Università degli Studi di Modena e Reggio Emilia
Dipartimento di Economia Politica

Materiali di discussione

\\ 545\\

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on Portfolio Choices in Italy

by

Marianna Brunetti*
Costanza Torricelli**

November 2006

Università di Modena e Reggio Emilia
Dipartimento di Economia Politica
Via Berengario, 51
41100 Modena, Italy
*   e-mail: brunetti.marianna@unimore.it
**   e-mail: torricelli.costanza@unimore.it

The Effect of Population Ageing on Household Portfolio Choices in Italy

Marianna Brunetti, Costanza Torricelli

University of Modena and Reggio Emilia and CEFIN*

brunetti.marianna@unimore.it, torricelli.costanza@unimore.it

Abstract

Based on widely accepted evidence on the exceptional ageing of the Italian population, this paper aims to assess the impact of ageing on household portfolios in Italy and hence ultimately on financial markets. To this end, we use data taken by the Bank of Italy Survey of Household Income and Wealth (SHIW) over the last decade and we analyse the average household portfolio in relation to demographic characteristics. In contrast to some results reported in the literature for the US, we find that financial choices of Italian households are sensibly affected by age. It follows that the exceptional ageing of the population in Italy is going to have relevant consequences on the Italian financial market.

December 2006

JEL: D1, D91, J11

Keywords: population ageing, financial assets, household portfolio, survey data

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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 (e.g. Fornero and Luciano, 2006). 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.[1] Part of this empirical literature has focussed on the effects that demographic dynamics might have at a macroeconomic level (i.e. on growth or savings and interests rates): among others see Miles (1999), Visco (2002) and Oliveira Martins et al. (2005) and Visco (2005). On the other hand, a particular strand of the empirical literature has focussed on the effects that ageing may have on financial asset returns and portfolio allocations: see, e.g., Yoo (1994), Brooks (2000, 2002), Baldini and Onofri (2001), Davis and Li (2003), Ameriks and Zeldes (2004), Geanakoplos et al. (2004), Goyal (2004) and Poterba (2001, 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 of these studies 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 simply analyses and interprets trends in survey data; (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. As for the results, while some authors report significant effects of ageing on financial markets (e.g Yoo, 1994), others find evidence of 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,

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[1] An extensive overview of this literature is provided by Bosworth et al. (2004).

together with Japan, one of the countries where the ageing phenomenon is more accentuated.

Based on the latter observations and on the evidence of an exceptional ageing of the Italian population provided in Brunetti (2006), the specific aim of this paper is to asses the impact of ageing on household portfolio allocation in Italy.

To this end, we follow Guiso and Jappelli (2001) and employ data taken from subsequent issues of the Bank of Italy Survey of Household 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 different financial asset sorting based on their risk-profiles and third, we refine the analyses by separating households into both age-classes and Net Wealth quartiles, which allows testing the robustness of age-effect on financial choices.

The paper is structured as follows. The next Section briefly reviews the main approach taken in the literature to investigate the issue. Section 3 recalls main stylized fact of the ageing in Italy provided by Brunetti (2006). The investigation over the effects of ageing on household portfolios in Italy is presented in the fourth Section. Last section concludes.

2. Ageing and portfolio choices: the approaches in 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 for both the "explorative" and the "econometric" approach. 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 bonds nominal yield coupled with the increase in equity returns that characterized 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.[2]

3. The marked ageing dynamics of the Italian population

Although population is a world-wide phenomenon, its size sensibly differs across countries. Brunetti (2006) assesses the magnitude of the phenomenon in Italy with respect to other developed countries and in particular to the European ones. Main findings of a comparative evaluation of the phenomenon are well illustrated by Table 1.

Table 1: Past, present and future demographic measures: major world-regions.

World-zone	Years	Median Age	Life Expectancy	Old - dependency Ratio	% Old	% Young
Africa	*1950*	19	38.4	6	5.3	42
	2005	18.9	50	6	5.2	41.5
	2050	18.6	65.3	8	6.2	43.6
Asia	*1950*	22	41.4	7	6.8	36.5
	2005	27.7	68.7	10	9.3	27.8
	2050	32.8	76.9	23	19	26.2
Europe	*1950*	29.7	65.6	13	12.1	26.2
	2005	39	74.3	23	20.7	15.9
	2050	50.1	80.7	51	37.2	12
Latin America	*1950*	20.2	51.4	7	6	40
	2005	25.9	72.9	10	8.8	30
	2050	33.1	79.4	25	19.7	25
North America	*1950*	29.8	68.8	13	12.4	27.2
	2005	36.3	78.2	18	16.8	20.5
	2050	40	82.7	33	26	18.3
Oceania	*1950*	28	60.4	12	11.1	29.9
	2005	32.3	75	15	13.9	24.8
	2050	35.9	80.5	28	21.8	23.5
Japan	*1950*	22.3	63.9	8	7.7	35.4
	2005	42.9	82.8	30	26.3	14
	2050	56.2	88.3	77	45.5	9.7

Source: Brunetti (2006). Data Source: United Nations Population Prospects.

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[2] 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.

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. Given that this conclusion is consistent across all demographic measures considered, Brunetti (2006) focuses on these two areas and disaggregates the analysis for the 25 countries of the European Union to further focus on the case of Italy. Table 2 ranks countries according to the expected value for this demographic indicator in 2050.

Table 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	UK	16	24	40
Poland	8	18	55	Cyprus	10	18	38
Germany	14	28	54	Denmark	14	23	38
Hungary	11	22	53	Luxemburg	14	21	36

Source: Brunetti (2006)
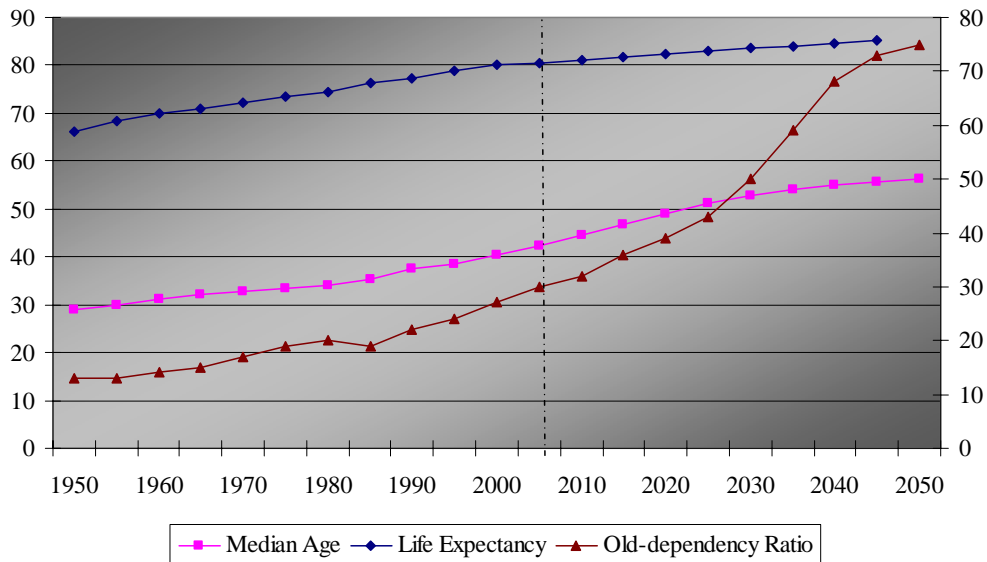*Data Source: United Nations Population Prospects.*

Two observations are here in order. First, the process of population ageing seems to affect quite strongly several of the new EU members, and in particular Slovenia and Czech Republic.[3] Second, Italy is the sole country whose projections are as high as Japan's.

Brunetti (2006) further develops the analysis in order to better understand the peculiarity of the Italian case, which is apparent in Chart 1 and 2. Since the mid of last century, both Italian median age and life-expectancy at birth have sensibly increased, the former rising from 29 to 42.3 years and the latter from 66 to 80.6 years. Similarly,

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[3] Brunetti (2006) stresses that 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 Cornell University, Charles University of Prague and Bucharest University together with the Universities of Central Florida and Kansas State and the Echo Survey Sociological Research Institute (Hungary).

the old-dependency ratio has more than doubled, jumping from 13 to 30.As for the future,these dynamics are going to be even more pronounced: according to UN projections in fact by 2050 in Italy there will be around 75 retired every 100 working people (see Chart 1).

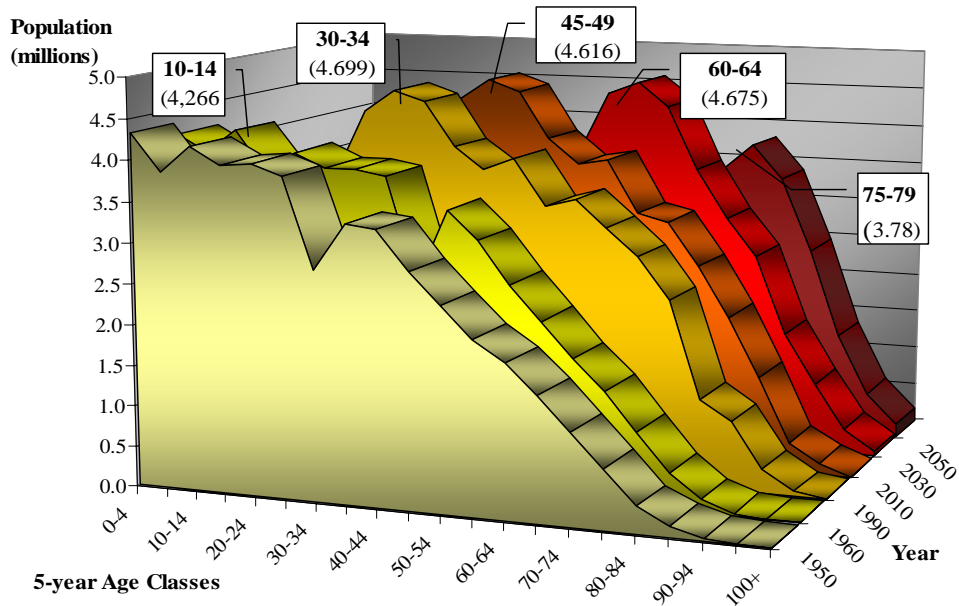**Chart 1:** Main demographic measures in Italy: evolution and forecast.

Source: Brunetti (2006)
Note: values for median age and life expectancy can be read on the left scale, while those for old-dependency ratio are reported on the right-hand-side scale.
Data Source: United Nations Population Prospects.

Chart 2: Italian population distribution by age-classes: evolution.
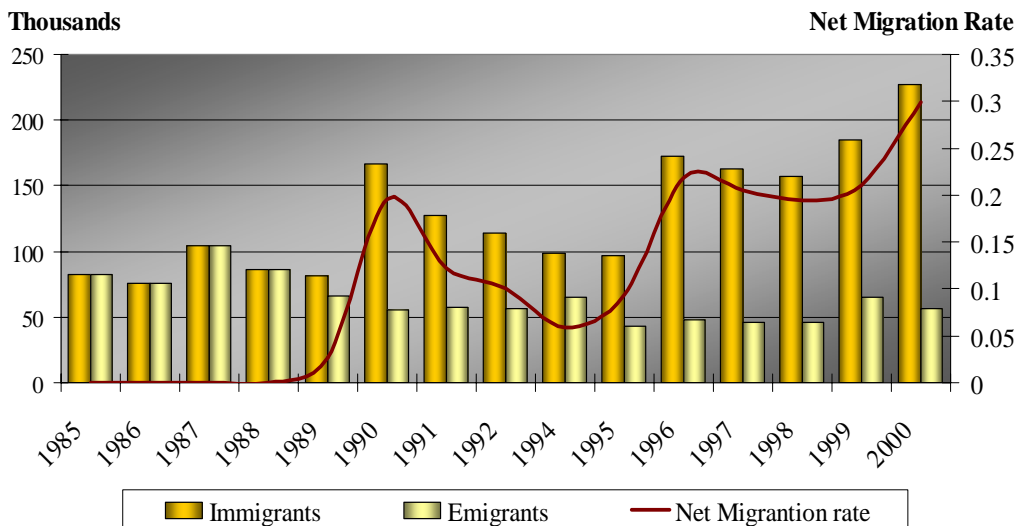

Source: Brunetti (2006)
Data Source: United Nations Population Prospects.

Chart 2 represents the distribution of Italian population by 5-year age-classes at six points in time (1950, 1970, 1990, 2005, 2025, 2050) and highlights the baby boom, occurred in Italy during the 1960s. The population peak, which represents the baby boomers generation, moves as a wave: from the 70s when it corresponds to the very young (around 10-14 years old) part of the population, to the end of 2050s when baby-boomers by that time aged around 75-79 will still represent the most conspicuous age-class of the population, being almost 4 millions people.

In sum, the Italian exceptional ageing dynamics can be traced back to the following facts, which are illustrated in Chart 3-5. In the last 50-year period (restricted to a 15-year period for migration) 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.

Chart 3: Immigrants, emigrants and net migration rate in Italy, 1985-2000.
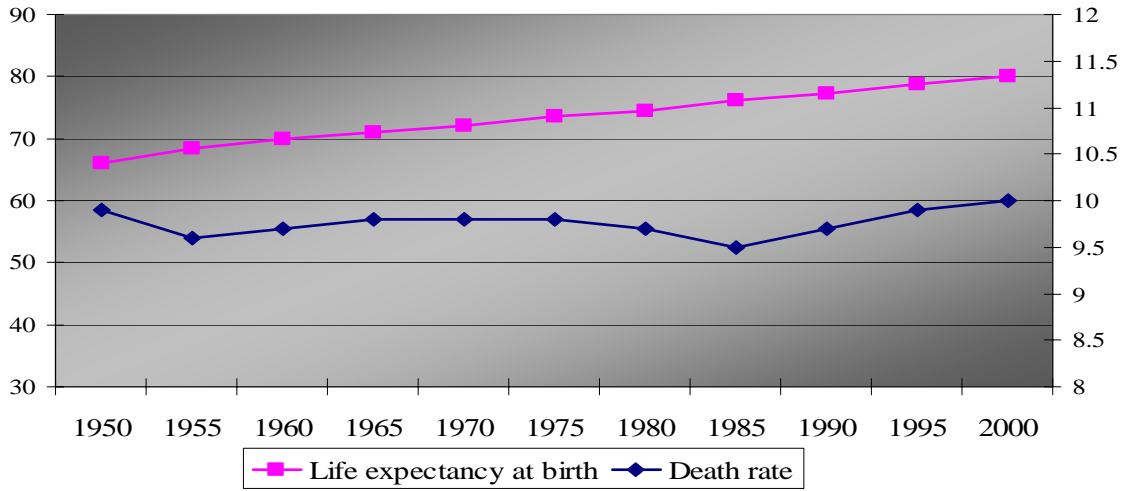

Source: Brunetti (2006)
Note: values for immigrants and emigrants (columns) can be read on the left scale; those for the net migrants (line) on the right-hand-side one.
Data Source: Eurostat Demographic Database.

Chart 4: Life Expectancy and death rate in Italy, since 1950 to 2005.

Chart 5: Total fertility rate in Italy, 1950-2005.

4. 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 illustrate methodology and dataset and then results.

4.1 Methodology

Data are taken from the Historical Archive of the Bank of Italy Survey of Household Income and Wealth (HA-SHIW) and span over the 1995 – 2004 decade. Among many other kinds of information, 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[4] 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 do not distinguish 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, which concerns the foreign activities only
- Interest-rate risk, associated with all bonds securities
- Price risk, associated to stocks and shareholdings

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 3).

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[4] For a thorough account of new risk-based capital requirements, see the original document Basel Committee on Banking Supervision (2004).

Table 3: Financial assets classification, by credit and market risk

Market / Credit	-	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 assets managements Life insurances Non-life insurances Health-insurances Pension funds		
Higher		Bonds		Stocks SRL shares Partnership 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[5]:

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. FOREING 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, 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

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[5] 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 higher or lower 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.

and managed investments and risky assets comprise corporate bonds, stocks and foreign activities (see Table 3).[6]

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.[7]

Household financial choices are affected by many other elements beside age: among these, the overall economic condition plays certainly a focal role. Based on this observation, we further refine the analysis in Guiso and Jappelli (2001) with the aim to check the robustness of the age-effect on household financial portfolio even under different economic conditions. Households are thus divided into quartiles according to their Net Wealth (NW), defined as the sum of real and financial activities net of the financial liabilities.[8] The households belonging to the first quartile are addressed to as "poorer", those falling within the two central quartiles are referred to as "intermediate" and those above the third quartile as "richer". In addition, the top 5% richest households are studied separately, 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

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[6] Further details on the financial asset risk-classification are reported in the Appendix.
[7] 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.
[8] 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.

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 composition 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 Chart 6): (i) if read "vertically", the data highlight the differences in financial allocations of households belonging to the same age-class but with different net wealth; (ii) reading the data "horizontally" allows instead depicting the possible effect of age on the composition of household's 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. Specifically for the Italian case, 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[9].

Chart 6: SHIW data: effects depicted by different reading directions.


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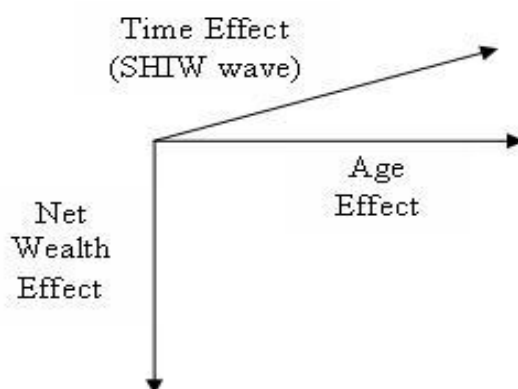
[9] An overview on the evolution of the Italian pension system can be found in e.g. Brugiavini and Galasso (2003).

4.2 The results along the three directions

In this section we present the results of the survey data analysis. More specifically, Section 4.2.1 reports the main findings of the preliminary analysis on the evolution of the average Italian household portfolio as from all the five waves considered. In Section 4.2.2 the average portfolio is examined after having sorted the households into six different age-classes according to the age of the head-of-the-household. Finally, in Section 4.2.3 we examine the average portfolio composition of all the interviewed households divided by both age-classes and net wealth quartiles.

4.2.1 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, the scarce degree of diversification of Italian household portfolios immediately emerges: during the whole decade in fact Italian households hold on average more than 70% of their financial wealth in cash and deposits (see Chart 7).

Chart 7: Average Household Portfolio by SHIW wave.
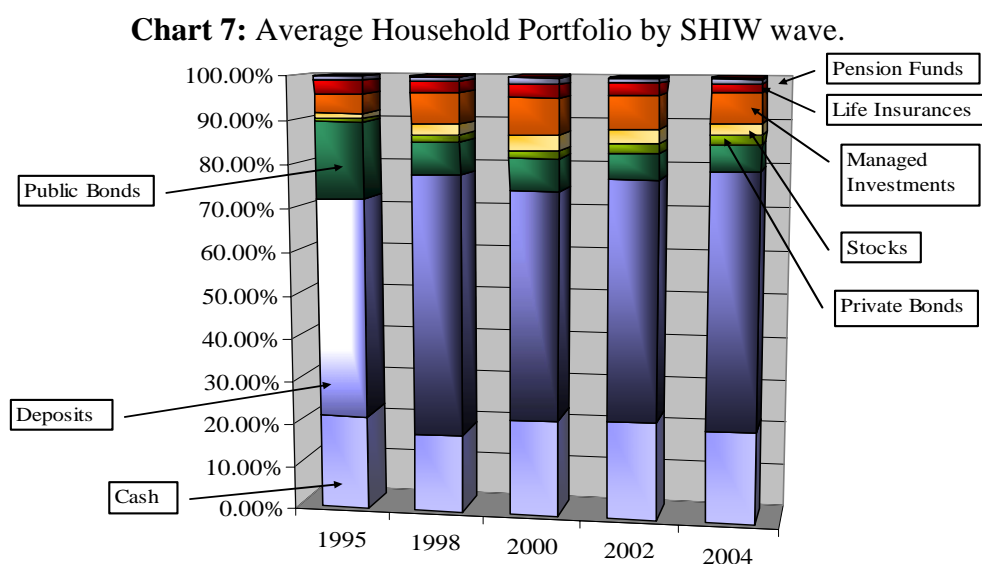
Source: own elaborations on HA-SHIW data.

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 also confirmed for the decade 1995-2004 (see Table 4).[10]

Table 4: Households holding liquidity only, by SHIW wave.

	1995	**1998**	**2000**	**2002**	**2004**
Total # Household	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 7 reports the average shares invested by Italian households in each financial-asset category as from the waves available in the HA-SHIW between 1995 and 2004.

Table 5: 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

Note: for each asset group, the table reports the percentages of 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

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[10] 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 household 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.

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 (see Chart 8). Additionally, after a first recover around 2000-2001, the yields on government bonds kept decreasing, although more gradually, during all the following years. 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.[11]

Chart 8: Mib30 and Government Bond Yields over 1995-2005.
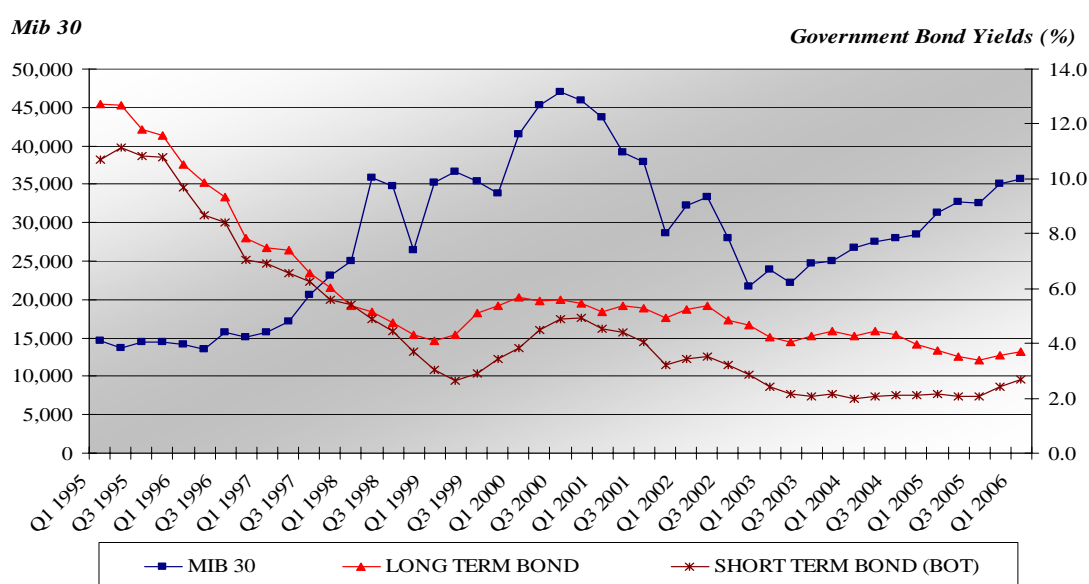
Note: values for Mib30 (left scale) are in index points while government yields (right scale) are percentages.
Data Source: Datastream

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 Chart 13).

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

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[11] For more details on the Italian major privatization see, among others, Goldstein 2003.

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 decade the gap between life insurances and pension funds has progressively thinned, the former are still somehow preferred with respect to the latter.

4.2.2 The average portfolio by age

Tables 6 to 10 report the average Italian household portfolios by age-class of the head of the household for every wave available for the last decade in the HA-SHIW.

Table 6: 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 7: 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 8: 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: 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 10: 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. Note that the highest average investment in corporate bonds is reached in 1998, during the peak of the privatization process in Italy, and that in the same year, probably for the same reason, corporate bond shares are quite large also in older household portfolios. 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, 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), i.e. "*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.

4.2.3 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 household portfolios: its overall economic situation, here measured by means of the Net Wealth (NW).

Tables 11 and 12 report the average household portfolios by age-class and NW quartile, for the 1995 and the 2004 wave respectively.[12] As expected, the net wealth 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 all age-classes held on average more than 80% of their financial wealth 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

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[12] The intermediate waves have also been examined and generally lead to very similar conclusions. Missing tables are available upon request.

savings. The same holds for 2004, with the sole difference that managed investments (around 3-4% depending on the age-class) tend to prevail on government bonds (2-3%). Riskier activities remain on average completely 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 liquid financial activities.

Table 11: Average portfolio by NW quartile and age-class, 1995.

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

Data Source: HA-SHIW.

Table 12: Average portfolio by Net Wealth quartile and age-class, 2004.

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

Data Source: HA-SHIW.

Turning to intermediate NW households, i.e. those falling between the first and the third quartiles, both the average degree of diversification and riskyness progressively increase. In both 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 of a couple of percentage points with respect to the first quartile. Nevertheless, two important differences can be noted between the 1995 and the 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).
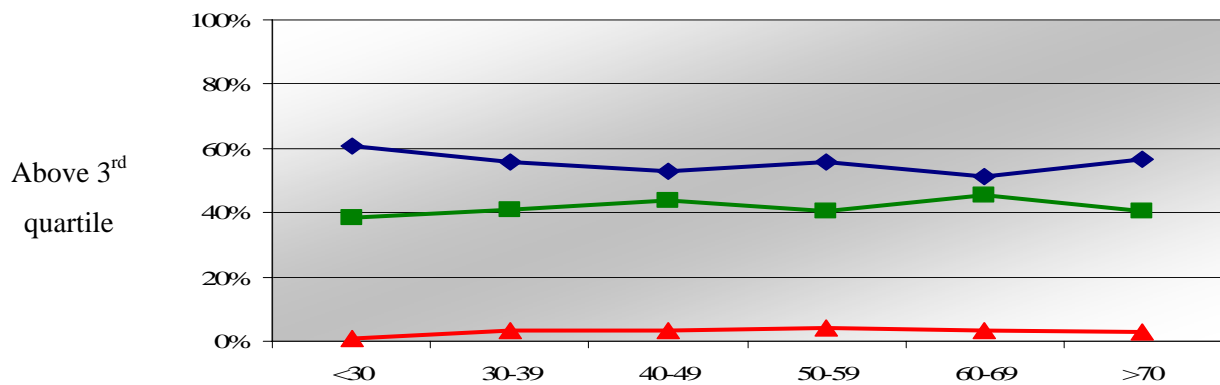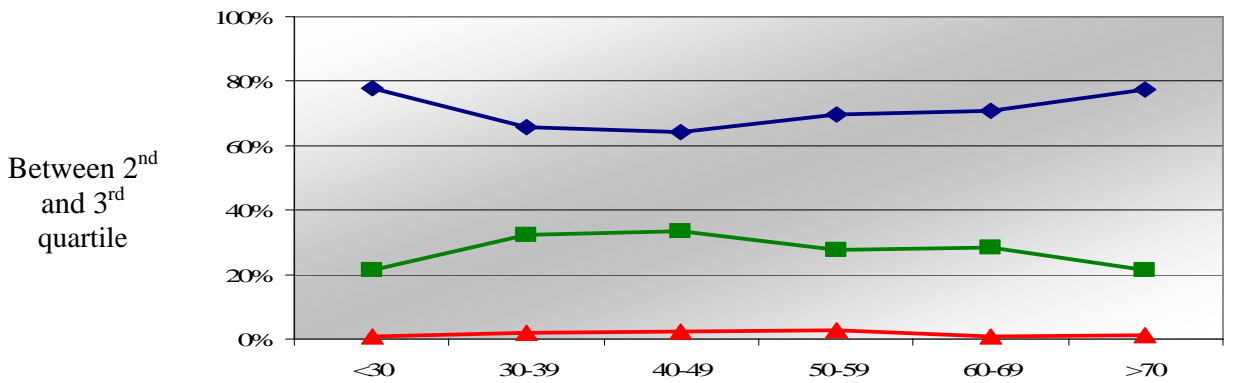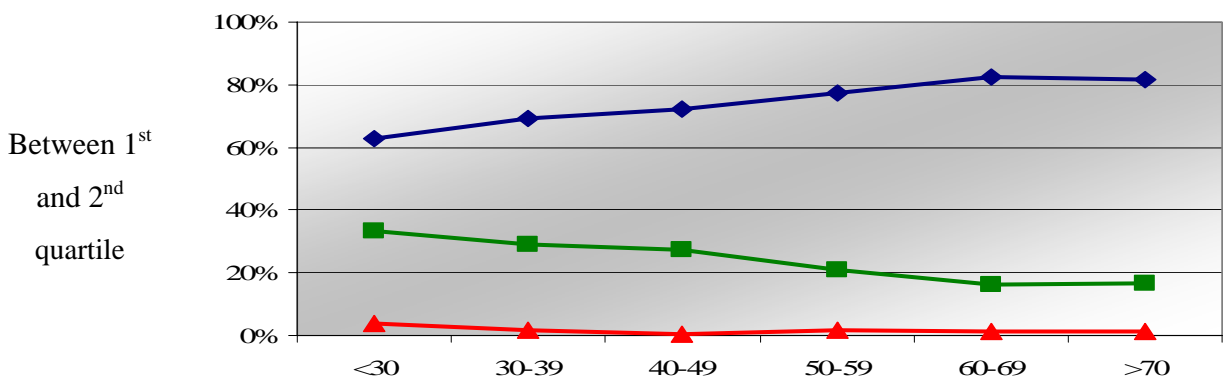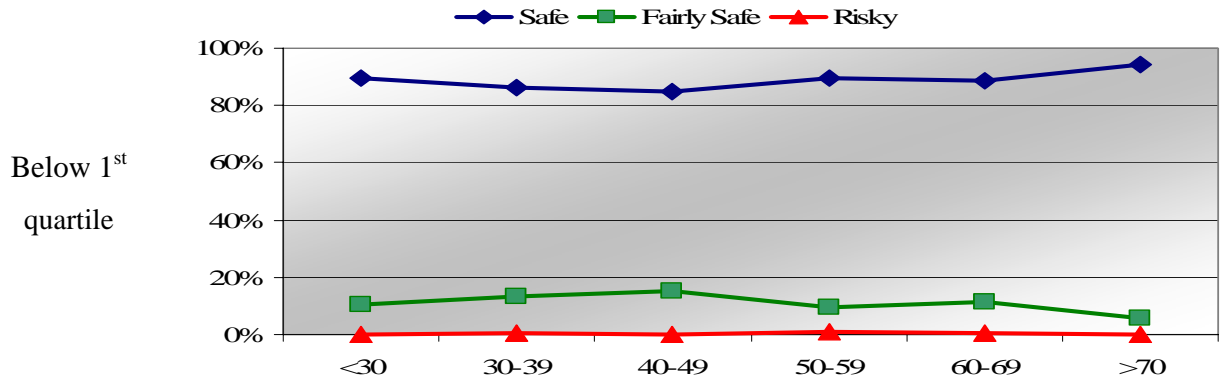
The highest degree of diversification and riskyness is finally reached by the portfolios of households above the third quartile. Financial resources are in this case drained from totally safe activities, i.e. cash and deposits, and directed instead towards riskier activities, such as stocks, whose shares 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 in the upper quartile, the relative weights of life insurances and pension funds turn back to be unbalanced: across the whole decade richer households seem thus 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 net wealth quartiles. In contrast to the present paper, on one hand they include into the portfolio also non-financial assets, on the other they focus on the effect of wealth only. Hence, a straight comparison between results 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 Charts 9 and 10).
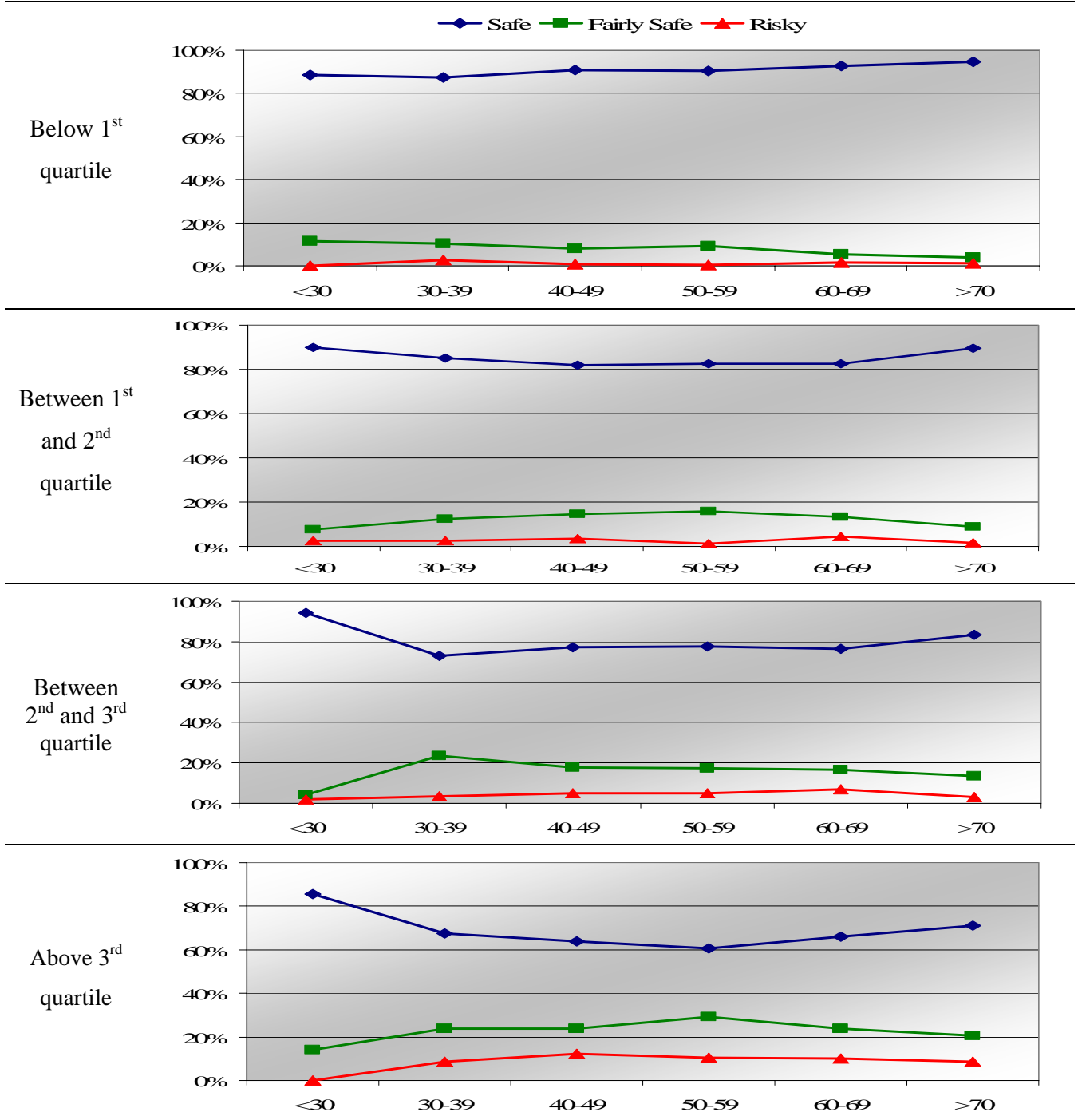
Chart 9: Asset shares grouped by riskyness, by NW quartile and age-class, 1995.

Below 1st quartile

Between 1st and 2nd quartile

Between 2nd and 3rd quartile

Above 3rd quartile

Source: own elaborations on HA-SHIW.

Chart 10: Asset shares grouped by riskyness, by NW quartile and age-class, 2004.

In both waves and regardless for 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 13 and Chart 11). 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.

Table 13: 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.

Chart 11: Top 5% households: asset shares grouped by riskyness across age-classes.

1995

2004
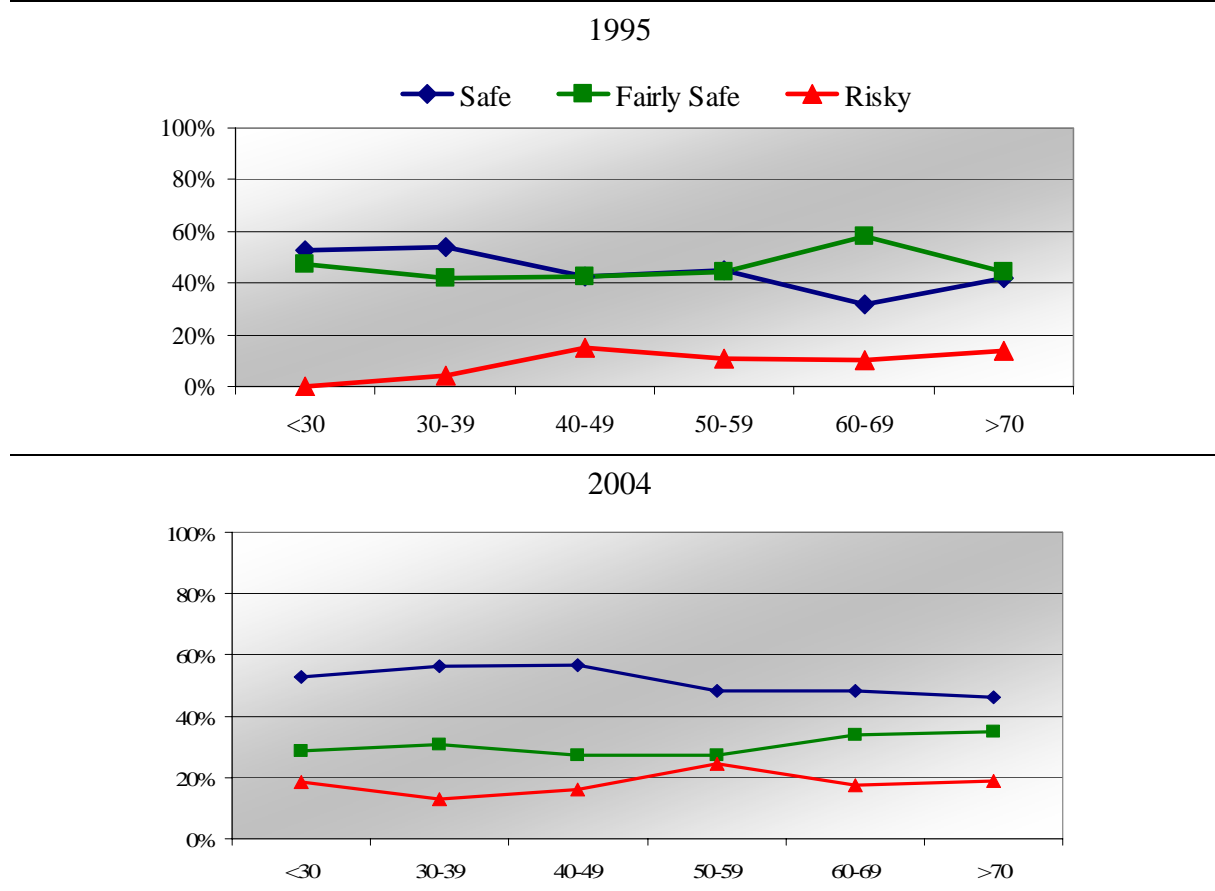
Source: own elaborations on HA-SHIW.

Most likely, for these households the net-wealth effect more than overcomes that of age on financial asset allocation. As highlighted by Table 14 in fact the NW of these households is extremely high: the top 5% household in 1995 (2004) had a NW of almost 950 millions lira (700.000 Euro).

Table 14: Net wealth quartiles boundaries, by SHIW wave.

Quartile	1995	1998	2000	2002	2004
	In millions Lira			*In thousands Euro*	
I	29.9	41.7	50.5	23.0	30.5
II	158.0	181.2	197.2	108.5	138.0
III	335.2	353.1	380.0	215.8	262.8
Top 5%	936.1	1,005.3	1,100.1	590.0	689.1

Data Source: HA-SHIW.

In sum, with the sole exception of top 5% richer households, for which most likely net-wealth affects financial choices more 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.

5. Conclusions

This paper focuses on the dynamics of population ageing in Italy and on its impact on the future 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.

Previous analyses (e.g. Brunetti, 2006) show that Italian population is undergoing the most pronounced ageing in the world after Japan (projections for 2050 are of 75 retired every 100 working people) and that it probably stems from a drop in fertility. Based on this, in the present paper we focus on 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 higher life-insurance 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 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.

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 will be dealt with in a separate study.

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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 A.1 we recall the six major categories attained by joining together assets sharing similar credit and market risks (see Section 4.1) 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 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 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 Life-insurances	Long-term government bonds Investment funds and non-life insurances Integrative pensions
Risky	Long-term government bonds Investment funds and non-life insurances Integrative pensions	Stocks Corporate bonds Foreign assets	

Two are the main differences between the alternative classifications. First, long-term government bonds are here moved 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 over the whole decade examined. Furthermore, the choice of Guiso and Jappelli (2001) stemmed from the observation that "*until 1995 […] most funds where 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, considering also the high diversification that typically characterises managed investments, they are here classified as fairly safe.