Hochschule für
Wirtschaft und Recht Berlin
Berlin School of Economics and Law

Institute for International Political Economy Berlin

The Gender of Wealth Accumulation: Gender Differences in Risky Portfolio Choices and Their Determinants

Author: Carolin Dylla

Working Paper, No. 267/2026

The Gender of Wealth Accumulation: Gender Differences in Risky Portfolio Choices and Their Determinants

Carolin Dylla
Freie Universität Berlin & HTW Berlin, Germany

Abstract:
While financialization and rising inequalities are often regarded as challenges for fiscal redistribution policies, the role of monetary policy and financial markets is neglected. Although heterodox scholars are drawing attention to the distributional impacts of monetary policy, they are rarely related to dimensions of gender inequality. Indeed, monetary policy may contribute to the gender wealth gap via its effects on asset prices and interest rates should men and women systematically differ in their individual portfolio composition. Hence, I assess the following research question: *Are there significant differences in portfolio choices between men and women in the United States of America in 2022? If so, what are the drivers of these differences?* I employ the 2022 data wave of the Survey of Consumer Finances. Based on 1,690 observations of single male and female households, I apply a two-stage Heckman selection model. I find that single men are not only more likely to hold stocks in their financial portfolio, but also hold relatively larger amounts thereof compared to single women. These differences in portfolio choices are further driven by diverging financial means and risk preferences between men and women. However, significant gender differences are not robust to the inclusion of other risky financial assets and the households' position as net debtors. Overall, rather than biologically determining risk preferences, this paper suggests that gender is an expression of a diverging male and female socioeconomic status.

Keywords: Gender, Finance, Portfolio Choices, Monetary Policy, Survey of Consumer Finances, Distribution

JEL codes: D31, G11, J16

Corresponding author: Carolin Dylla, carolindylla@zedat.fu-berlin.de

Acknowledgements: This is a revised version of my master thesis which I wrote at the Berlin School of Economics and Law. I thank Martina Metzger and Antoine Rebérioux for their valuable comments. Further thanks go to Université Paris Cité for providing funding and support via the SMARTS-Up scholarship for the academic year 2023/24 during which this paper was written.

1 Introduction

Since the 1980s, a phenomenon known as “financialization” has gained ground in “the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies” (Epstein, 2005, p.3). This has ramifications for private households, firms, and policy-makers alike. Most relevant for the work presented here is the growing importance of financial income and debt to ensure financial security in retirement (e.g. Bajtelsmit and Bernasek (1997)). Individual portfolio choices are no longer the concerns of a wealthy elite, but have tangible consequences for the general public. Paralleling financialization are the rise of inequality in many societies, increased traction of populist parties, and stagnation of economic prosperity.

Financialization has further manifested in the global financial crisis (GFC) 2008. Although orthodox economists have adamantly defended the “neutrality of money”, this postulation has waned given the undeniable ramifications of unconventional monetary policy in reaction thereto (e.g. Kappes (2023) & Forti Grazzini and Kim (2020)). Montecino and Epstein (2015) find that the resulting appreciation in equity prices has led to an increase in income inequalities. These positive income effects of unconventional monetary policy could only be captured by those who were already in possession of financial assets such as stocks or could reallocate their portfolio in this direction (see also Metzger and Young (2020)). Generally, this applied to high-income and high-wealth individuals far more than to low-wage earners, explaining the overall rise in income inequality (Montecino & Epstein, 2015). What is more, these effects likely took shape along dimensions of gender inequality. Indeed, Young (2019) suggests that women were particularly disadvantaged as female households usually carry characteristics found at the bottom of the income distribution such as being a single parent and working part-time or in low-paying jobs. Thereby, women likely held disproportionately fewer risky financial assets than men and were unable to capture the effects of rising equity prices.

Such allegations are, however, based on loose assumptions to which this paper aims to give substance. Understanding the drivers behind gender differences in portfolio choices and quantifying these differences in more detail is vital for future research assessing gendered distributional implications of monetary policy. Therefore, this paper poses the following research question: *Are there significant differences in portfolio choices between men and women in the United States of America in 2022? If so, what are the drivers of these differences?* Based on a review of the existing literature, it is hypothesised that women allocate less funds to risky assets than men. These differences in portfolio allocation choices are likely driven by deviating financial means at the disposal of men and women as well as diverging attitudes towards risk. Gender as such is, thus, not to be regarded as an inherent

character trait but rather as the expression of a socioeconomic category with women disproportionally represented in the lower end of the income and wealth distribution.

The remainder of this paper is structured as follows: Chapter 2 reviews the existing literature and empirical work on gendered portfolio choices, deriving this paper's hypotheses. While previous work (e.g. Barasinska and Schäfer (2013)) has been conducted for European countries, little current evidence exists for the United States of America (USA). This informs the data and methodology introduced in sub-chapters 3.1 and 3.2. This paper applies a two-stage Heckman selection model to the 2022 wave of the Survey of Consumer Finances (SCF), a cross-sectional survey collected triennially and published by the Federal Reserve Bank. Chapter 3.3 then details the results of the empirical analysis which are discussed in chapter 4. Key findings include that single men are not only more likely to hold stocks in their financial portfolio, but also hold relatively larger amounts thereof compared to single women. These differences in portfolio choices are driven by diverging financial means and risk preferences between men and women. However, significant gender differences are not robust to the inclusion of other risky financial assets and the households' position as net debtors. Finally, chapter 5 summarises and concludes.

One disclaimer is in order for the reader to be mindful of. This paper employs a binary understanding of gender according to the male and female sex for reasons of data availability. The author is aware that this does not cover the entire spectrum of gender identities and encourages the institutions in charge to glean more detailed information thereon.

2 Gendered Portfolio Choices: Review of the Existing Literature

The question concerning the existence and possible drivers of gender differences in portfolio choices is a contentious one and, to this day, the literature has not yet reached consensus. While most agree that women tend to accumulate fewer wealth and hold fewer risky financial assets such as stocks in comparison to men, there is no unanimity on the reasons behind these differences. Some attribute them to the gender pay gap (e.g. Barasinska and Schäfer (2013); Badunenko et al. (2010)), others presuppose women's inherently higher risk-aversion (Croson & Gneezy, 2009). This chapter recapitulates the debate thus far, beginning with allegations on gender differences in risk aversion and ending by placing them in their socioeconomic context.

2.1 The Influence of Attitudinal Differences on Portfolio Decisions

The previous chapter has suggested that men hold more risky assets than women, insinuating that they might be inherently different regarding their *risk preferences*. This statement is, however, to be met with caution. Jianakoplos and Bernasek (1998) pay closer attention to gender differences in risk preferences, specifically concerning financial portfolio choices. Using data from the 1989 SCF, the authors construct a measure of relative financial risk aversion. They regress the value of risky assets as share of a household's total assets on its wealth and other control variables on the household's socioeconomic circumstances. According to Jianakoplos and Bernasek (1998), a positive coefficient on the explanatory wealth variable implies a decreasing relative risk-aversion. While this coefficient is indeed positive for all household types included in their sample, Jianakoplos and Bernasek (1998) note that it is significantly smaller for single female households than married households or single males.

These findings are reiterated by Croson and Gneezy (2009) in their review of economic experiments on gender differences in risk tolerance. The authors identify robust gender differences, stressing that the literature finds women to be more risk averse both in lab settings and field experiments. Regarding implications thereof for asset allocation, Croson and Gneezy (2009) cite Sundén and Surette (1998) who find an individual's sex to be significantly linked to portfolio decisions via diverging risk preferences. Providing more detail, Neelakantan and Chang (2010) employ data from the USA's Health and Retirement Survey to assess whether, controlling for other factors, gender differences in risk preferences contribute to the gender wealth gap in retirement. Neelakantan and Chang (2010) begin their research on the premise that women are more risk averse than men and that this will negatively impact their retirement wealth which is assumed to be a function of income earned over a lifetime and risk aversion. Indeed, the authors find support for their hypothesis, stating that the gender wealth gap would shrink if risk preferences were equal between men and women.

The question remains whether men and women truly differ inherently with regards to their risk preferences and whether gender as such can, thus, be seen as a key driver of portfolio choices. This is taken up by Nelson (2015) who critically questions the statement that "women are more risk averse than men", berating it as a misleading oversimplification. The author warns that, if taken too literal or if revealed to be untrue, this statement may lead to an inequitable treatment of men and women and inefficient outcomes in their portfolio allocation (Nelson, 2015). Reviewing the literature on this matter, Nelson (2015) stresses that the statistically significant differences found therein may not provide much information on the degree to which they manifest economically. Indeed, only 14 of 35 studies reviewed by Nelson

(2015) yield substantive differences between male and female risk preferences. Instead, a large number of studies under review show differences in risk preferences that may be statistically relevant but still show substantial overlap. Therefore, the author concludes that gender differences in risk preferences do not manifest in economically relevant ways and reprimands researchers who suggest that men and women differ in some inherent way concerning their risk attitudes (Nelson, 2015).

Barasinska and Schäfer (2013) follow a similar line of argumentation concerning gender differences in risk preferences. In their investigation of whether the willingness to take investment risk is a sex-linked trait, the authors analyse household survey data from Austria, Italy, the Netherlands, and Spain. Barasinska and Schäfer (2013) measure the extent to which a risk is taken by the respective investor along two dimensions. First, the investor makes a participation decision, choosing whether to hold any amount of a risky asset at all. Second, they make an allocation decision, determining how much of their portfolio is allocated to assets deemed risky (Barasinska & Schäfer, 2013). Barasinska and Schäfer (2013) employ a probit- and a Heckmann-model for the first and second decision stage respectively. Similar to the empirical work introduced above, the authors control for a number of socioeconomic factors, a gender dummy, and the household's self-reported risk tolerance. Concerning the participation decision, the authors find that in Austria, the Netherlands, and Spain, men and women do not differ significantly in their willingness to purchase a risky asset. In Italy however, men are eight percent more likely to do so than women. In the second stage, the allocation decision, the authors do not find a difference between men and women who have previously made the decision to hold any amount of risky assets (Barasinska & Schäfer, 2013). Barasinska and Schäfer (2013), therefore, reject the hypothesis that women are inherently more risk averse than men. Instead, the authors highlight the difference in financial means disposable to men and women as well as differences in risk tolerance as drivers of differences in portfolio decisions (Barasinska & Schäfer, 2013). It should be noted here that Barasinska and Schäfer (2013) do not explain the origin of the differences in self-reported risk tolerances and fail to acknowledge that they do indeed vary by gender as has been investigated by previous research. However, as detailed in the following sub-section, these differences are likely due to the diverging socioeconomic circumstances in which women and men tend to find themselves. Hence, Barasinska and Schäfer (2013) caution to simply use gender as a proxy for an individual's willingness to take financial risk.

A similar endeavour has been conducted by Chang (2010, chapter 5) for the USA who looks at five asset categories – cash accounts, homes, stocks, other real estate, and business assets. Via multivariate logistic regressions, the author finds that if men and women were identical concerning key socioeconomic factors, gender differences in home ownership,

stocks, and investments in other real estate would vanish. In contrast, women remain more likely to own cash accounts and less likely to hold business assets (Chang, 2010, chapter 5).

2.2 The Influence of Social and Economic Factors on Portfolio Decisions

A number of factors impact the socio-economic context in which households make their portfolio decisions which present a particular constraint for women. The *age* of the household head (i.e. the financially responsible person) is often put forward in this regard. Authors such as Sierminska (2017) or Rehm et al. (2022) highlight the life cycle hypothesis. This posits that all individuals enter adulthood with relatively low levels of wealth which are then accumulated through income and savings. The thereby created stock of wealth is drawn on once the individual enters retirement (Sierminska, 2017). Thus, the wealth of an individual should follow an inverted U-shape throughout the course of their life. As women tend to live longer than men, they likely have to face longer periods of drawing on their pre-existing stock of wealth. While this makes accumulating such wealth throughout adulthood all the more important for them, there are a number of factors impairing this accumulation.

Important in this vein is the *number of children* present in the household, particularly those who are financially dependent. As pointed out by Young (2019), participation in risky assets tends to increase with wealth. Children, however, are costly, impairing a household's wealth accumulation (Metzger & Young, 2020). This has consequences for its portfolio allocation choices, as a household with lower wealth levels will likely prefer to hold relatively safe and liquid assets. Metzger and Young (2020) suggest that this is a particular constraint on female-headed households because women are far more likely to take on the role of a single parent than men. Moreover, Grabka et al. (2013) highlight that children also impact the labour market status of mothers in coupled households and, thus, their financial independence. Given the traditional division of labour within households, women are more likely to take career breaks to care for children which may impede their re-entrance into the labour market and their prospects of a high-profile career. Grabka et al. (2013), in an analysis for Germany, find that having children is associated with lower levels of wealth for women when compared to childless adults. However, this gap vanishes once household income is controlled for (Grabka et al., 2013), a point to which this paper will return in a later paragraph. Concerning the USA, the negative effect of children on women's wealth accumulation through their labour market attachment might be somewhat mediated as paid maternity leave is far less common and women tend to return to work sooner after giving birth than in Germany (see for example Gault et al. (2014) & Holley (2016)). However, there are also fewer social protection and child support policies in place, which may counteract the positive wealth effect of women's stronger labour force attachment in the USA.

Further, and particularly important for the USA, *race* is a predictor of income and wealth accumulation. For instance, Sierminska et al. (2010) emphasise that discrimination based on race plays a role in accumulating wealth in certain assets. The authors claim that Black single-earner couples are particularly disadvantaged regarding access to mortgage lending and, thus, home ownership in the USA (Sierminska et al., 2010). As such, the transmission channels of monetary policy may not only manifest along lines of gender, but also take an intersectional dimension.

While the impact of the aforementioned factors is uncontested in the literature on gendered portfolio choices, the effect of an individual's *relationship status* is far more debated. For a long time, marriage has been regarded as akin to a "safe asset" for women. Rehm et al. (2022, p.699) find a "marriage wealth premium" for married couples relative to single households or cohabitating couples using the 2014 wave of the HFCS for Austria. However, it remains unclear whether this premium translates to higher individual wealth for the woman within a heterosexual couple or if this wealth largely remains in control of the man. Indeed, Rehm et al. (2022) propose two possible effects of marriage on a woman's individual wealth. For one, the authors suggest that marriage is regarded as an increased commitment to a joint life, thereby leading to more wealth sharing (Rehm et al., 2022). In this vein, Sierminska et al. (2010) also highlight that widows often inherit their late husband's wealth and, using the German Socio-Economic Panel (SOEP), find that widows are among the wealthiest women in Germany. In contrast to these findings, Rehm et al. (2022) propose a second possible effect of marriage on women's wealth and portfolio choices. With the single earner model still being predominant, especially among older generations, women often become financially dependent on their husbands and suffer negative effects on their individual wealth accumulation. These effects are particularly evident in case of a divorce after which the woman, having taken a prolonged career break, might struggle to find ground on the labour market again (Rehm et al., 2022). In this vein, Bertocchi et al. (2011) study the joint impact of gender and marital status on households' financial decision making and highlight that marriage can no longer be regarded as the safe institution it once was. Using the Bank of Italy's Survey on Household Income and Wealth from 1989 to 2006, the authors test the hypothesis that marriage is a safe asset and that the effect thereof is stronger for women's wealth accumulation than for men's. On the premise of marriage as a source of financial security, it is assumed that marriage should increase an individual's willingness to invest in risky assets (Bertocchi et al., 2011). The authors estimate a probit model for the decision to invest in risky assets, adding a gender and relationship status dummy as well as a number of socioeconomic controls. As key finding, Bertocchi et al. (2011) present that the differential behaviour of married and single women has evolved over time. While the difference in their willingness to invest in risky assets peaks in the intermediate years of the sample period, it diminishes afterwards. The authors suggest the evolution of gender roles in society, increased

female labour force participation and the parallel erosion of the importance of marriage as reasons behind this observation (Bertocchi et al., 2011). Their findings are reiterated by Grabka et al. (2013) who argue that every divorce is preceded by a period of non-cooperation between the former couple. This gives the wealthier partner the opportunity to transfer shared assets into their private possession (Grabka et al., 2013). As such, contrasting the notion of a marriage wealth premium, the authors take up the concept of a "marriage disruption penalty", initially put forward by Warren et al. (2001). Thus, this paper cautions to regard marriage as a safe asset. Rather, it is likely that a household's relationship status will no longer have a significant impact on individual wealth accumulation and portfolio choices. If anything, marriage will have a negative effect on a woman's ability to diversify her portfolio in case of a divorce.

Moreover, *human capital* (i.e. *education*) is often suggested as a driver of wealth accumulation and, thereby, portfolio allocation decisions. Once again, working with the 2014 HFCS, Rehm et al. (2022) find that the level of education is positively correlated with wealth, although it does not explain the gender wealth gap in Austria in its entirety. Further, Sierminska et al. (2010) highlight that men have on average higher levels of education than women, a difference which increases among married couples. Addressing the importance of education for the gender wealth gap in the USA, Ruel and Hauser (2013) employ data from the Wisconsin Longitudinal Study. The authors find that educational attainment explains 23 to 29 percent of the wealth gap between married men and women. Strikingly, concerning single, never-married households, the gender wealth gap widens once educational attainment is controlled for. According to Ruel and Hauser (2013), this indicates that men and women have different returns to education, which seem to be lower for women with regards to wealth accumulation than for men. This may, once again, be due to highly-educated women taking on a role as mothers and facing a gender-segregated labour market which impairs their ability to earn the full return on their education, an obstacle less often faced by men. Via its overall positive impact on wealth accumulation, education is likely also positively associated with a household's willingness and ability to diversify its portfolio and invest into riskier asset categories.

Another important predictor of a household's overall wealth and, thereby, its range of portfolio diversification is the *level of wealth* that has been passed on to the household. In their analysis of the Wisconsin Longitudinal Study participants' wealth, Ruel and Hauser (2013) highlight the importance of the family of origin. Wealthy parents not only provided access to quality education and, thus, improved income prospects, but also often assisted in the purchase of the household's first home and helped to minimise mortgage debt (Ruel & Hauser, 2013). As most important mechanism for this transfer of wealth and status, Ruel and Hauser (2013) name past *gifts and inheritances*. The authors find inheritances to explain six to twelve

percent of the wealth gap between single male and female households and almost five percent of the wealth gap between married men and women. Most importantly, the access to family wealth transfers has been shown to be gendered. Szymborska (2022) analyses the evolution of the gender wealth gap in the USA using all accessible SCF waves from 1989 to 2019. In 2019, 33.7% of male-headed households had received an inheritance from their family versus 26.4% of female-headed households. This represents an increase in gender differences concerning inheritances since 1989 (Szymborska, 2022). The importance of inheritances, particularly concerning *home ownership* status as emphasised by Ruel and Hauser (2013), is also stressed by Schneebaum et al. (2018). Using the 2010 wave of the HFCS, the authors analyse the gender wealth gap across eight European countries and find home ownership to be positively correlated with wealth (Schneebaum et al., 2018). Therefore, inheritances and, in particular, home ownership status, are predicted to correlate positively with a household's wealth and, consequentially, its opportunities for portfolio diversification in this paper's analysis.

Evidently, another highly significant determinant of a household's wealth and portfolio diversification is its *labour market participation* with regards to the hours worked per week and throughout an individual's lifetime. The relevance of this factor is stressed by Sierminska et al. (2010) who find that the German raw gender wealth gap is driven predominantly by gender differences in labour market experience and, thus, income discrepancies. The authors highlight that men are more likely to be employed full-time while women work part-time more often (Sierminska et al., 2010), a finding which is unsurprising given the prevalence of the traditional breadwinner model[1] in Germany. Similar notes are put forward by Bajtelsmit and Bernasek (1997) who conduct a critical review of existing empirical work on gender differences in investment behaviour at the time. The authors claim that, overall, studies find significant differences in male and female investment in risky assets. All explanations for these differences are rooted in individual preferences or gender-based discrimination with women being concentrated in lower segments of occupational hierarchies and low-paying professions (Bajtelsmit & Bernasek, 1997). In this context, Ruel and Hauser (2013) put forward the differential exposure hypothesis. Thereby, women are less exposed to structural elements required for wealth accumulation, such as labour market attachment, due to the gendering of both the home and the workplace (Ruel & Hauser, 2013). Women tend to take career breaks more often and are more susceptible to taking on part-time work in order to care for children or conduct household work (see also Grabka et al. (2013) and Schneebaum et al. (2018) with similar results for Europe). Indeed, in their empirical examination of wealth accumulation by gender in the USA, Ruel and Hauser (2013) find status attainment through

[1] This term describes a form of labour allocation within the household whereby the man works full-time and earns the household's income while the woman is responsible for care and housework and is unemployed or works only very little hours, hence having no substantial income herself.

employment most powerful in explaining the gender wealth gap between men and women of the same relationship status. However, it should be noted that labour market participation does not explain the gender wealth gap in full. Even in their full specification, Ruel and Hauser (2013) find a remaining unexplained gender wealth gap.

Undoubtedly, labour market attachment is closely tied to an individual's *income* and, hence, the stock of wealth they are able to accumulate throughout a lifetime. Badunenko et al. (2010) use the 2004 German SOEP to test the traditional assumption that women are less inclined to take risks and, therefore, tend to invest less in risky assets. The authors group assets into "insecure" and "secure" categories whereby stocks of listed and non-listed companies as well as bonds are perceived as "insecure" investments. Badunenko et al. (2010) note a gender gap in assets deemed insecure which are held by 45 percent of men in their sample, but only by 38 percent of women. The authors go on to acknowledge that this gap is often related to the assumed inherent risk-aversion of women in contrast to men. On the contrary, Badunenko et al. (2010) argue that gender-differences in risk aversion are not the driver of these different portfolio choices, but rather that they are rooted in women disposing of a lower financial budget to invest. In support of their argument, the authors highlight a positive correlation between the sheer amount of assets held and insecure investments for both men and women (Badunenko et al., 2010). Thus, similar to Young (2019), Badunenko et al. (2010) argue that it is ultimately wealth and income which allows individuals to diversify their portfolio rather than risk aversion or personal characteristics.

This concludes the full circle to taking up the analysis by Barasinska and Schäfer (2013) once again who place particular emphasis on financial means and risk tolerance as drivers of gender differences in portfolio choices. The previous paragraphs have explored some of the core socioeconomic variables named by the existing literature on the gender wealth gap and gender differences in portfolio allocation choices. Their primary purpose was showcasing that gender in this context is to be understood as a socioeconomic rather than biological category. As women are more likely to take on roles as primary caregivers and face a gender-segregated labour market, their income opportunities are constrained. This severely limits their ability to accumulate wealth and, thus, to diversify their financial portfolio. Further, women's generally low income likely also impairs their willingness and ability to take on financial risks as they have less of a safety net to fall back on. Similarly, their role as caregivers inhibits their risk tolerance because women also take ramifications for the financially dependent household members into account. All of these constraints are less applicable to male households and allow them to, on average, dispose of a more diversified and relatively riskier portfolio.

While Barasinska and Schäfer (2013) explore this question for European countries, their results have not yet been applied to the context of the USA. This is the task undertaken by this paper which asks: *Are there significant differences in portfolio choices between men and women in the United States of America in 2022? If so, what are the drivers of these differences?* Based on the previous literature review, this paper hypothesises that there are indeed significant differences between male and female portfolio choices. However, rather than by gender itself, it is expected that (1) these differences are largely due to the financial means at the disposal of the respective household. (2) Any remaining differences are likely due to different risk preferences between men and women. These may stem from gendered roles in society as discussed above with regards to relationship status and children. There may also be more subdued reasons for gender differences in risk preferences which are taken up in chapter 4.

To my knowledge, this is the first research endeavor to apply the methodology of Barasinska and Schäfer (2013) to a US-American sample. The USA are an interesting case to be explored and allow for the following contributions: Income and wealth inequality in the USA is higher than in most industrialised countries (Siripurapu, 2022) and has been aggravated as a result of the GFC (Montecino & Epstein, 2015), meaning it must be addressed with particular urgency. This paper points towards another possible root of inequalities, thereby providing a first step towards their alleviation. Moreover, financialization in the USA is even more pronounced than it is in Europe and stock market participation is more widespread (van Lerven, 2016). Consequentially, financial income is even more relevant for ensuring financial security in retirement (Forti Grazzini & Kim, 2020). Finally, given this importance of financial investment opportunities, the gendered distributional impacts of monetary policy in the USA might be even more severe should men and women display significantly different portfolio choices.

3 Empirical Analysis: Gendered Portfolio Choices in the USA

This paper applies the empirical analysis of Barasinska and Schäfer (2013) to US-American households in the SCF 2022. The methodology is introduced in more detail in this chapter and results will be discussed in chapter 4.

3.1 Data and Methodology: Applying a Heckman Selection Model to the SCF 2022

The 2022 wave of the SCF is the most current data available at the time of writing. While results may be influenced by the pandemic and its consequential economic downturns and uncertainty, they may also point towards interesting future research on gender differences in financial market participation under these circumstances as further discussed in chapter 4.

Ultimately, if the goal is to alleviate gender inequalities, one must understand their manifestations today in order to address them effectively, explaining the choice of working with the 2022 data set.

The SCF is a triennial cross-sectional survey of US-American households funded by the Federal Reserve Board which has been gleaning information on households' balance sheets, pensions, income, and demographic characteristics since 1989 (Federal Reserve System, 2017). It should be noted that information concerning wealth holdings and income is gathered at the household level only and cannot be deducted for its individual members. Questions on these matters are answered by the household's "reference person" who is identified as the single core individual of the household. For coupled households, this reference person is by default the male member of a heterosexual couple, or the older individual in a same-sex couple (Federal Reserve System, 2022). The SCF's 2022 wave includes 4,595 observations (i.e. households) in total. As the reference person for coupled households is by default male in most cases, there are far more male households (3,497) in the dataset than female ones (1,098). Indeed, out of the 1,098 female households, 1,049 are single and only 49 live with a partner (Board of Governors of the Federal Reserve System (U.S.), 2023). Consequentially, there are a substantial number of "male" coupled households which mask the behaviour of a female decision-maker. Therefore, it is impossible to make any concise statements about gender differences in portfolio choices of coupled households and this paper will only assess the behaviour of the 1,690 single households in the SCF 2022. Again, 1,049 of these households are female while the remaining 641 are male (Board of Governors of the Federal Reserve System (U.S.), 2023). Arguably, this puts a strain on the representativeness of the households and, thus, this paper's findings. This is to be kept in mind, particularly concerning the discussion of results in chapter 4.

As aforementioned, this paper follows the methodological approach of Barasinska and Schäfer (2013). The dependent variable of interest is the household's *holdings of risky assets*. Following Barasinska and Schäfer (2013), risky assets are first defined as directly held stocks and as directly held stocks plus mutual funds at a later stage. The main independent variable of interest is the household's *gender*, a dummy which takes the value of 1 if the reference person is a man, and 0 otherwise.

Evidently, not all single households in the dataset hold risky assets and the choice to do so is not random. Therefore, this paper must account for the households' self-selection into risky asset holders. This is ensured by applying a two-stage Heckman selection model (Barasinska & Schäfer, 2013). In a first stage, this paper analyses the household's participation decision to hold any amount of risky assets. According to Barasinska and Schäfer (2013), the variable explaining this decision is the household's *status as owner of residential property* – a dummy

equal to 1 if the household owns any residential real estate and 0 otherwise. The authors argue that a household whose wealth is bound in real estate likely has no further means at its disposal to invest in financial products, especially risky ones. However, once a household has made the decision to invest in such assets, ownership of real estate becomes irrelevant concerning the optimal share of risky assets in a household's portfolio (Barasinska & Schäfer, 2013).

The dependent variable in the first stage model is, thus, a dummy variable equal to 1 if the household *owns any amount of risky assets* and 0 otherwise. This dependent variable is employed in a probit regression on the explanatory variables gender, ownership of real estate and a number of socioeconomic control variables.

The first of these controls is the logarithm[2] of the household's *gross annual total income* which is presumed to positively affect the decision to invest in risky assets as outlined in chapter 2. Secondly, Barasinska and Schäfer (2013) include dummies on the household's positioning in *financial wealth quartiles* as explanatory variables with the first quartile being the base category. The 2022 USD values of income and wealth have been winsorised at the 99 percent level to exclude the impact of extreme outliers following Barasinska and Schäfer (2013). The regression further includes dummies for the reference person's *age group* (<30, 30-39, 40-49, 50-59, 60-69, >=70) with the group below 30 being the baseline category. Moreover, the *number of children* in the household is expected to have a negative impact on the household's risky asset holdings as elaborated in chapter 2. Further dummies indicate the *relationship status* (never married, divorced/separated, widowed, and married as baseline category) and the reference person's level of *education* (1 if they obtained a college degree, 0 otherwise). While the latter is expected to increase holdings of risky assets via its positive effect on wealth, the effect of the former is to be analysed with some caution. As this paper only takes the behaviour of single households (i.e. those living without a partner) into consideration, any married households are hardly representative and no cogent statement about the effect of marriage will be possible. Nonetheless, a positive effect of widowhood via wealth accumulation and a negative effect of separation or divorce is expected in line with the discussion in chapter 2.

This paper then deviates from the analysis of Barasinska and Schäfer (2013) to some extent. While the authors assess the effects of labour market attachment only via a dummy for *self-employment*, this paper argues that with regards to its research question, it is sensible to also analyse this factor through the household's *weekly working hours*. As aforementioned,

[2] To account for zero and negative values, the monetary values of income and wealth have been subjected to an inverse hyperbolic sine transformation following Schneebaum et al. (2018). For simplicity, this paper refers to their "log" value in the following.

women in their role as primary caregivers are more constrained in allocating their time between care work and paid work. This likely has negative implications for their income and willingness to take financial risk. Hence, labour market attachment is captured via the expected positive effect of weekly work hours and self-employment status following Barasinska and Schäfer (2013). Concerning the latter, it can be assumed that self-employed individuals are more comfortable with taking risks since they opted for making a living without the safety net of employment benefits. This also implies that these individuals will have to ensure their financial security in old age through private investments, possibly spurring them to invest some amount of their portfolio into relatively high-risk, high-yield assets. Moreover, as the country of interest in this paper is the USA, the regression includes a dummy indicating the household's *race* (Black/African American, Hispanic, Asian, Other, and White as baseline category). Finally, this paper follows Schneebaum et al. (2018) by including a dummy variable on the household's past *inheritances*. This is particularly important to ensuring the validity of the identification restriction employed in the Heckman model. As detailed in section 2, inheritances are highly relevant to building up a household's wealth. Most importantly, a household which has gained real estate ownership status via an inheritance will still dispose of sufficient financial means to invest in risky assets. Hence, controlling for inheritances is vital to fully capturing the identification restriction employed by Barasinska and Schäfer (2013). In line with Schneebaum et al. (2018), this paper conservatively assumes real value retention using the annual inflation rates from the World Bank (2024) database for the USA. The dataset's median net wealth is used to calculate dummy variables indicating whether the household has received a small or large inheritance, with no inheritance being the baseline category.[3]

Up to this point, Barasinska and Schäfer (2013) name the model a naïve model capturing the gross effect of gender on the decision to invest in risky financial assets. In a further step, the household's self-reported *risk tolerance* is added as final explanatory variable to account for the socioeconomic restrictions faced by women and their implications for women's risk preferences. The SCF includes a question on the amount of financial risk the reference person is willing to take when saving or making investments. The respondent has the option to choose between four answers: (1) no risk, (2) average risk, (3) above average risk and (4) substantial risk. Evidently, a higher self-reported risk tolerance is expected to positively affect a household's risky asset holdings.

Thus concludes the first model analysing the household's participation decision. The second model then employs a Heckman regression to account for the self-selection into risky asset-holders when analysing a household's allocation decision. To do so, the *Inverse Mills Ratio*

[3] For further information on the methodology regarding inheritances, please see Schneebaum et al. (2018).

(IMR) is obtained from the first stage model and included as additional explanatory variable in the ordinary least squares (OLS) regression in model two. The dependent variable is now the *share of risky assets*[4] in the household's net worth following Barasinska and Schäfer (2013). Two further adaptations are made: Financial wealth as explanatory variable is now expressed in its logarithm form as the share of risky assets is expected to take a concave increasing function of wealth (Barasinska and Schäfer (2013) following Guiso et al. (2008)). Moreover, the second model excludes the identification restriction from the first model, residential property ownership. All other explanatory variables from model one are included in the second stage OLS model as described above. Again, this paper first employs the naïve model without accounting for risk tolerance and then adds this explanatory variable to the regression. The entirety of the portfolio composition process and households' self-selection into risky asset-holders as traced by this paper's methodology is described by Figure 1.

One final remark concerning the SCF data is noteworthy. The SCF provides five imputations per data wave to account for item non-responses. This paper runs the regressions in section 3.3 only with the average imputation as suggested by the SCF 2022 Codebook (Federal Reserve System, 2022). However, the descriptive statistics presented in section 3.2 use all five imputations and the survey weights provided in the dataset.

[4] Computed as $\frac{USD\ amount\ of\ asset}{USD\ amount\ of\ net\ worth}$.

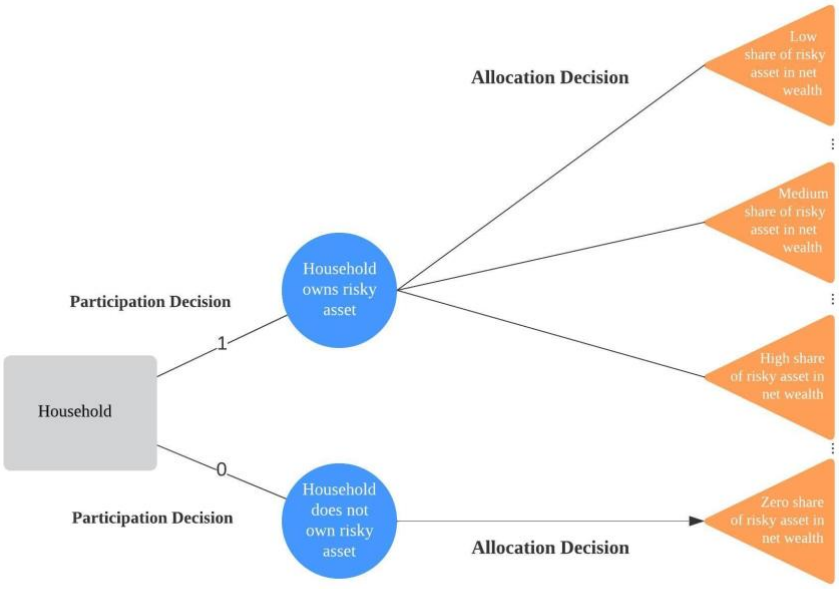

Figure 1: Tracing a household's portfolio composition process based on participation and allocation decision. Author's depiction based on Barasinska and Schäfer (2013).

3.2 Descriptive Statistics

This section addresses the first part of the research question: whether there are differences in portfolio choices between male and female single households in the USA in 2022. The data largely confirms the hypotheses derived from the literature. As shown in Figure 2, single male households have higher median income than female ones. Men earn 43,235 USD annually, while women receive 38,900 USD (Board of Governors of the Federal Reserve System (U.S.), 2023). This supports the notion of gender as a socioeconomic category, with women having relatively less income for portfolio diversification. Strikingly, however, single female households in 2022 have slightly higher median net worth than males (74,500 USD vs. 72,900 USD; see Figure 3). This contrasts sharply with the 2016 SCF, where females had 45,000 USD and males 55,300 USD in net worth at the median (Board of Governors of the Federal Reserve System (U.S.) (2023), see Figure 9 in the appendix). While this paper does not aim to explain this shift, it is a worthwhile avenue for future research, possibly related to macroeconomic developments such as monetary policy during the pandemic.[5]

[5] The 2016 and 2022 waves contained roughly equal shares of widowed women (22.5% & 21.1% respectively (Board of Governors of the Federal Reserve System (U.S.), 2023)), making inheritance an unlikely cause. The 2022 SCF was taken during a unique period. Future research may examine the pandemic's and the war in Ukraine's differential impact on asset types held by men and women.

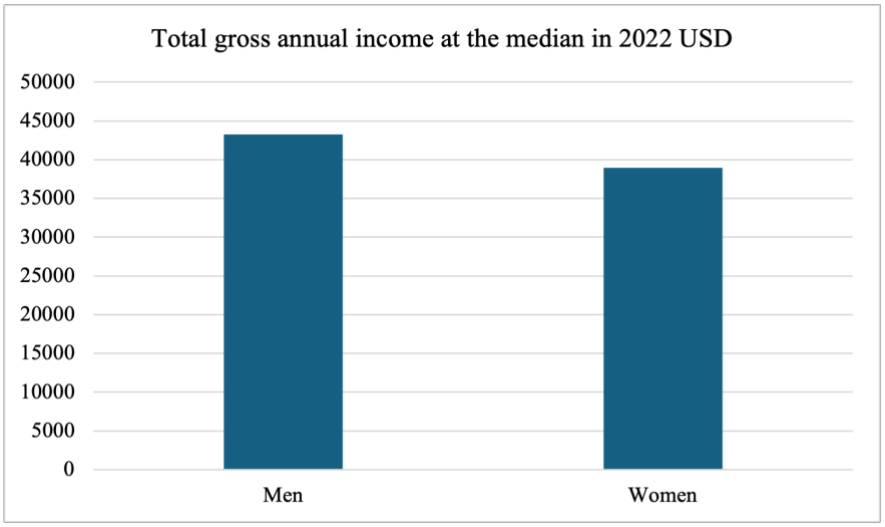

Figure 2: Total gross annual income of male and female single households at the median in 2022 USD. Author's depiction based on the SCF 2022 (Board of Governors of the Federal Reserve System (U.S.), 2023).

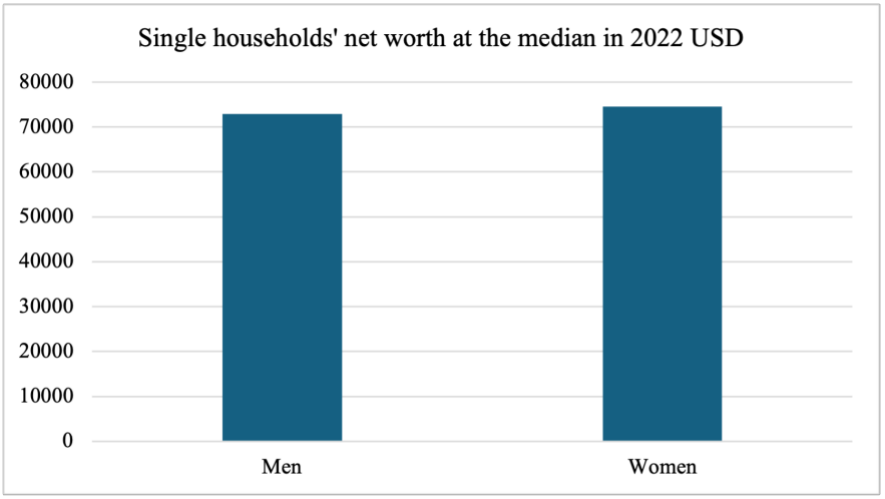

Figure 3: Net worth of male and female single households at the median in 2022 USD. Author's depiction based on the SCF 2022 (Board of Governors of the Federal Reserve System (U.S.), 2023).

Despite women's higher net worth, men held slightly more value in financial assets in 2022: 12,600 USD vs. 11,300 USD at the median (Figure 4, Board of Governors of the Federal Reserve System (U.S.) (2023)).[6]

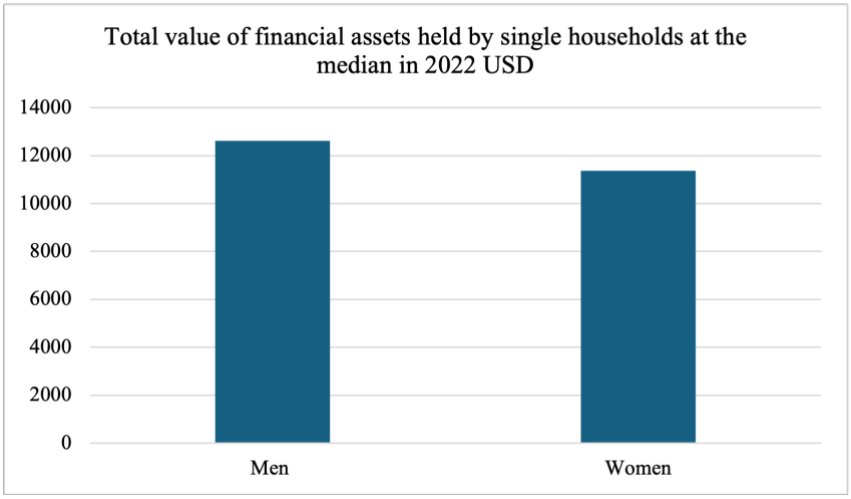

Figure 4: Total gross value of financial assets held by male and female single households at the median in 2022 USD. Author's depiction based on the SCF 2022 (Board of Governors of the Federal Reserve System (U.S.), 2023).

These differences extend to the holdings of risky assets, specifically stocks. Expressed in terms of the weighted generalisable population, 19.4 percent of single men hold stocks, compared to 11.5 percent of single females (see Figure 5, Board of Governors of the Federal Reserve System (U.S.) (2023)). Conversely, women are more likely to own their primary residence — a relatively safe investment — with 52% ownership versus 47% among men. This is a first indication that women's wealth tends to be bound in relatively safe assets and supports using home ownership as identification restriction in the Heckman model in line with Barasinska and Schäfer (2013).

[6] Again, in 2016, this difference was larger: 11,411 USD for men vs. 7,566 USD for women (in 2016 USD, Board of Governors of the Federal Reserve System (U.S.) (2023)).

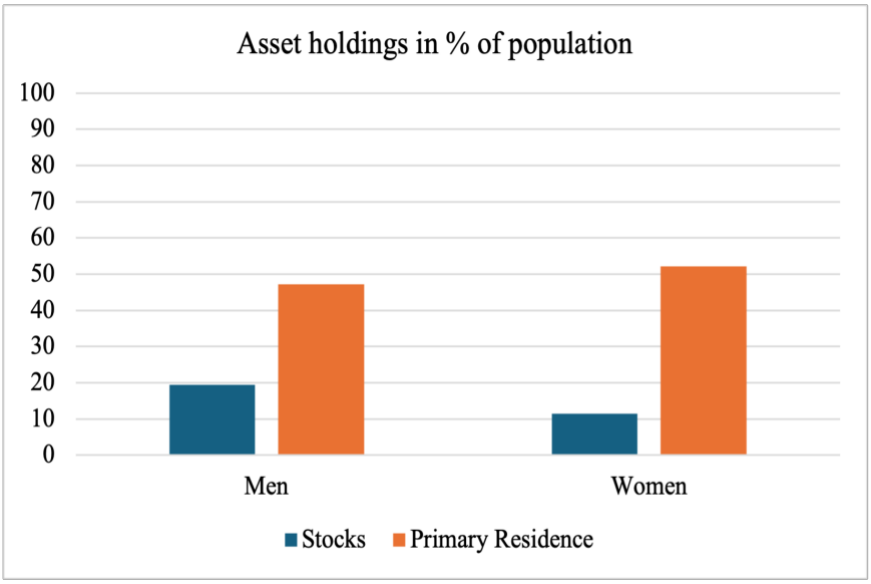

Figure 5: Percent of single male and female households holding stocks and owning their primary residence in the USA in 2022. Author's depiction based on the SCF 2022 (Board of Governors of the Federal Reserve System (U.S.), 2023).

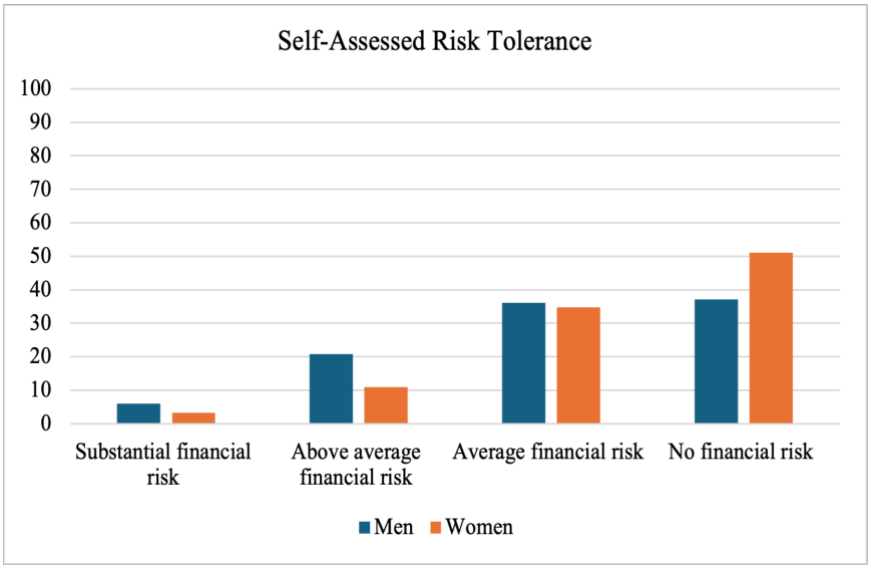

Figure 6: Self-reported risk tolerance of single male and female households in the USA 2022 in weighted shares of the generalisable population. Author's depiction based on the SCF 2022 (Board of Governors of the Federal Reserve System (U.S.), 2023).

Figure 6 supports the idea that men and women differ in financial risk attitudes. Respondents rated their willingness to take financial risks from 1 (none) to 4 (substantial). Men outnumber women in all but the lowest category: 51% of women report no willingness to take financial risks, compared to 37% of men (Board of Governors of the Federal Reserve System (U.S.), 2023).

In summary, single men and women have surprisingly similar net worths, though women earn less and men hold more value in financial assets. Differences in portfolio choices are evident: women favour safer investments like home ownership, while men invest more in stocks. This gives further reason to assume that the differences in financial means and self-reported risk tolerance drive the divergence in portfolio choices between men and women.

3.3 Results

This section presents the results of the empirical analysis following the two-stage Heckman model of Barasinska and Schäfer (2013). Table 1 displays the regression results for the participation decision. Column (1) denotes the naïve model capturing the gross effect of being male; column (2) shows the advanced model controlling for risk tolerance. In both models, being male increases the probability of stock ownership. In the advanced model, this effect drops to 14.4% and is only significant at the 10% level. A complete lack of risk tolerance lowers stock ownership probability by 75%, supporting the hypothesis that risk preferences drive gender differences in portfolio choices. Higher financial wealth significantly increases the likelihood of stockholding across all quartiles. Unexpectedly, income shows no effect.

Among socioeconomic controls, age is negatively associated with stock ownership, particularly for those aged 50–59. Having children is insignificant here but matters for the allocation decision (Table 2). While this is similar to the results presented by Barasinska and Schäfer (2013), it is surprising given the discussion in chapter 2. In contrast to being married, any relationship status is positively associated with the probability of owning risky assets. Again, this paper cautions to jump to conclusions based on these results as only single households are accounted for in the empirical analysis. Hispanic households seem to be less likely than White households to hold stocks whereas Asians are more likely to do so. This is robust across different model specifications. Variables used to capture selection bias, home ownership and inheritance, are insignificant in the first stage, aligning with Barasinska and Schäfer (2013). The implications of this will be discussed in chapter 4.

Table 1: Participation decision: Probit regression of stock ownership on gender and socioeconomic controls

	Dependent variable:	
	Participation decision	
	(1)	(2)
Male	0.210^{**}	0.144^{*}
	(0.088)	(0.086)
Real estate	-0.006	0.007
	(0.099)	(0.100)
Income (log)	0.033	0.017
	(0.033)	(0.030)
Q2 financial wealth	0.559^{***}	0.441^{***}
	(0.149)	(0.146)
Q3 financial wealth	0.800^{***}	0.667^{***}
	(0.154)	(0.156)
Q4 financial wealth	1.397^{***}	1.160^{***}
	(0.183)	(0.180)
Aged 30-39	-0.165	-0.088
	(0.121)	(0.116)
Aged 40-49	-0.292^{**}	-0.231^{*}
	(0.135)	(0.130)
Aged 50-59	-0.808^{***}	-0.680^{***}
	(0.163)	(0.161)
Aged 60-69	-0.522^{***}	-0.316^{**}
	(0.155)	(0.159)
Aged 70 or older	-0.576^{***}	-0.317
	(0.214)	(0.227)
One child	-0.106	-0.128
	(0.131)	(0.132)
Two children	-0.661	-0.650
	(0.449)	(0.420)
Three or more children	-0.743	-0.615
	(0.926)	(0.950)
Separated/divorced	2.443^{***}	2.618^{***}
	(0.472)	(0.479)
Widowed	2.563^{***}	2.735^{***}
	(0.506)	(0.514)
Never married/single	2.191^{***}	2.356^{***}
	(0.490)	(0.498)
College	0.162^{*}	0.127
	(0.085)	(0.087)
Self-employed	0.354^{***}	0.278^{*}
	(0.134)	(0.146)
Weekly working hours	0.006^{***}	0.006^{***}
	(0.002)	(0.002)
Black/African American	-0.005	-0.012
	(0.108)	(0.104)
Hispanic	-0.593^{***}	-0.571^{***}
	(0.173)	(0.172)
Asian	0.518^{**}	0.568^{***}
	(0.221)	(0.198)

Continued on next page

Table 1 – continued from previous page

	Dependent variable:	
	Participation decision	
	(1)	(2)
Other ethnicity	−0.458	−0.328
	(0.477)	(0.487)
Small inheritance	0.058	0.060
	(0.128)	(0.126)
Large inheritance	−0.052	−0.071
	(0.146)	(0.157)
Risk tolerance: above average		0.096
		(0.201)
Risk tolerance: average		−0.256
		(0.193)
Risk tolerance: None		−0.754***
		(0.204)
Intercept	−4.373***	−3.988***
	(0.616)	(0.611)
Observations	1,690	1,690
Note:	*p<0.1; **p<0.05; ***p<0.01	
	Dataset: SCF 2022	
	Probit regression	

The second stage (Table 2) models the share of net worth allocated to stocks. Being male has a small but weakly significant effect, which diminishes in the advanced model (0.7%). It should be noted that this result deviates from Barasinska and Schäfer (2013) who find gender to be insignificant in the allocation decision for all four European countries. Income and wealth remain significant predictors of allocation. Lack of risk tolerance reduces the share of stocks held, although at a lower significance level than in the first stage.

There are a few further deviations from the participation decision. Evidently, different socioeconomic circumstances come into play at different stages of the overall portfolio composition process. A college degree is now positively associated with stock share, while self-employment and working hours are not. Age and relationship status effects diminish, but having children becomes highly significant: parents hold up to 1.4% fewer stocks than childless households. Racial effects mostly disappear, except for a persistent positive effect among Asian households. Inheritance has a positive and significant effect at this stage. As in Barasinska and Schäfer (2013), the IMR - meant to account for the self-selection bias into stockholders - is insignificant for both model specifications which will be taken up in the following chapter.

Table 2: Allocation decision: OLS regression of share of stocks on gender and socioeconomic controls

	Dependent variable:	
	Allocation decision	
	(1)	(2)
Male	0.009^{**}	0.007^{*}
	(0.004)	(0.004)
Income (log)	0.006^{***}	0.006^{***}
	(0.002)	(0.002)
Financial wealth (log)	0.004^{***}	0.003^{***}
	(0.001)	(0.001)
Self-employed	0.005	0.003
	(0.005)	(0.005)
Weekly working hours	−0.0002	−0.0002
	(0.0001)	(0.0001)
College	0.010^{**}	0.009^{**}
	(0.004)	(0.004)
Aged 30-39	0.005	0.007
	(0.008)	(0.008)
Aged 40-49	-0.011^{**}	−0.009
	(0.006)	(0.006)
Aged 50-59	-0.015^{**}	−0.012
	(0.007)	(0.007)
Aged 60-69	−0.011	−0.006
	(0.007)	(0.007)
Aged 70 or older	−0.001	0.004
	(0.010)	(0.010)
Separated/divorced	−0.010	−0.007
	(173.862)	(537.998)
Widowed	−0.012	−0.009
	(173.863)	(537.998)
Never married/single	−0.013	−0.010
	(173.863)	(537.998)
One child	-0.008^{**}	-0.008^{**}
	(0.004)	(0.004)
Two children	-0.014^{***}	-0.014^{***}
	(0.004)	(0.004)
Three or more children	-0.014^{***}	-0.012^{***}
	(0.004)	(0.004)
Black/African American	0.001	−0.0002
	(0.003)	(0.003)
Hispanic	−0.002	−0.001
	(0.004)	(0.004)
Asian	0.040^{*}	0.040^{*}
	(0.024)	(0.024)
Other ethnicity	0.001	0.002
	(0.010)	(0.010)
Small inheritance	0.004	0.005
	(0.007)	(0.007)
Large inheritance	0.032^{**}	0.032^{**}
	(0.013)	(0.013)

Continued on next page

Table 2 – continued from previous page

	Dependent variable:	
	Allocation decision	
	(1)	(2)
Risk tolerance: above average		−0.003
		(0.012)
Risk tolerance: average		−0.009
		(0.013)
Risk tolerance: None		−0.020*
		(0.011)
IMR	0.000	0.000
	(0.00001)	(0.00000)
Intercept	−0.070	−0.052
	(173.862)	(537.998)
Observations	1,690	1,690
Note:	*p<0.1; **p<0.05; ***p<0.01	
	Dataset: SCF 2022	
	OLS regression	

3.3.1 Robustness Check: Extending Risky Assets to Include Mutual Funds

Following Barasinska and Schäfer (2013), mutual funds are now included as risky assets. The authors do so in reference to Christelis et al. (2011) who find that single women prefer to hold stocks indirectly through mutual funds while men tend to do so directly. Hence, only analysing direct stock ownership may paint female portfolio decisions as more risk averse than appropriate. As shown in Table 3, gender becomes insignificant in the advanced model once mutual funds are considered. Risk aversion remains significant: no tolerance reduces the likelihood of participation by 91.3%, average tolerance by 53%. Wealth remains significant; income does not. Children now have a significant negative effect on participation.

Table 3: Participation decision: Probit regression of risky asset ownership on gender and socioeconomic controls

	Dependent variable:	
	Participation decision	
	(1)	(2)
Male	0.181**	0.113
	(0.087)	(0.086)
Real estate	0.045	0.067
	(0.091)	(0.091)
Income (log)	0.045	0.033
	(0.033)	(0.031)
Q2 financial wealth	0.595***	0.500***
	(0.142)	(0.141)
Q3 financial wealth	1.008***	0.904***
	(0.144)	(0.144)

Continued on next page

Table 3 – continued from previous page

	Dependent variable:	
	Participation decision	
	(1)	(2)
Q4 financial wealth	1.862^{***}	1.656^{***}
	(0.169)	(0.168)
One child	-0.179	-0.199^{*}
	(0.113)	(0.116)
Two children	-0.607^{**}	-0.586^{**}
	(0.271)	(0.266)
Three or more children	-0.865	-0.742
	(0.703)	(0.716)
... [7]		
Risk tolerance: above average		-0.130
		(0.186)
Risk tolerance: average		-0.530^{***}
		(0.163)
Risk tolerance: None		-0.913^{***}
		(0.181)
Intercept	-4.541^{***}	-3.925^{***}
	(0.534)	(0.540)
Observations	1,690	1,690
Note:	*p<0.1; **p<0.05; ***p<0.01	
	Dataset: SCF 2022	
	Probit regression	

In the second stage, gender remains insignificant in the advanced model. Wealth and income are positively associated with the allocation decision. Average and no risk tolerance reduce the share of risky assets, though only the latter is strongly significant. Other coefficients largely mirror the baseline results.

Table 4: Allocation decision: OLS regression of share of risky assets on gender and socioeconomic controls

	Dependent variable:	
	Allocation decision	
	(1)	(2)
Male	0.012^{*}	0.009
	(0.006)	(0.006)
Income (log)	0.010^{***}	0.010^{***}
	(0.002)	(0.002)
Financial wealth (log)	0.010^{***}	0.010^{***}
	(0.001)	(0.001)
...		

Continued on next page

[7] For simplicity, only the key variables of interest are depicted here. For the full table, please refer to table 5 in the Appendix.

Table 4 – continued from previous page

	Dependent variable:	
	Allocation decision	
	(1)	(2)
Aged 30-39	0.017*	0.019**
	(0.009)	(0.009)
Aged 40-49	−0.007	−0.004
	(0.008)	(0.008)
Aged 50-59	0.001	0.005
	(0.010)	(0.010)
Aged 60-69	−0.002	0.004
	(0.010)	(0.010)
Aged 70 or older	0.027*	0.034**
	(0.014)	(0.015)
...[8]		
Risk tolerance: above average		−0.012
		(0.016)
Risk tolerance: average		−0.029*
		(0.015)
Risk tolerance: None		−0.035***
		(0.013)
IMR	−0.000	−0.000
	(0.00004)	(0.00002)
Intercept	−0.149	−0.114
	(2,296.317)	(5,629.689)
Observations	1,690	1,690
Note:	*p<0.1; **p<0.05; ***p<0.01	
	Dataset: SCF 2022	
	OLS regression	

Finally, the case of those households having a negative net worth whilst holding risky assets must be discussed. There are 221 net debtors among the 1,690 single households in the 2022 SCF. Only 14 of them own risky assets in the form of directly held stocks (Board of Governors of the Federal Reserve System (U.S.), 2023). Thus far, the share of risky assets in their portfolio has been coded to 0. Nonetheless, taking on debt is a portfolio decision itself and should be considered in the analysis. Therefore, a dummy variable on a household's position as a net debtor (1 if they are net debtor, 0 otherwise) is added. The results of this regression for both the participation and the allocation decision can be found in the appendix (Table 7 and Table 8). Overall, they confirm the results of the baseline model. However, with regards to the participation decision, gender becomes insignificant in the advanced model. Being a net debtor

[8] For simplicity, only the key variables of interest are depicted here. For the full table, please refer to table 6 in the Appendix.

is not significant for participation, but it significantly reduces the share of stocks in net worth by 1.2%. This effect and its implications will be discussed in chapter 4.

Overall, the results presented in this subsection are ambiguous regarding the hypotheses derived from the literature and the work of Barasinska and Schäfer (2013). Financial wealth and risk tolerance are significant drivers of portfolio choices along both stages of the decision-making process while income is significant only for the allocation decision. The significance of gender in the baseline allocation decision stands in contrast to the results of Barasinska and Schäfer (2013) who find that gender is not a driver of portfolio decisions at this stage when controlling for risk tolerance. However, gender is not significant once including mutual funds. The next chapter discusses these nuances.

4 Discussion of the Empirical Results

Concerning financial wealth and income, the results of chapter 3.3 confirm this paper's hypothesis: they are key drivers of portfolio choices. Unexpectedly, income is only relevant for allocation, not participation—a finding robust across specifications. One explanation may be that investing in risky assets depends on first building a financial safety net in the form of wealth and covering one's daily needs. Income serves this purpose. Only thereafter will the household make the decision to diversify its portfolio in favour of more risky assets. Hence, regarding the participation decision, pre-existing financial wealth is crucial. Once the participation decision has been made, income is relevant for deciding on how much to allocate to these risky assets.

As expected, risk tolerance significantly influenced both participation and allocation decision, although its significance waned from 1% to 10% in the allocation stage of the baseline model. This suggests that risk tolerance is more important for entering the market than for determining allocation. At this second stage, most households focus on their general socioeconomic circumstances. Another point that must be addressed here is this paper's understanding of gender as a socioeconomic category with risk preferences being no synonym of inherently sex-related characteristics. Why then are risk preferences still significant when controlling for both gender and socioeconomic factors? This may stem from unobservable socioeconomic differences, many of which are shaped by social norms and gender roles that are hard to quantify. However, there are numerous arguments showcasing that these gender norms prevail in the USA and may have an impact on women's and men's risk tolerance.

First, financial markets remain a male-dominated field. In this environment, character traits like risk-taking are perceived as masculine and seem to be exhibited by men especially when being juxtaposed to a woman (van Staveren (2014) based on Gerdes and Gransmark (2010)). Given these gender norms, women may self-report as more risk averse whereas men might register higher risk tolerances in the SCF. This may contribute to the significance of risk preferences despite controlling for socioeconomic circumstances. Indeed, Ronay and Kim (2006) find that gender differences in self-reported risk tolerance are driven by males' social motivation to self-report as risk-tolerant whereas women downplay their willingness to take risks. This is a major limitation of the SCF, and consequentially this paper. Future research could further explore gender differences in explicit and implicit risk tolerance and their use for predicting actual risk-taking.

Second, these norms may also explain why gender remains significant even after accounting for risk tolerance. This is the most surprising result of the empirical analysis and stands in opposition to the results of Barasinska and Schäfer (2013). In their 2013 work, gender is significant in the participation decision only for Italy and insignificant in the advanced model allocation decision across all European countries (Barasinska & Schäfer, 2013). Again, the significance of gender observed in this paper is not robust to the inclusion of mutual funds as dependent variable. Further, gender is significant in the advanced baseline model for both decision stages at the 10% level only. Nonetheless, this result warrants further attention.

Barasinska and Schäfer (2013) suggest that the alignment of women's portfolio choices with their socioeconomic status and risk preferences depends on societal gender equality. Women in unequal societies may feel obliged to succumb to their assigned gender norm to avoid social repercussions. Therefore, it is not only possible that a risk-loving woman will self-report as more risk averse. She may also refrain from financial behaviour deemed risky, explaining the significance of gender even when controlling for risk preferences (Barasinska & Schäfer, 2013).

Barasinska and Schäfer (2013) test this hypothesis in their comparative study of the Netherlands, Spain, Austria, and Italy using the World Economic Forum's 2009 Global Gender Gap Report as measure of gender equality. In this regard, Italy is pointed out as the most unequal of the four countries. Thus, the authors' hypothesis finds support in their finding gender to be significant in the portfolio decision-making process only in Italy (Barasinska & Schäfer, 2013). In the 2022 Global Gender Gap Report, the USA rank 27th of 146 countries, between the Netherlands (28) and Austria (21). Italy (63) continues to rank lowest among the four (World Economic Forum, 2022). Similarly, in the 2009 Report, the USA (31) placed in the mid-field between Spain (17) and Austria (42) (Hausmann et al., 2009). Following Barasinska and Schäfer (2013), one would expect the results for the USA to mirror their findings for

Austria, not Italy. This, however, is not the case, meaning another confounding factor must be at play in the USA.

As highlighted previously, the USA's early and pervasive financialization (van Lerven, 2016), along with weaker welfare institutions compared to Europe (Hall & Soskice, 2013), may make risk preferences more salient in financial decisions. These structural differences could explain the divergence from European findings.

Furthermore, the SCF 2022 was taken at a peculiar time in the aftermath of the Covid19 pandemic and the Russian attack on Ukraine causing uncertainty in global financial markets as monetary policy was adapting to new challenges. Hence, caution is needed when comparing this paper's findings to those of Barasinska and Schäfer (2013). Future research may examine gendered responses to economic shocks, policy changes, and geopolitical events to assess their effects on portfolio decisions — and revisit the unexpected reversal of the gender wealth gap between 2016 and 2022 (section 3.2). As such, investigating this paper's research question with pre-pandemic SCF data may be insightful in developing an understanding for the impact of Covid19 on portfolio choices.

Concerning the socioeconomic controls, most show the expected signs, particularly self-employment, working hours, and college education. The negative effect of having children on the allocation decision aligns with expectations. However, their lack of effect on participation — unless mutual funds are included — suggests children constrain investment amounts rather than block participation entirely. Results by age cohort are more complex. Older age groups are less likely than those under 30 to hold risky assets. This youngest cohort may be less concerned with long-term security. In contrast, households aged 50-59 are 68% less likely to hold stocks in the baseline advanced model. This group is close to retiring while possibly still supporting children, leading them to be most risk-averse. Some of this pressure slightly eases for those aged 60 and above.

As noted in chapter 2, the effect of relationship status on portfolio decisions is beyond the scope of this paper. The results presented in section 3.3 are set in contrast to the baseline category of being married. Once again, this paper is looking at non-cohabitating households only. Thus, there are only three married households in the sample (Board of Governors of the Federal Reserve System (U.S.), 2023), which make up only 0.09% of single households in the 2022 SCF as shown in Figure 7.

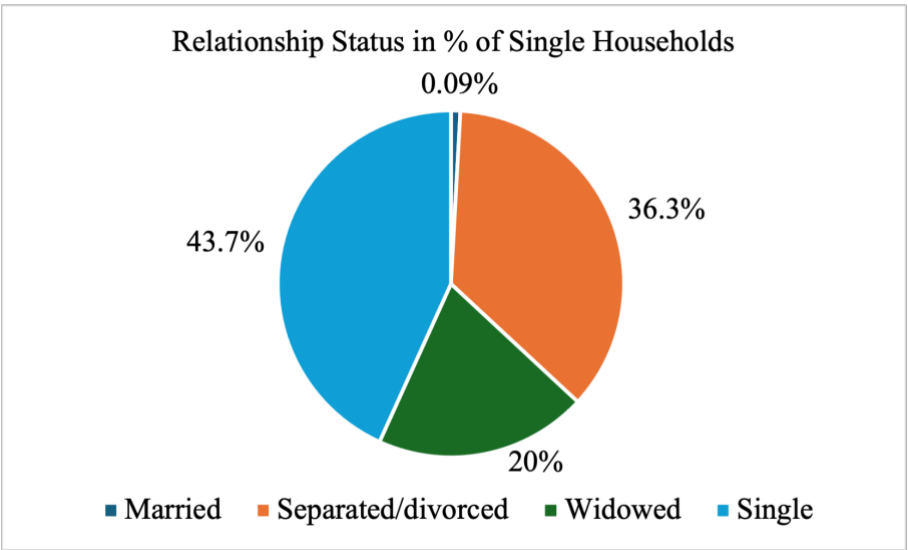

Figure 7: Relationship categories in percentages of single households in the USA in 2022. Author's depiction based on the SCF 2022. (Board of Governors of the Federal Reserve System (U.S.).

This explains the high magnitudes of the coefficients and standard errors on the relationship variables across all model specifications. Therefore, the baseline model was conducted again with never-married households as baseline category (see Tables 9 and 10, Appendix). Among single households, divorced households are 26% more likely to hold any amount of stocks than those who never married and widowed households are 38% more likely to do so. As such, this paper finds no evidence for the "marriage disruption penalty" suggested by Warren et al. (2001).

In a similar vein, the effect of race/ethnicity merits its own research. The results of the regression analysis support the notion that gender (in)equalities in the USA must be analysed with an intersectional lense. However, no definitive conclusions should be drawn yet as the many differences within ethnicities are not captured by this paper.

Another point of discussion is the role of inheritances in the portfolio composition process. In line with expectations, a household with a large inheritance will have a share of stocks in their overall wealth that is 3.2% higher than that of a household who never inherited. It is, however, unclear why inheritances are irrelevant with regards to the participation decision and a more detailed analysis of the kinds of inheritances transferred in the USA may be worthwhile. For instance, Ruel and Hauser (2013) suggest that inheritances in the USA are often used to reduce mortgage debt. Hence, they are bound for this purpose and cannot be drawn on when deciding whether to participate in the stock market. When it comes to the allocation decision, however, any household which is debt-free or has already secured means to pay their debt via an inheritance may be more inclined to allocate a larger share of their remaining wealth to risky assets.

It should then be noted that the model's identification restriction, residential real estate, did not have a significant impact on the participation decision. Neither did the IMR which was meant to account for the self-selection bias of stock-owning households in the allocation decision (Barasinska & Schäfer, 2013). This matches the results of Barasinska and Schäfer (2013) who argue that, consequentially, it was not necessary to account for the self-selection bias. However, it is also possible that real estate was not an appropriate choice of identification restriction as it is not quite clear why this should be relevant to the participation decision only and have no impact on the allocation decision. On the contrary, following the line of argumentation by Ruel and Hauser (2013) concerning the role of inheritances in acquiring real estate, this should also have an impact on the allocation decision. Regrettably, Barasinska and Schäfer (2013) do not elaborate on their argument for residential real estate having no impact on the allocation decision which places a major limitation on this paper. Their model was adopted to allow for an initial comparison between the USA and the European context as discussed above. However, future research may devote further attention to the model's specification and the effect of real estate on different stages of portfolio choices.

Finally, the effect of debt and its interplay with gender shall be discussed. A household who is a net debtor will have a share of risky assets 1.2% lower than a household who is not (Table 8). This effect is highly significant. Hence, being a net debtor does not preclude a household from owning stocks at all, but rather from deciding how much of its net worth to allocate thereto. An indebted household will first allocate its existing net worth towards paying its obligations, meaning less is available for holding stocks. Finally, it is notable that controlling for debt renders gender insignificant for the advanced participation decision (Table 7). Of the 221 net debtors, 165 are women while 56 are male households. Expressed in shares of the generalisable population, these are 14.18% of the female population versus 9.65% of the male population of single households as shown in Figure 8 (Board of Governors of the Federal Reserve System (U.S.), 2023).

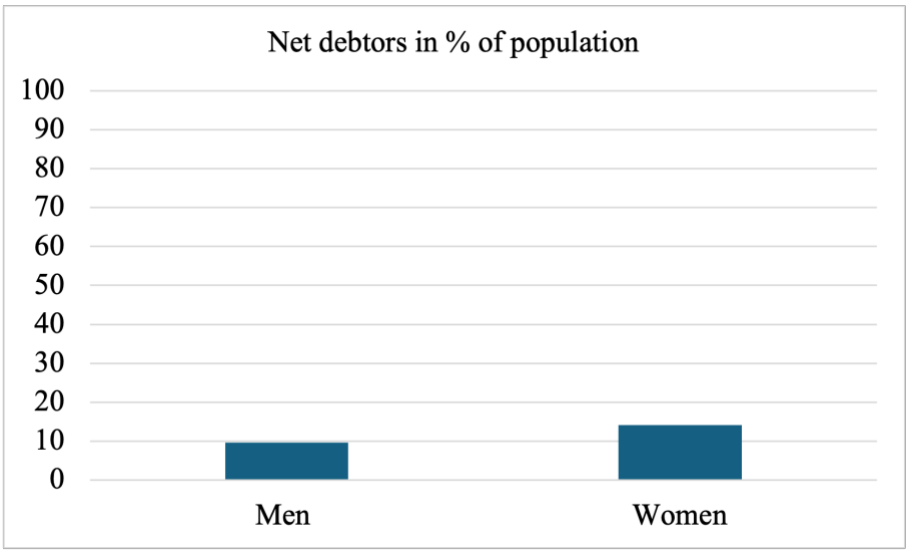

Figure 8: Net debtors expressed in percentages of male and female single households in the USA in 2022. Author's depiction based on the SCF 2022. (Board of Governors of the Federal Reserve System (U.S.), 2023).

Once again, women are more likely facing socioeconomic circumstances that necessitate taking on debt due to their average lower income, weaker labour market attachment, and role as caregivers. This, in turn, constrains women in their ability to diversify their portfolios towards more risky assets, thereby contributing to the gender differences in portfolio choices described in section 3.2.

5 Outlook and Conclusion

This paper now returns to its research question one final time: *Are there significant differences in portfolio choices between men and women in the United States of America in 2022? If so, what are the drivers of these differences?* Regarding the first part of the question, the results in chapter 3.2 confirm that there are differences in portfolio decisions between men and women and those of chapter 3.3 attest to their significance. As discussed above, the regression results corroborate the hypothesis that financial means and risk preferences are key drivers of gender differences in portfolio choices. However, they are ambiguous regarding this paper's view of gender as a socioeconomic category. In the baseline model, gender continues to be a significant, albeit weak, driver of portfolio choices along both stages of the composition process. While this is not robust to an extension of the model, future research may look into the relevance of societal gender norms in this regard, following the suggestion by Barasinska and Schäfer (2013). It may also be worthwhile to capture whether the significance of gender found in this paper was due to the times of ”polycrisis” (Tooze, 2022) in which the SCF 2022 was collected. Another pathway for this line of research may be looking into the model specifications employed here and by Barasinska and Schäfer (2013). This is

specifically with regards to the noteworthy findings on real estate ownership and inheritances which seem to limit the methodological approach taken.

Concerning the overarching motivation of this paper - exploring whether monetary policy may have gendered distributional impacts - its results lend support to this notion. As men tend to hold larger shares of risky assets in their financial portfolio, they were likely disproportionately able to reap the benefits of unconventional monetary policies such as quantitative easing in the aftermath of the GFC. However, investigating the exact extent to which monetary policy contributed to the gender wealth gap is beyond the scope of this paper and is left for future research. Further work may also serve to explain the seeming closure of the gender wealth gap from 2016 to 2022 described in section 3.2.

All in all, further understanding gender differences in access to financial markets and portfolio choices will be crucial in light of ongoing financialization and growing inequalities. However, this paper cautions readers not to mistake such research for the stereotypisation of male and female behaviours and preferences. Rather, its aim is to raise awareness for gendered dimensions of institutions and organisations so relevant to everyday life and livelihood. Ultimately, this will be key to designing a financial system more equitable, sustainable, and fit to support the wellbeing of future generations.

References

Badunenko, O., Barasinska, N., & Schäfer, D. (2010). Investments: Women Are More Cautious than Men because They Have Less Financial Resources at Their Disposal. *DIW Weekly Report*, (1/2010). https://www.diw.de/de/diw 01.c.454137.de/publikationen/weekly reports/ 2010 01/investments women are more cautious than men because they have less financial resources at their disposal.html

Bajtelsmit, V. L., & Bernasek, A. (1997). Why do women invest differently than men? *SSRN Scholarly Paper*, (2238). https://doi.org/10.2139/ssrn.2238

Barasinska, N., & Schäfer, D. (2013). Is the willingness to take financial risk a sex-linked trait? Evidence from national surveys of household finance. *SSRN Scholarly Paper*, (2239681). https://doi.org/10.2139/ssrn.2239681

Bertocchi, G., Brunetti, M., & Torricelli, C. (2011). Marriage and other risky assets: A portfolio approach. *Journal of Banking & Finance*, *35*(11), 2902–2915. https://doi.org/10.1016/j. jbankfin.2011.03.019

Board of Governors of the Federal Reserve System (U.S.) (2023). 2022 Survey of Consumer Finances. *Federal Reserve Bulletin*. https://doi.org/10.17016/8799

Chang, M. L. (2010). *Shortchanged: Why women have less wealth and what can be done about it*. Oxford University Press.

Christelis, D., Georgarakos, D., & Haliassos, M. (2011). Stockholding: Participation, location, and spillovers. *Journal of Banking & Finance*, *35*(8), 1918–1930. https://EconPapers.repec. org/RePEc:eee:jbfina:v:35:y:2011:i:8:p:1918-1930

Croson, R., & Gneezy, U. (2009). Gender differences in preferences. *Journal of Economic Literature*, *47*(2), 448–74. https://doi.org/10.1257/jel.47.2.448

Epstein, G. A. (2005). *Financialization and the world economy*. Edward Elgar Publishing.

Federal Reserve System. (2017). *Survey of Consumer Finances: About* [Retrieved March 15, 2024]. Survey of Consumer Finances. https://www.federalreserve.gov/econres/aboutscf.htm

Federal Reserve System. (2022). *2022 Codebook* [Retrieved March 15, 2024]. https: / / www. federalreserve.gov/apps/scfcb

Forti Grazzini, C., & Kim, C. H. (2020). Is monetary policy gender neutral? Evidence from the stock market. *SSRN Scholarly Paper*, (3520597). https://doi.org/10.2139/ssrn.3520597

Gault, B., Hartmann, H., Hegewisch, A., Milli, J., & Reichlin, L. (2014). Paid parental leave in the United States. *Institute for Women's Policy Research*. https://iwpr.org/wpcontent/uploads/2020/09/B334-Paid-Parental-Leave-in-the-United-States.pdf

Gerdes, C., & Gransmark, P. (2010). Strategic behavior across gender: A comparison of female and male expert chess players. *SSRN Scholarly Paper*, (1566342). https://doi.org/10.2139/ ssrn.1566342

Grabka, M., Marcus, J., & Sierminska, E. (2013). Wealth distribution within couples and financial decision making. *IZA Discussion Paper*, (7637). https://econpapers.repec.org/paper/ izaizadps/dp7637.htm

Guiso, L., Monte, F., Sapienza, P., & Zingales, L. (2008). Culture, Gender, and Math. *Science*, *320*(5880), 1164–1165. https://doi.org/10.1126/science.1154094

Hall, P. A., & Soskice, D. W. (Eds.). (2013). *Varieties of capitalism: The institutional foundations of comparative advantage* (Reprint). Oxford University Press.

Hausmann, R., Tyson, L. D., & Zahidi, S. (2009). *Global gender gap report 2009*. World Economic Forum. https://www3.weforum.org/docs/WEF GenderGap Report 2009.pdf

Holley, P. (2016). *Why desperate mothers are turning to crowdfunding to pay for maternity leave* [Retrieved March 15, 2024]. Washington Post. https://www.washingtonpost.com/news/ parenting/wp/2016/04/16/why-desperate-mothers-are-turning-to-crowdfunding-to-payfor-maternity-leave/

Jianakoplos, N. A., & Bernasek, A. (1998). Are women more risk averse? *Economic Inquiry*, *36*(4), 620–630. https://doi.org/10.1111/j.1465-7295.1998.tb01740.x

Kappes, S. A. (2023). Monetary Policy and Personal Income Distribution: A Survey of the Empirical Literature. *Review of Political Economy*, *35*(1), 211–230. https://doi.org/10.1080/ 09538259.2021.194

Metzger, M., & Young, B. (2020). No gender please, we're central bankers: Distributional impacts of quantitative easing. *IPE Working Papers*, (136/2020). https://ideas.repec.org//p/zbw/ ipewps/1362020.html

Montecino, J., & Epstein, G. (2015). Did quantitative easing increase income inequality? *Institute for New Economic Thinking, Working Papers Series*, (28). https://econpapers.repec.org/ paper/thkwpaper/28.htm

Neelakantan, U., & Chang, Y. (2010). Gender differences in wealth at retirement. *The American Economic Review*, *100*(2), 362–367. http://www.jstor.org/stable/27805020

Nelson, J. A. (2015). Are women really more risk-averse than men? A re-analysis of the literature using expanded methods. *Journal of Economic Surveys*, *29*(3), 566–585. https://doi.org/ https://doi.org/10.1111/joes.12069

Rehm, M., Schneebaum, A., & Schuster, B. (2022). Intra-couple wealth inequality: What's sociodemographics got to do with it? *European Journal of Population*, *38*, 681–720. https: //doi.org/10.1007/s10680-022-09633-4

Ronay, R., & Kim, D. Y. (2006). Gender differences in explicit and implicit risk attitudes: A socially facilitated phenomenon. *The British Journal of Social Psychology*, *45*(2), 397–419. https://doi.org/10.1348/014466605X66420

Ruel, E., & Hauser, R. M. (2013). Explaining the gender wealth gap. *Demography*, *50*(4), 1155– 1176. http://www.jstor.org/stable/42920549

Schneebaum, A., Rehm, M., Mader, K., & Hollan, K. (2018). The gender wealth gap across European countries. *Review of Income and Wealth*, *64*(2), 295–331. https://doi.org/https: //doi.org/10.1111/roiw.12281

Sierminska, E. (2017). Wealth and gender in europe. *European Commission, Directorate-General for Justice and Consumers, Fondazione Giacomo Brodolini, Istituto per la Ricerca Sociale*. https://data.europa.eu/doi/10.2838/39491

Sierminska, E., Frick, J., & Grabka, M. (2010). Examining the gender wealth gap. *Oxford Economic Papers*, *62*(4), 669–690. http://www.jstor.org/stable/40856526

Siripurapu, A. (2022, April). *The U.S. Inequality Debate* [Retrieved March 15, 2024]. Council on Foreign Relations. https://www.cfr.org/backgrounder/us-inequality-debate

Sund´en, A. E., & Surette, B. J. (1998). Gender differences in the allocation of assets in retirement savings plans. *The American Economic Review*, *88*(2), 207–211. http://www.jstor.org/ stable/116920

Szymborska, H. K. (2022). The Evolution of Gender Wealth Inequality in the United States in a Changing Institutional Context. *Feminist Economics*, *28*(2), 32–63. https://doi.org/10. 1080/13545701.2022.2042583

Tooze, A. (2022, October). *Welcome to the world of the polycrisis* [Retrieved March 15, 2024]. Financial Times. https://www.ft.com/content/498398e7-11b1-494b-9cd3-6d669dc3de33

van Lerven, F. (2016). Quantitative easing in the Eurozone: A one-year assessment. *Intereconomics*, *51*(4), 237–242. https://doi.org/10.1007/s10272-016-0608-9

van Staveren, I. (2014). The Lehman Sisters Hypothesis. *Cambridge Journal of Economics*, *38*(5), 995–1014. https://www.jstor.org/stable/24695054

Warren, T., Rowlingson, K., & Whyley, C. (2001). Female finances: Gender wage gaps and gender assets gaps. *Work, Employment & Society*, *15*(3), 465–488. http://www.jstor.org/stable/ 23747947

World Bank. (2024). *World Bank Data. Inflation, Consumer Prices (Annual %) - United States* [Retrieved March 15, 2024]. https://data.worldbank.org/indicator/FP.CPI.TOTL.ZG?locations=US

World Economic Forum. (2022). *Global gender gap report 2022* [Retrieved March 15, 2024]. http://reports.weforum.org/global-gender-gap-report-2022

Young, B. (2019). The impact of unconventional monetary policy on gendered wealth inequality. *Papeles de Europa*, *31*(2), 175–186. https://doi.org/10.5209/PADE.63637

6 Appendix

6.1 Further Descriptive Statistics

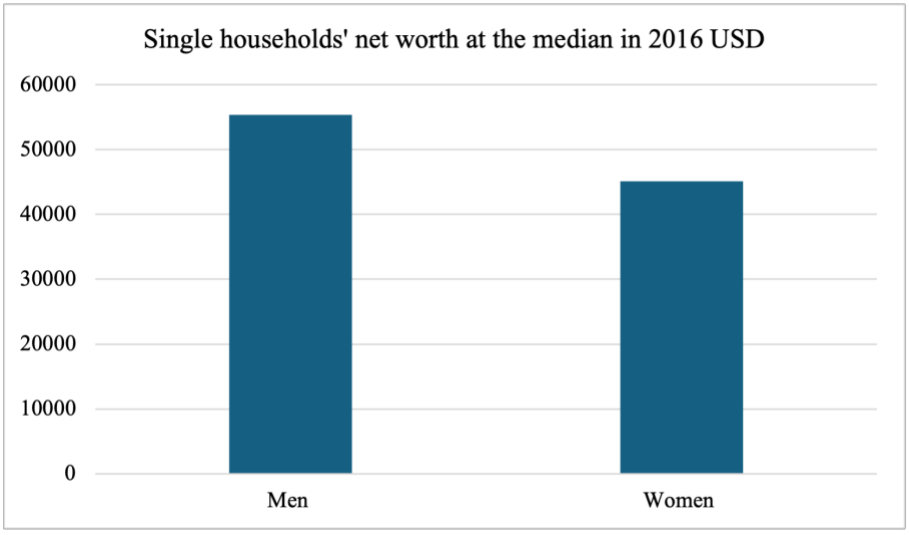

Figure 9: Net worth of male and female single households at the median in 2016 USD. Author's depiction based on the SCF 2016 (Board of Governors of the Federal Reserve System (U.S.), 2023).

6.2 Full Results for the Inclusion of Mutual Funds as Dependent Variable in Section 3.3.1

Table 5: Participation decision: Probit regression of risky asset ownership and gender and socioeconomic controls

	Dependent variable:	
	Participation decision	
	(1)	(2)
Male	0.181**	0.113
	(0.087)	(0.086)
Real estate	0.045	0.067
	(0.091)	(0.091)
Income (log)	0.045	0.033
	(0.033)	(0.031)
Q2 financial wealth	0.595***	0.500***
	(0.142)	(0.141)
Q3 financial wealth	1.008***	0.904***
	(0.144)	(0.144)
Q4 financial wealth	1.862***	1.656***

Continued on next page

Table 5 – continued from previous page

	Dependent variable:	
	Participation decision	
	(1)	(2)
	(0.169)	(0.168)
Aged 30-39	−0.099	−0.016
	(0.131)	(0.129)
Aged 40-49	−0.300**	−0.246*
	(0.140)	(0.134)
Aged 50-59	−0.768***	−0.641***
	(0.151)	(0.151)
Aged 60-69	−0.645***	−0.439***
	(0.158)	(0.161)
Aged 70 or older	−0.421**	−0.160
	(0.186)	(0.193)
One child	−0.179	−0.199*
	(0.113)	(0.116)
Two children	−0.607**	−0.586**
	(0.271)	(0.266)
Three or more children	−0.865	−0.742
	(0.703)	(0.716)
Separated/divorced	2.547***	2.646***
	(0.372)	(0.379)
Widowed	2.573***	2.666***
	(0.408)	(0.411)
Never married/single	2.397***	2.501***
	(0.386)	(0.393)
College	0.156*	0.133*
	(0.081)	(0.080)
Self-employed	0.335**	0.247*
	(0.135)	(0.146)
Weekly working hours	0.005**	0.005**
	(0.002)	(0.002)
Black/African American	−0.075	−0.111
	(0.113)	(0.114)
Hispanic	−0.556***	−0.570***
	(0.177)	(0.169)
Asian	0.378*	0.388*
	(0.221)	(0.201)
Other ethnicity	−0.672	−0.538
	(0.481)	(0.488)
Small inheritance	−0.006	0.001
	(0.123)	(0.122)
Large inheritance	−0.032	−0.054
	(0.140)	(0.150)
Risk tolerance: above average		−0.130
		(0.186)
Risk tolerance: average		−0.530***
		(0.163)
Risk tolerance: None		−0.913***
		(0.181)
Intercept	−4.541***	−3.925***

Continued on next page

Table 5 – continued from previous page

	Dependent variable:	
	Participation decision	
	(1)	(2)
	(0.534)	(0.540)
Observations	1,690	1,690
Note:	*p<0.1; **p<0.05; ***p<0.01	
	Dataset: SCF 2022	
	Probit regression	

Table 6: Allocation decision: OLS regression of share of risky assets on gender and socioeconomic controls

	Dependent variable:	
	Allocation decision	
	(1)	(2)
Male	0.012^{*}	0.009
	(0.006)	(0.006)
Income (log)	0.010^{***}	0.010^{***}
	(0.002)	(0.002)
Financial wealth (log)	0.010^{***}	0.010^{***}
	(0.001)	(0.001)
Self-employed	−0.002	−0.005
	(0.007)	(0.007)
Weekly working hours	-0.0004^{**}	-0.0004^{**}
	(0.0002)	(0.0002)
College	0.021^{***}	0.021^{***}
	(0.006)	(0.006)
Aged 30-39	0.017^{*}	0.019^{**}
	(0.009)	(0.009)
Aged 40-49	−0.007	−0.004
	(0.008)	(0.008)
Aged 50-59	0.001	0.005
	(0.010)	(0.010)
Aged 60-69	−0.002	0.004
	(0.010)	(0.010)
Aged 70 or older	0.027^{*}	0.034^{**}
	(0.014)	(0.015)
Separated/divorced	−0.039	−0.039
	(2,296.317)	(5,629.690)
Widowed	−0.042	−0.043
	(2,296.318)	(5,629.690)
Never married/single	−0.024	−0.024
	(2,296.317)	(5,629.690)
One child	-0.014^{***}	-0.014^{***}
	(0.005)	(0.005)
Two children	-0.018^{***}	-0.016^{***}
	(0.005)	(0.005)
Three or more children	-0.016^{**}	-0.013^{*}
	(0.007)	(0.007)

Continued on next page

Table 6 – continued from previous page

	Dependent variable:	
	Allocation decision	
	(1)	(2)
Black/African American	−0.004	−0.006
	(0.004)	(0.004)
Hispanic	−0.001	−0.001
	(0.004)	(0.005)
Asian	0.051*	0.050*
	(0.027)	(0.027)
Other ethnicity	−0.019*	−0.016
	(0.011)	(0.011)
Small inheritance	0.011	0.012
	(0.012)	(0.012)
Large inheritance	0.049***	0.048***
	(0.017)	(0.017)
Risk tolerance: above average		−0.012
		(0.016)
Risk tolerance: average		−0.029*
		(0.015)
Risk tolerance: None		−0.035***
		(0.013)
IMR	−0.000	−0.000
	(0.00004)	(0.00002)
Intercept	−0.149	−0.114
	(2,296.317)	(5,629.689)
Observations	1,690	1,690
Note:	*p<0.1; **p<0.05; ***p<0.01	
	Dataset: SCF 2022	
	OLS regression	

6.3 Full Results for Controlling for Households' Net Debtor Position in Section 3.3.2

Table 7: Participation decision: Probit regression of stock ownership controlling for debt

	Dependent variable:	
	Participation decision	
	(1)	(2)
Male	0.206**	0.141
	(0.089)	(0.086)
Real estate	−0.041	−0.025
	(0.102)	(0.104)
Income (log)	0.032	0.016
	(0.032)	(0.029)
Q2 financial wealth	0.538***	0.418***
	(0.148)	(0.146)
Q3 financial wealth	0.762***	0.629***
	(0.152)	(0.155)

Continued on next page

Table 7 – continued from previous page

	Dependent variable:	
	Participation decision	
	(1)	(2)
Q4 financial wealth	1.356***	1.121***
	(0.184)	(0.181)
Aged 30-39	−0.180	−0.106
	(0.123)	(0.118)
Aged 40-49	−0.307**	−0.245*
	(0.136)	(0.131)
Aged 50-59	−0.826***	−0.698***
	(0.162)	(0.161)
Aged 60-69	−0.540***	−0.334**
	(0.155)	(0.159)
Aged 70 or older	−0.601***	−0.340
	(0.218)	(0.231)
One child	−0.103	−0.123
	(0.132)	(0.133)
Two children	−0.642	−0.631
	(0.452)	(0.423)
Three or more children	−0.736	−0.608
	(0.929)	(0.953)
Separated/divorced	2.497***	2.674***
	(0.465)	(0.480)
Widowed	2.621***	2.794***
	(0.499)	(0.514)
Never married/single	2.241***	2.410***
	(0.483)	(0.497)
College	0.185**	0.146*
	(0.087)	(0.088)
Self-employed	0.350***	0.273*
	(0.135)	(0.147)
Weekly working hours	0.006**	0.006**
	(0.002)	(0.002)
Black/African American	0.004	−0.003
	(0.108)	(0.105)
Hispanic	−0.615***	−0.587***
	(0.175)	(0.173)
Asian	0.517**	0.569***
	(0.222)	(0.199)
Other ethnicity	−0.474	−0.342
	(0.475)	(0.484)
Small inheritance	0.046	0.048
	(0.126)	(0.125)
Large inheritance	−0.058	−0.076
	(0.146)	(0.157)
Net debtor	−0.279*	−0.251
	(0.164)	(0.171)
Risk tolerance: above average		0.104
		(0.202)
Risk tolerance: average		−0.241
		(0.193)

Continued on next page

Table 7 – continued from previous page

	Dependent variable:	
	Participation decision	
	(1)	(2)
Risk tolerance: None		-0.741^{***}
		(0.204)
Intercept	-4.340^{***}	-3.969^{***}
	(0.605)	(0.609)
Observations	1,690	1,690
Note:	*p<0.1; **p<0.05; ***p<0.01	
	Dataset: SCF 2022	
	Probit regression	

Table 8: Allocation decision: OLS regression of share of stocks controlling for debt

	Dependent variable:	
	Allocation decision	
	(1)	(2)
Male	0.008^{**}	0.007^{*}
	(0.004)	(0.004)
Income (log)	0.006^{***}	0.005^{***}
	(0.002)	(0.002)
Financial wealth (log)	0.004^{***}	0.003^{***}
	(0.001)	(0.001)
Self-employed	0.004	0.002
	(0.005)	(0.005)
Weekly working hours	-0.0002	-0.0002
	(0.0001)	(0.0001)
College	0.011^{***}	0.010^{**}
	(0.004)	(0.004)
Aged 30-39	0.004	0.006
	(0.008)	(0.008)
Aged 40-49	-0.013^{**}	-0.011^{*}
	(0.006)	(0.006)
Aged 50-59	-0.017^{**}	-0.014^{*}
	(0.007)	(0.007)
Aged 60-69	-0.012^{*}	-0.008
	(0.007)	(0.007)
Aged 70 or older	-0.004	-0.002
	(0.010)	(0.010)
Separated/divorced	-0.007	-0.004
	(248.713)	(761.922)
Widowed	-0.010	-0.006
	(248.714)	(761.922)
Never married/single	-0.010	-0.007
	(248.714)	(761.922)
One child	-0.008^{*}	-0.008^{*}
	(0.004)	(0.004)
Two children	-0.014^{***}	-0.013^{***}

Continued on next page

Table 8 – continued from previous page

	Dependent variable:	
	Allocation decision	
	(1)	(2)
	(0.004)	(0.004)
Three or more children	-0.013^{***}	-0.011^{**}
	(0.004)	(0.004)
Black/African American	0.001	0.0002
	(0.003)	(0.003)
Hispanic	-0.003	-0.002
	(0.004)	(0.004)
Asian	0.039	0.039
	(0.024)	(0.024)
Other ethnicity	0.0004	0.002
	(0.011)	(0.010)
Small inheritance	0.004	0.004
	(0.007)	(0.007)
Large inheritance	0.032^{**}	0.031^{*}
	(0.013)	(0.013)
Net debtor	-0.012^{***}	-0.012^{***}
	(0.003)	(0.003)
Risk tolerance: above average		-0.003
		(0.012)
Risk tolerance: average		-0.009
		(0.013)
Risk tolerance: None		-0.020^{*}
		(0.011)
IMR	0.000	0.000
	(0.00001)	(0.00000)
Intercept	-0.068	-0.049
	(248.713)	(761.922)
Observations	1,690	1,690
Note:	*p<0.1; **p<0.05; ***p<0.01	
	Dataset: SCF 2022	
	OLS regression	

6.4 Baseline Model with Changed Relationship Base Category

Table 9: Participation decision: Probit regression of stock ownership with "single" as baseline relationship category

	Dependent variable:	
	Participation decision	
	(1)	(2)
Male	0.210^{**}	0.144^{*}
	(0.088)	(0.086)
Real estate	-0.006	0.007
	(0.099)	(0.100)
Income (log)	0.033	0.017
	(0.033)	(0.030)

Continued on next page

Table 9 – continued from previous page

	Dependent variable:	
	Participation decision	
	(1)	(2)
Q2 financial wealth	0.559***	0.441***
	(0.149)	(0.146)
Q3 financial wealth	0.800***	0.667***
	(0.154)	(0.156)
Q4 financial wealth	1.397***	1.160***
	(0.183)	(0.180)
Aged 30-39	−0.165	−0.088
	(0.121)	(0.116)
Aged 40-49	−0.292**	−0.231*
	(0.135)	(0.130)
Aged 50-59	−0.808***	−0.680***
	(0.163)	(0.161)
Aged 60-69	−0.522***	−0.316**
	(0.155)	(0.159)
Aged 70 or older	−0.576***	−0.317
	(0.214)	(0.227)
One child	−0.106	−0.128
	(0.131)	(0.132)
Two children	−0.661	−0.650
	(0.449)	(0.420)
Three or more children	−0.743	−0.615
	(0.926)	(0.950)
Separated/divorced	0.252**	0.261**
	(0.115)	(0.118)
Widowed	0.372**	0.378**
	(0.156)	(0.162)
Married	−2.191***	−2.356***
	(0.485)	(0.497)
College	0.162*	0.127
	(0.085)	(0.087)
Self-employed	0.354***	0.278*
	(0.134)	(0.146)
Weekly working hours	0.006***	0.006***
	(0.002)	(0.002)
Black/African American	−0.005	−0.012
	(0.108)	(0.104)
Hispanic	−0.593***	−0.571***
	(0.173)	(0.172)
Asian	0.518**	0.568***
	(0.221)	(0.198)
Other ethnicity	−0.458	−0.328
	(0.477)	(0.487)
Small inheritance	0.058	0.060
	(0.128)	(0.126)
Large inheritance	−0.052	−0.071
	(0.146)	(0.157)
Risk tolerance: above average		0.096
		(0.201)

Continued on next page

Table 9 – continued from previous page

	Dependent variable:	
	Participation decision	
	(1)	(2)
Risk tolerance: average		−0.256
		(0.193)
Risk tolerance: None		−0.754***
		(0.204)
Intercept	−2.182***	−1.632***
	(0.400)	(0.379)
Observations	1,690	1,690
Note:	*p<0.1; **p<0.05; ***p<0.01	
	Dataset: SCF 2022	
	Probit regression	

Table 10: Allocation decision: OLS regression of share of stocks with "single" as baseline relationship category

	Dependent variable:	
	Allocation decision	
	(1)	(2)
Male	0.009**	0.007*
	(0.004)	(0.004)
Income (log)	0.006***	0.006***
	(0.002)	(0.002)
Financial wealth (log)	0.004***	0.003***
	(0.001)	(0.001)
Self-employed	0.005	0.003
	(0.005)	(0.005)
Weekly working hours	−0.0002	−0.0002
	(0.0001)	(0.0001)
College	0.010**	0.009**
	(0.004)	(0.004)
Aged 30-39	0.005	0.007
	(0.008)	(0.008)
Aged 40-49	−0.011**	−0.009
	(0.006)	(0.006)
Aged 50-59	−0.015**	−0.012
	(0.007)	(0.007)
Aged 60-69	−0.011	−0.006
	(0.007)	(0.007)
Aged 70 or older	−0.001	0.004
	(0.010)	(0.010)
Separated/divorced	0.003	0.003
	(0.004)	(0.004)
Widowed	0.0003	0.0004
	(0.006)	(0.006)
Married	0.013	0.010
	(173.863)	(537.998)
One child	−0.008**	−0.008**

Continued on next page

Table 10 – continued from previous page

	Dependent variable:	
	Allocation decision	
	(1)	(2)
	(0.004)	(0.004)
Two children	-0.014^{***}	-0.014^{***}
	(0.004)	(0.004)
Three or more children	-0.014^{***}	-0.012^{***}
	(0.004)	(0.004)
Black/African American	0.001	−0.0002
	(0.003)	(0.003)
Hispanic	−0.002	−0.001
	(0.004)	(0.004)
Asian	0.040^{*}	0.040^{*}
	(0.024)	(0.024)
Other ethnicity	0.001	0.002
	(0.010)	(0.010)
Small inheritance	0.004	0.005
	(0.007)	(0.007)
Large inheritance	0.032^{**}	0.032^{**}
	(0.013)	(0.013)
Risk tolerance: above average		−0.003
		(0.012)
Risk tolerance: average		−0.009
		(0.013)
Risk tolerance: None		-0.020^{*}
		(0.011)
IMR	0.000	0.000
	(0.00001)	(0.00000)
Intercept	-0.083^{***}	-0.062^{***}
	(0.022)	(0.024)
Observations	1,690	1,690
Note:	*p<0.1; **p<0.05; ***p<0.01	
	Dataset: SCF 2022	
	OLS regression	

Imprint

Editors:
Sigrid Betzelt, Eckhard Hein, Martina Metzger, Martina Sproll, Christina Teipen, Markus Wissen, Jennifer Pédussel Wu (lead editor), Reingard Zimmer

ISSN 1869-6406

Printed by
HWR Berlin

Berlin, April 2026