12,25	14,27	18,42
	Deposits	67,80	55,81	52,75	57,45	56,51	59,19
	Government bonds	9,99	19,74	20,67	19,57	24,07	18,92
	Corporate bonds	0,13	0,84	1,12	0,65	0,47	0,18
	Stocks	0,67	1,07	1,06	1,88	0,30	0,70
	Managed Investments	4,81	5,93	6,21	3,16	2,70	1,38
	Life-Insurances	4,53	4,62	5,05	3,47	1,02	0,59
	Pension funds	1,89	1,85	1,54	1,40	0,65	0,41
	Foreign Activities	0,00	0,00	0,06	0,17	0,01	0,22
Above 3rd	Cash	2,85	6,35	5,01	5,48	7,63	7,13
	Deposits	57,77	49,33	47,84	50,12	43,54	49,56
	Government bonds	20,45	21,97	27,38	27,92	35,65	34,97
	Corporate bonds	0,00	1,06	1,05	1,13	1,65	1,36
	Stocks	1,03	2,15	1,79	2,82	1,45	1,38
	Managed Investments	10,42	12,61	9,75	7,76	7,48	3,73
	Life-Insurances	5,27	4,11	4,82	3,55	1,98	1,61
	Pension funds	2,20	2,29	1,81	1,07	0,41	0,17
	Foreign Activities	0,00	0,13	0,55	0,15	0,21	0,09

Table 9.14 Average portfolio by Net Wealth quartile and age-class, 2004. Data Source: HA-SHIW.

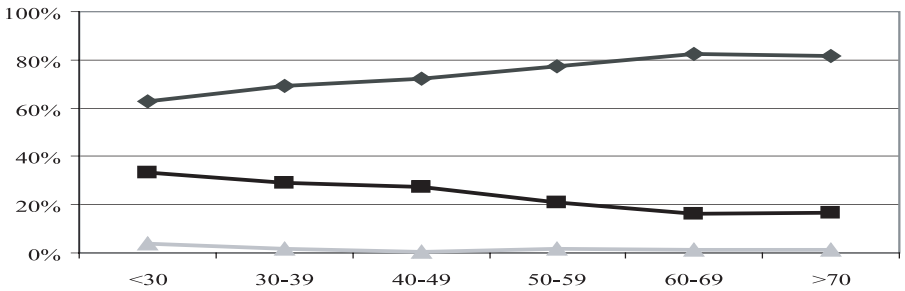
Quartile	Assets	<30	30-39	40-49	50-59	60-69	>70
Below 1st	Cash	29.32	25.82	35.48	35.06	45.34	38.65
	Deposits	59.40	61.40	55.52	55.31	47.49	56.18
	Government bonds	3.07	1.82	1.76	2.80	1.99	3.07
	Corporate bonds	0.00	1.18	0.29	0.03	1.16	0.14
	Stocks	0.00	1.39	0.64	0.24	0.54	1.17
	Managed Investments	3.94	4.32	4.09	3.29	2.38	0.70
	Life-Insurances	0.87	3.05	1.43	2.34	0.76	0.04
	Pension funds	3.39	0.99	0.80	0.84	0.34	0.06
	Foreign Activities	0.00	0.03	0.00	0.09	0.00	0.00
Between 1st and 2nd	Cash	16.60	9.75	18.17	20.74	26.71	35.30
	Deposits	73.26	75.42	63.64	61.85	55.68	54.10
	Government bonds	0.63	2.89	3.81	7.45	4.89	7.10
	Corporate bonds	2.40	1.20	1.80	0.67	2.83	0.60
	Stocks	0.12	1.24	1.26	0.50	1.29	0.97
	Managed Investments	4.23	5.22	6.02	5.52	7.08	1.76
	Life-Insurances	1.84	2.07	3.30	1.51	1.13	0.09
	Pension funds	0.92	2.18	1.60	1.50	0.18	0.04
	Foreign Activities	0.00	0.02	0.40	0.25	0.22	0.04
Between 2nd and 3rd	Cash	21.89	9.48	15.77	12.70	15.82	24.38
	Deposits	72.17	63.48	61.50	64.89	60.45	59.04
	Government bonds	0.26	6.92	7.06	6.78	6.93	8.30
	Corporate bonds	0.52	1.54	1.96	2.43	2.73	2.11
	Stocks	1.28	1.50	2.75	2.52	4.18	0.71
	Managed Investments	2.97	11.03	6.05	6.86	7.64	4.71
	Life-Insurances	0.09	3.53	2.34	2.24	1.15	0.44
	Pension funds	0.82	1.95	2.17	1.48	0.94	0.23
	Foreign Activities	0.00	0.58	0.39	0.10	0.17	0.09
Above 3rd	Cash	13.17	13.27	7.80	6.80	10.13	12.12
	Deposits	72.50	54.41	56.12	53.82	56.00	58.83
	Government bonds	1.94	4.80	6.37	11.13	9.10	11.78
	Corporate bonds	0.09	4.59	2.98	4.24	4.44	4.90
	Stocks	0.00	3.50	8.75	4.89	5.60	3.44
	Managed Investments	7.98	10.63	12.70	14.36	12.91	7.75
	Life-Insurances	3.08	6.60	2.97	2.42	1.00	0.83
	Pension funds	1.23	1.76	1.87	1.16	0.63	0.09
	Foreign Activities	0.00	0.45	0.44	1.19	0.19	0.27

Figure 9.12 Asset shares grouped by riskyness, by NW quartiles and age-class, 1995

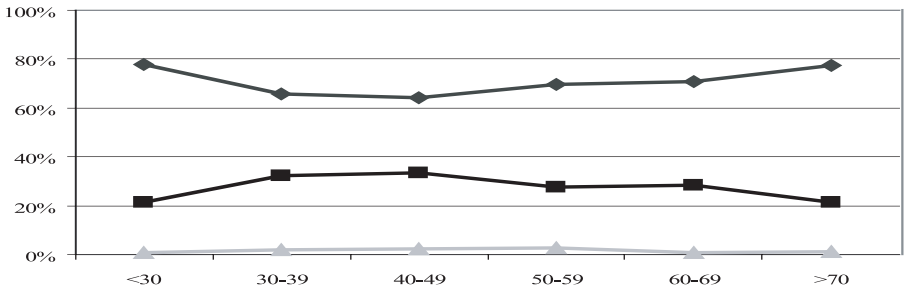
Below 1st quartile



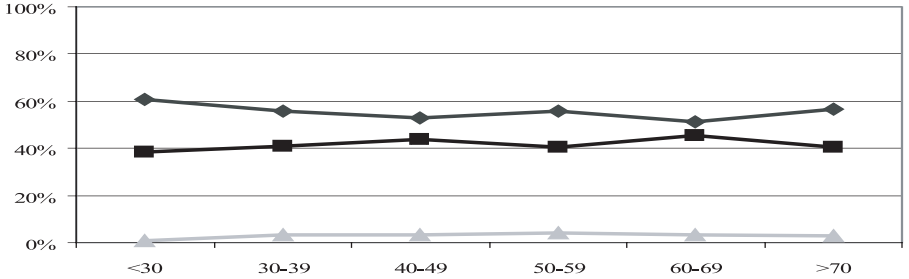
Between 1st and 2nd quartile



Between 2nd and 3rd quartile



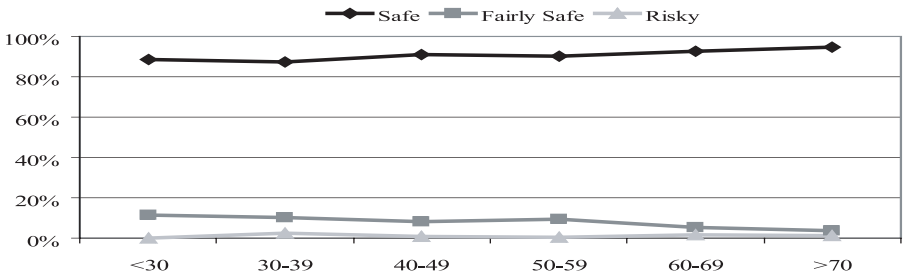
Above 3rd quartile



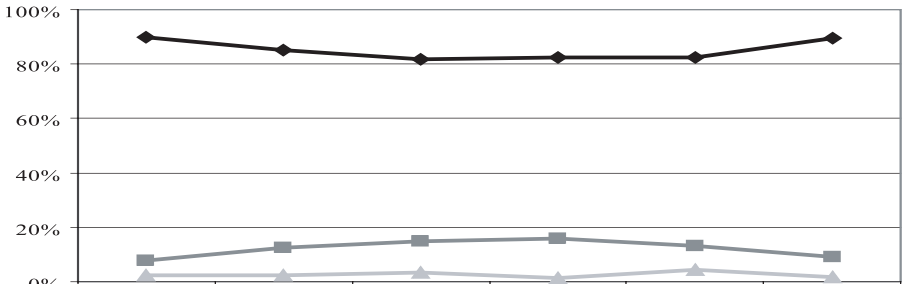
Source: own elaborations on HA-SHIW.

Figure 9.13 Asset shares grouped by riskyness, by NW quartiles and age-class, 2004

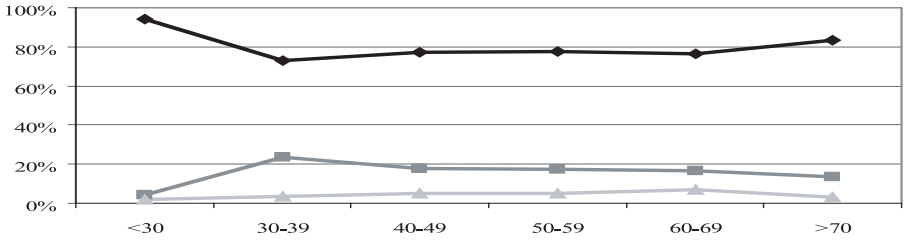
Below 1st quartile



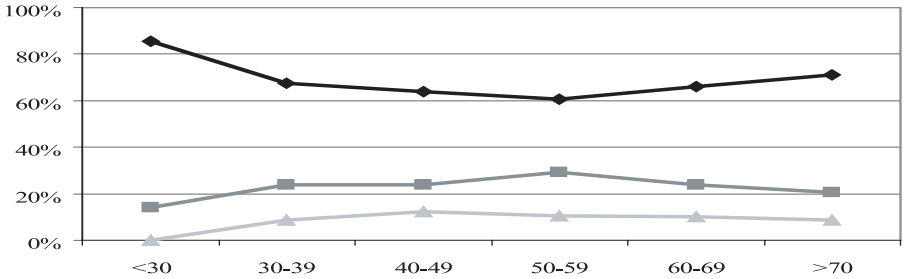
Between 1st and 2nd quartile



Between 2nd and 3rd quartile



Above 3rd quartile

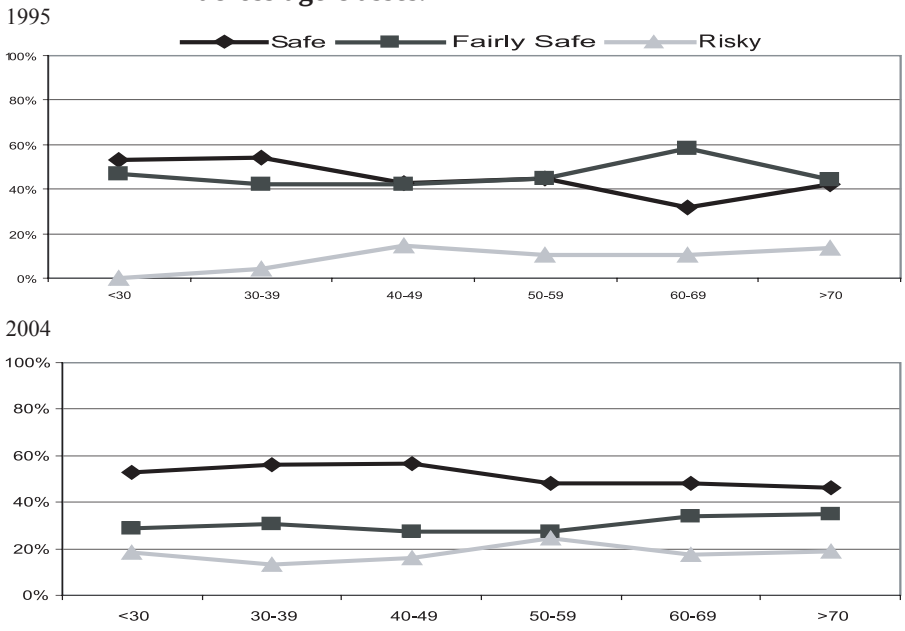


Source: own elaborations on HA-SHIW.

In both waves and regardless of the NW quartile, the aggregate share of the cash and deposits (safe assets) undergoes a decline during the middle-age, when resources are generally drained from safer assets to finance riskier and more rewarded investments. As from the retirement age-class (60-69) however the weights of safe assets progressively increase. Consistently, the aggregate shares of riskier activities, such as corporate bonds, managed investments, stocks and foreign activities display a humped-shaped pattern. On the other hand, the average shares held in government bonds gradually increases along with the age-class, substantiating the stronger preference of these assets by older rather than younger households.

A separate situation arises instead for the top 5% richer households (see Table 9.15 and Figure 9.14). Their average portfolio does not reflect the predictions of life-cycle theory. As the household grows older cash, deposits and government bonds reduce rather than increase. Furthermore, corporate bond share behaves irregularly: in 1995 they literarily boost in the portfolios of households aged 70 or more, and in 2004 they first drop between the first and second age-class and then progressively increase along with age. In addition, the shares of managed investments and stocks remain quite high during the whole life-cycle and do not significantly shrink with the retirement age.

Figure 9.14 Top 5% households: asset shares grouped by riskyness across age-classes.



Source: own elaborations on HA-SHIW.

Table 9.15 Top 5% richer households: average portfolio of by age-class in 1995 and 2004.

1995	<30	30-39	40-49	50-59	60-69	>70
Cash	1.11	3.87	5.64	3.68	1.80	2.34
Deposits	51.76	50.21	37.13	41.23	29.72	39.85
Government bonds	24.75	20.67	21.66	27.55	40.48	31.41
Corporate bonds	0.00	0.34	7.61	2.18	1.90	7.44
Stocks	0.00	3.65	6.90	7.45	8.18	5.32
Managed Investments	11.92	14.03	11.23	12.12	14.51	12.33
Life-Insurances	10.45	6.83	7.66	3.77	2.81	0.38
Pension funds	0.00	0.40	1.90	1.10	0.35	0.03
Foreign Activities	0.00	0.00	0.28	0.93	0.25	0.90
2004	**<30**	**30-39**	**40-49**	**50-59**	**60-69**	**>70**
Cash	3.00	1.93	3.67	3.55	6.84	2.45
Deposits	49.79	54.21	53.07	44.55	41.49	43.72
Government bonds	23.89	8.74	8.42	6.61	8.72	17.39
Corporate bonds	17.18	1.82	5.82	5.99	6.06	9.62
Stocks	1.38	11.19	10.04	14.45	11.19	9.05
Managed Investments	1.87	11.42	14.53	16.75	23.31	16.93
Life-Insurances	0.20	9.67	2.09	2.49	1.87	0.10
Pension funds	2.68	1.02	2.25	1.42	0.16	0.51
Foreign Activities	0.00	0.00	0.10	4.19	0.36	0.22

Data Source: HA-SHIW

Most likely, for these households the net-wealth effect more than overcomes that of age on financial assets allocation. As highlighted by Table 9.16 in fact the NW of these households is extremely high: falling within the top 5% in 1995 (2004) meant have a NW of almost ITL 950m (EUR 700,000).

Table 9.16 Net wealth quartiles boundaries, by SHIW wave.

Quartile	1995	1998	2000	2002	2004
I	29.871.950	41700	50.500	23.000	30.500
II	157.993.890	181.232.370	197.204.440	108.500	138.026,37
III	335.224.250	353.075.000	380.000	215.814,76	262.813,22
Top 5%	936.125.840	1.005.278.240	1.100.100	589.965,62	689.105,05

Note: values up to 2000 are expressed in Italian lira while those for 2002 and 2004 are in Euro.
Data Source: HA-SHIW.

In sum, with the sole exception of top 5% richer households, for which most likely financial choices are mainly shaped by net-wealth rather than age, the average composition of Italian household portfolios seems to be significantly influenced by age. Furthermore, the evidence suggests a double robustness of this result. On one hand, age-effect on financial asset allocation is maintained even under significantly different economic conditions, as it is observed across all the Net Wealth quartiles examined. On the other, it has endured through time despite the numerous changes occurred on the Italian financial market during the last decade, since the influence of age on the average portfolio is revealed by all the waves considered.

9.4 Conclusions

This paper focuses on the dynamics of population ageing in Italy and on its impact on the household portfolio allocation, with the final aim to provide indications about the evolutions that the Italian financial markets may face in the years to come. The analysis has been carried out in two steps.

First, we examined the phenomenon of ageing in Italy and its main causes. It turned out that Italian population is undergoing the most pronounced ageing in the world after Japan (projections for 2050 point towards the amazing picture of 75 retired every 100 working people) and that it probably stems from a drop in fertility.

Based on this, we turned to the effects that ageing might have on the average portfolio of Italian households. As in Guiso and Jappelli (2001) data are taken from five waves of the Bank of Italy SHIW. As highlighted in the paper, this study differs from Guiso and Jappelli (2001) in three extents: (i) a subsequent period of time is considered; (ii) a different risk-classification of financial assets is proposed; and (iii) the analysis is refined by separating households into age-classes and Net Wealth quartiles at a time, thereby testing the robustness of age-effect on financial choices under different economic conditions. Going throughout the average portfolio allocation it emerged that several changes occurred over the period 1995-2004: government bond share reduced while corporate bonds have generally increased, especially since 1998. Most likely, the reduction of Italian government bonds yields on one hand and the privatization process on the other might be at the basis of these portfolio adjustments. Besides, while the incidences of stocks and managed investments have in large part oscillated according to the major market fluctuations of the last decade, life-insurances and pension funds have recorded constant but opposite trends: the former have shrunk in favour of the latter, thereby reducing (but not annulling) the gap between the two forms of complementary social security.

Examining the average portfolio by age-classes it turned out that the

average shares invested in each asset category tend to be consistent with the risk-attitude changes suggested by the life-cycle theory. Middle-aged households hold riskier portfolios, while older ones tend to disinvest risky financial instruments and turn to safer assets, such as government bonds and liquidity. Thus, the financial choices of Italian households remained significantly affected by age despite the numerous changes occurred between 1995 and 2004. Although the results obtained here are not directly comparable with that reported by Guiso and Jappelli (2001), a comparison with their results is in order. On the whole, the evidence found is qualitatively consistent, although a few differences in the average allocations emerge. Generally, in fact, Guiso and Jappelli (2001) report shares for cash remarkably lower than ours (up to 10 percentage points); on the contrary, they generally report as higher life-insurances shares.

Finally, the average portfolio is further examined dividing the Italian households by both age-classes and NW quartiles, in order to take into account also the influence that the overall economic condition of the household has on its financial choices, which was already observed by Guiso and Jappelli (2001). With the sole exception of extremely rich households (i.e. top 5% richer ones), the age-effect seems to persist even under significantly different economic conditions. We thus conclude that the age-effect on financial choices seems to be robust to both different economic situations and to the market changes occurred during the decade under analysis.

Combining this conclusion with the facts on Italian population ageing, we expect for the next decades several changes on the Italian financial market. In particular, it is likely a progressive but substantial shift from risky assets, such as stocks and corporate bonds, towards safer ones, i.e. managed investments, government bonds and deposits.

Unfortunately, a more precise forecast on what is going to happen can not be obtained from this kind of analyses. Probably, an "econometric" approach, such as that taken by Poterba (2004) or Davis and Li (2003) would be more appropriate to complete our analysis. In fact, it could help to assess quantitatively the relationship between demographic and household portfolios changes and thus to estimate how the projected demographic structures might modify future financial asset returns. This issue is thus left to further research.

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Appendix 9.1 Clearly safe, fairly safe and risky financial assets.

In analysing the composition of Italian household portfolio over the period 1985-1998, Guiso and Jappelli (2001) find it useful to group financial assets according to their risk-profile. In particular, they distinguish: (i) "clearly safe" financial assets, including currency, transaction accounts and certificates of deposit; (ii) "fairly safe" financial assets, gathering Treasury bills and the life insurances; and (iii) "risky" assets, including stocks, long-term government bonds, corporate bonds, defined contribution pension plans, mutual funds and other forms of managed investments.

Here, a different sorting is proposed. In Table 9.A.1 we recall the six major categories attained by joining together assets sharing similar credit and market risks (see Section 9.3.2) and shade the cells to indicate the three different risk-profiles: light grey denotes "totally safe" assets, more intense grey "fairly safe" assets and dark grey "risky" assets.

Table 9.A.1 Financial assets groups, by credit and market risk.

Market / Credit	-	Interest Rate	Mixed	Price	Exchange Rate
Lower	Cash and Deposits	Government Bonds	Managed Investments		
Higher		Corporate Bonds		Stocks	
-					Foreign Assets

Cash and Deposits are considered "totally safe" because both are subject to a relatively lower level of credit risk and are free of market risk, whereby the latter is intended as the risk of changes in price and thus disregards the risk of a change in the interest rates at a macroeconomic level. Government Bonds and Managed Investments are instead gathered into the "fairly safe" group, given that the credit risk is still relatively lower but they also are subjected to some forms of market risk. The three remaining categories are grouped together and referred to as "risky", as they are either subjected to a relatively higher credit risk (corporate bonds and stocks) or exposed to exchange rate risk (foreign assets).

Table 9.A.2 Risk-categories of financial assets: comparison.

	Guiso and Jappelli (2001)	Common	This Study
Clearly safe		Currency	
		Transaction accounts	
		Certificate of deposits	
Fairly safe		Short-term government bonds	Long-term government bonds
		Life-insurances	Investment funds and non-life insurances
			Integrative pensions
Risky	Long-term government bonds	Stocks	
	Investment funds and non-life insurances	Corporate bonds	
	Integrative pensions	Foreign assets	

Two are the main differences between the alternative classifications. First, long-term government bonds are here moved from the risky to the fairly safe category. As argued by Guiso and Jappelli (2001), "*the large and increasing*

government debt leads investors to attach a non-zero probability of default even on short-term government bonds. But this has changed after the dramatic fiscal stabilization started in 1996". Based on this reduced risk-profile, the shift from risky to fairly safe assets appears reasonable. Second, while Guiso and Jappelli (2001) isolate life-insurances into the fairly safe category and gathered all the remaining managed investments in the risky one, here all forms of managed investments are classified as fairly safe. Aggregate data split life-insurances from other kinds of insurances, including pension funds, only starting from 2003: a separate treatment for two forms of complementary social security is thus unfeasible. Furthermore, the choice of Guiso and Jappelli (2001) stemmed from the observation that "*until 1995 […] most funds were in stocks*". However, they admit that "*the availability of a large number of money market and balanced funds in the late '90s tends to blur our definition*". Hence, also considering the high diversification that typically characterises managed investments, they are here classified as fairly safe.