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Health status and portfolio choice: Is their relationship economically relevant?

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ABSTRACT

Recent empirical work on individual portfolio choice focuses on the role of the individual's health in making financial decisions. The key idea is that, through precautionary saving or reducing investors' time horizon, health issues make people choose safer financial portfolios. This paper questions the empirical relevance of the link between health and portfolio choice, measured as stockownership and overall fraction of risky securities held. We handle with caution the findings from previous papers and ask whether data from the first wave of the Survey of Health, Aging and Retirement in Europe (SHARE) are able to clarify some of our doubts. We find that only poor self-reported health negatively impacts the portfolio choice, while other health measures (chronic conditions, limitations in daily activities of life, mental health) are irrelevant for investment decisions.

1. Introduction

The Modern Portfolio Theory (MPT) postulates that risk averse investors choose their investment portfolios in order to maximize their expected return for a predetermined level of risk. The optimal portfolio chosen by the investor will depend on the shape of her utility function. In recent years, the basic assumptions of MPT have been widely challenged by the behavioral finance approach, which has thrown new insight onto investment decision theory. Behavioral finance evaluates risk mostly based on laboratory experiments and surveys or questionnaire instruments, and concentrates on beliefs, attitudes and risk perception in particular circumstances. Among other factors, an individual's health status has recently gained attention as a potential determinant of risk perception and security holdings. Recent literature has developed a portfolio choice theory which includes the presence of "background" risk, defined as an uninsurable component of individuals' income risk which decreases additional financial risks (Gollier, 2001; Guiso, Jappelli, & Terlizzese, 1996; Guiso & Paiella, 2001). Some researchers have put effort into demonstrating how health can be regarded as a form of background risk, and provide empirical results on how financial investment choices change with health conditions. The most frequent finding is that, a sudden health issue or poor health conditions tend to shift resources towards safer types of financial investments, with disaffection from the participation to the equity market and from the holding of risky securities. Papers support with various arguments the way in which health affects portfolio choice. Some sustain that there is a precautionary saving purpose behind the health effect, to the extent that the expected future medical expenditures subtract resources from financial investments (among others, see Atella, Brunetti, & Maestas, 2012; Berkowitz & Qiu, 2006; Goldman & Maestas, 2007; Gollier & Pratt, 1996; Heaton & Lucas, 2000; Pang & Warshawsky, 2010; Pratt & Zeckhauser, 1987). Others consider the interplay between health and other circumstances which affect the life span horizon, such as aging (Coile & Milligan, 2009) or bequest motives (Feinstein & Lin, 2006). Finally, some papers propose models where health enters as a direct argument of the investor utility function, and the marginal utility of consumption is found to vary with health (among others, see Cardak & Wilkins, 2009; Edwards, 2008; Finkelstein, Luttmer, & Notowidigdo, 2008; Love & Smith, 2010; Rosen & Wu, 2004). Evidently, the relationship occurring between health status and portfolio choice is actively discussed in the literature, and the standpoint of researchers in the field is extremely heterogeneous.

With this work we wish to take part in this debate, and our focus is on deeply understanding whether there is a relevant link between health status and portfolio choice. More specifically, we contribute to the previous literature surveying the individual health condition in a more extensive way. Since the health dimension is characterized by various different facets, our analysis aims at establishing the relationship occurring with portfolio decisions from different proxies of health, where each proxy should reflect a specific health dimension (subjective, objective, and mental health). We use data contained in the first wave of the Survey of Health, Ageing and Retirement in Europe (SHARE), which

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paints a picture of the lives of Europeans aged 50 and over from 11 countries. We concentrate on the decision of households on their stockholding, and on the relative share of their portfolio which is invested into risky assets. Our empirical models relate these two choices on the household health condition, while controlling for a large number of individual and household characteristics, as the household composition and various socio-economic features. We mainly test the most common channels that the literature so far has suggested as drivers for the impact from health on investments, and that we have mentioned few rows above. In particular, we check whether the implication from health on portfolio choice is imputable to precautionary saving and/or risk aversion changes. Despite we cannot rule out if one channel is more effective than the other, our results suggest that, a significant path from health on portfolio choice is only associable to a measure of subjective health. More specifically, people self-reporting a negative health condition are found to be less likely in owning some stocks and are holding fewer risky assets. If we instead measure the physical health status of the same respondents (counting the number of limitations in daily life activities or the number of chronic diseases), or measure their psychological feelings (through a depression scale), than it does not hold any more that being worse in health has significant affections on investments. Our results show that, the prediction of a negative health risk on financial choices highly depends on the notion of health we refer to, since we showed that different health measures might yield inconsistent results. The rest of the paper is organized as follows: Section 2 reviews the most relevant contributions to the literature which has surveyed the effect of health status on portfolio choice; Sections 3 and 4 present the data and describe in more detail the variables of interest; Section 5 reports the econometric results; Section 6 provides the conclusions and some discussion of the results, comparing them with previous contributions in the literature.

2. The effect of health status on portfolio choice

There is abundant evidence of an association between economic measures, such as income and wealth, and a variety of variables which are linked to the state of health of individuals. Indeed, several studies confirm the existence of a link between the two spheres. However, there is still no consensus on the nature and the direction of this relationship. On the one hand, changes in socio-economic status may lead to worse health status. On the other hand, also changes of the health status may have an impact on the individuals' income and wealth: a poor health status, limiting the ability to work and increasing medical costs, could restrict opportunities for individual income and accumulated wealth. According to Palumbo (1999), the expectation of substantial future medical expenses reduces, as a precautionary measure, the current and future consumption. Moreover, if the marginal utility of consumption decreases with worsening health conditions, individuals will be inclined to consume more when they are healthy compared to periods in which they are sick, and save more when the probability of a worsening of their health status increases. Closely related to this is the question of the impact of a poor health status on life expectancy: in life-cycle models, the mortality risk induces a transfer of future consumption towards the present. Smith (1999) finds that under the risk of future health problems, subjects might be induced to reduce the transfer of wealth to heirs, rather than decrease their-consumption. According to this logic, current status of health and probability to leave an inheritance are strongly correlated.

In the following paragraphs, we focus on the recent literature that studies the relationship between health status and portfolio choices. Previous contributions in the empirical literature suggest different channels through which health might affect financial decisions, i.e. precautionary saving motive, direct effect of marginal utility of consumption, and the perception of the life span and planning horizon.

2.1. First channel: precautionary saving motive

The fear of potential health shocks can lead to higher medical spending which absorbs the financial wealth of the investor. In this view, health expenditures is a type of undiversifiable background risk that induces precautionary saving and prompts safer portfolios (among all: Atella et al., 2012; Berkowitz & Qiu, 2006; Goldman & Maestas, 2007; Gollier & Pratt, 1996; Heaton & Lucas, 2000; Pang & Warshawsky, 2010; Pratt & Zeckhauser, 1987). Our work attempts to complement the works by Atella et al. (2012) and Guiso et al. (1996). The former uses the same data source as our current research (the Survey of Health, Aging and Retirement in Europe, SHARE) to show how health risk affects the portfolio choice only of those investors living in countries with a less protective healthcare system. Their result highlights the role of national healthcare systems in reducing the overall background risk faced by households and, consequently, in dampening the precautionary saving purpose. Guiso et al. (1996) use data from the Survey of Household Income and Wealth, and focuses on the investigation of the relationship between stockholding choices and different household characteristics. The authors argue that, among other factors, future medical expenses are a common source of risk, as they find that households headed by individuals who spent more days sick tend to hold safer financial portfolios, even after controlling for many other individual characteristics.

2.2. Second channel: direct effect on the marginal utility of consumption

Health status could have an impact on financial decisions through its direct effect on the marginal utility of consumption. Edwards (2010) explores the implications for portfolio choice of a special type of state-dependent utility function, which includes consumption and health. The author proves that, if the cross partial derivative of utility with respect to consumption and health is negative, then investors who perceive their health status as poor will hedge by holding safer financial portfolios. Finkelstein et al. (2008) use seven waves of panel data on older individuals from the Health and Retirement Study (HRS) and estimate how individual adverse health events affect a proxy for utility, comparing the effects across people of different income levels. They find robust evidence of the fact that deteriorations in health are associated to a statistically significant decline in the marginal utility of consumption. Cardak and Wilkins (2009) use data from the Household Income and Labour Dynamics in Australia (HILDA) survey to investigate the determinants of the portfolio allocation of Australian households. Their results suggest that the share of risky assets held in financial portfolios is significantly and negatively affected by poor health status. They retain that poor health conditions reduce risky asset holdings via its effects on measured risk and time preferences. In their analysis, households that consider themselves financially risk averse have a much lower risky asset ratio. Using data from the Health and Retirement Study (HRS), Rosen and Wu (2004) find that a fair or poor health status reduces the probability of holding risky assets as well as the portfolio shares held in those assets. Possible explanations for this outcome are explored using variables for health insurance, bequest motive and planning horizon, though, according to their analyses, none of these latter ways seems to be the channel through which health status explicates an effect on portfolio composition.

2.3. Third channel: life span and planning horizon

A third potential channel is through life span and time horizon. All things equal, advancing age leaves less time remaining before death, which may be a reason to invest more safely.

Using data from the Health and Retirement Survey (HRS), Coile and Milligan (2009) focus on the influence of aging and health shocks on households' portfolio choice, and find that health shocks explain part of the changes in households' portfolios over time. Feinstein and Lin