Rich Investors Speak:
What Drives Their Personal Investment Decisions?

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Abstract

We survey 2,484 U.S. individuals with at least $1 million of investable assets about how well leading academic theories describe their financial beliefs and decisions. The most important factors determining portfolio equity share are professional advice, time until retirement, personal experiences, rare disaster risk, and health risk. Concentrated equity holdings are most often motivated by a belief that the overweighted stock has superior risk-adjusted returns. Beliefs about how expected returns vary with stock characteristics often differ from historical relationships, and more risk is not always associated with higher expected returns. Those who invest in active equity funds most often do so based on professional advice and because they expect to earn higher average returns. Only 20% of respondents agree that high past fund manager performance is strong evidence of stock-picking skill and that there are diminishing returns to scale in active management.

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Financial economists have many theories of what determines investors' asset demand, which in conjunction with asset supply determines asset prices. Testing these theories has proven challenging. It is seldom possible to run experiments that randomly vary the strength of theorized motives and beliefs across investors while leaving other determinants of portfolio choice unchanged.[1] The alternative empirical approach of inferring beliefs and motives from endogenous prices and quantities suffers from the problem that a given set of prices and quantities is usually consistent with multiple different mechanisms (Fama, 1970; Cochrane, 2017; Kozak, Nagel, and Santosh, 2018; Liu et al., 2020).

As a result, there has been a resurgence of interest in another methodology for identifying beliefs and motives that had long fallen out of favor despite its distinguished pedigree in finance research (Lintner, 1956): asking investors about their beliefs, motives, and decision processes directly. Recent examples of such papers include Greenwood and Shleifer (2014), Kuhnen and Miu (2017), Kuchler and Zafar (2019), Chinco, Hartzmark, and Sussman (2020), Choi and Robertson (2020), Das, Kuhnen, and Nagel (2020), Giglio et al. (2020), and Liu et al. (2020).[2]

While surveys are a useful tool for gaining insight into individual investors, they are often less informative about the determinants of prices because very wealthy investors are usually a tiny fraction of survey samples despite possessing a disproportionate share of the economy's assets. In 2016, the top 1% of U.S. households held 40% of net worth, 53% of stocks and mutual funds, and 65% of financial securities (Wolff, 2017).

In this paper, we report the results of two surveys that measure the investment beliefs and motives of these economically important but hard-to-access wealthy individuals. The surveys sample a total of 2,484 U.S. respondents, each of whom has at least $1 million of investable assets, 18% of whom have at least $5 million, and 4% of whom have at least $10 million.

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[1] Even when such experiments—naturally occurring or researcher-designed—are available, they usually fall short of estimating the parameter of true interest, the average effect size in the entire investor population (Heckman and Urzúa, 2010; Deaton and Cartwright, 2018). An experiment that randomly assigns a treatment will identify the average treatment effect only within the population subject to the experiment. If an instrumental variable is employed, the resulting estimate is, under certain assumptions, a local average treatment effect (Angrist, Imbens, and Rubin, 1996) for the subpopulation of "compliers." The local average treatment effect may differ substantially from the average treatment effect for the entire investor population.

[2] Graham and Harvey (2001) were early revivers of this methodology in corporate finance, and Cheung and Wong (2000), Cheung and Chinn (2001), and Cheung, Chinn, and Marsh (2004) among currency traders. Bewley (1999) did seminal work in interviews exploring why wages don't fall in recessions.

The largest portion of our survey questions covers the determinants of the fraction of the respondent's portfolio that is invested in equities. We ask about 40 factors that include the leading academic theories of what should affect portfolio risky share. One advantage of measuring the importance of a large number of theories in the same sample with a consistent methodology is that it may make judgments of relative importance easier than when one is, for example, comparing various local average treatment effects estimated on many different populations. Such judgments then give guidance on which theoretical mechanisms might be most promising for researchers to investigate going forward.

Wealthy households are particularly likely to hold a large undiversified equity position (Carroll, 2002; Roussanov, 2010), so we also ask nine questions about why respondents who have such a position have chosen to give up the benefits of diversification. Because many people choose to invest through professional asset managers, we ask our respondents about their beliefs regarding actively managed equity funds. Finally, we ask what our respondents believe about how the expected returns and risks of stocks vary along four dimensions associated with expected return anomalies: value, momentum, profitability, and investment expenditure (Fama and French, 1992; Jegadeesh and Titman, 1993; Fama and French, 2015; Hou, Xue, and Zhang, 2015).

With regards to equity share, five factors out of the 40 we asked about are cited by at least 20% of respondents as very or extremely important "in determining the total percentage of your net worth that is currently invested in stocks": advice from a professional financial adviser (33% of respondents), personal experiences of investing in the stock market (24%) or living through stock market returns (23%), the risk of an economic disaster like the Great Depression (23%), and the risk of illness or injury (20%). Among employed respondents, 26% say that the number of years remaining until retirement is a very or extremely important factor. At the other extreme, the factors that draw the least support by the "very or extremely important" metric are loss aversion (7%), external habit (6%), illiquid non-stock investments (6%), advice from peers (6%) or media (5%), and a desire to become wealthier than other rich people (6%). Return covariance with the marginal utility of money—*the* fundamental consideration in most modern asset pricing theories—is very or extremely important to a modest 15% of respondents. Return covariance with the marginal utility of consumption does even worse, cited as very or extremely important by only 9% of respondents.

The concentrated portfolio questions are asked of the 15% of respondents who report that they currently hold more than 10% of their net worth in a single company's stock. The reasons for holding a concentrated position that receive the strongest support may be most consistent with overconfidence or familiarity bias: a belief that the stock would have higher returns on average than other stocks in the market (46%) and a belief that the stock would provide less risky returns than other stocks in the market (33%). A personal or family association with the company is described as very or extremely important by 26% of these respondents. Other neoclassical factors, including a lockup agreement, signaling and bequest motives, difficulty finding a buyer, and a desire to maintain a voting stake receive less support (17% or less).

Among the 45% of respondents who say that they had ever pursued an active investment strategy through a fund or a professional manager, 45% say that a professional advisor's recommendation was very or extremely important in their decision to do so. A belief that such a strategy would have higher average returns than a passive strategy is cited as a very or extremely important factor by 44%, while the belief that the active strategy would have *lower* unconditional average returns but higher returns in an economic downturn—and hence provide hedging benefits (Moskowitz, 2000; Glode, 2011; Kosowski, 2011; Savov, 2014)—was very or extremely important to 23%. Turning to the assumptions of the Berk and Green (2004) model of actively managed mutual funds, we find only modest support in our survey. Forty-two percent of all respondents agree or strongly agree that a fund having outperformed the market in the past is strong evidence that its manager has good stock-picking skills, and 33% agree or strongly agree that funds have a harder time beating the market if they manage more assets, but only 20% agree or strongly agree with both statements. Overall, the responses suggest that a significant amount of active fund investment is driven by the belief that superior managers can be identified.

Finally, regarding the cross-section of stock returns, collective expectations about the normal relationship between a stock's characteristics and its expected returns do not always match historical correlations. Strikingly, higher expected returns are not always associated with higher risk. High-momentum stocks are seen as having *lower* expected returns and higher risk than low-momentum stocks. High-profitability stocks are seen as having higher expected returns and *lower* risk than low-profitability stocks. High-investment-expenditure stocks are seen as having lower expected returns and *higher* risk than low-investment-expenditure stocks. Only the value versus growth dimension is believed to be associated with a positive expected return-risk relationship,

but more respondents believe value stocks to have *lower* expected returns than growth stocks, contrary to the historical experience. This pattern of responses casts some doubt on rational explanations for the return premia associated with these characteristics.

The drawbacks of surveys are well-known. Respondents have no external incentive to provide accurate responses, which may introduce noise into the responses. Moreover, the meaning of responses on a Likert scale (e.g., "extremely important") may not be consistent across respondents. To the extent that the measurement error introduced by these forces is mean-zero white noise, the ordinal rankings of responses will still be informative. A more fundamental objection is that individuals might not know the true motivations for their decisions. Just as the billiards player of Friedman (1956) plays as though he knows the laws of physics despite being unable to articulate them, survey respondents may invest as though a certain factor is important, regardless of whether they perceive it to be. Under this view, the fact that an assumption about investors' thought processes is false is unimportant as long as it generates accurate predictions of behavior.

Our survey measures how individuals consciously *perceive* themselves to have made financial decisions. Although individuals may not have full insight into the true reasons behind their decisions, there are at least five reasons why it is worthwhile to understand these perceptions.

First, an individual's perceptions of her decision-making process are unlikely to be entirely unrelated to her true decision-making process. Every reader of this article has almost certainly asked somebody recently why that person made a particular choice (e.g., "Why did you choose to major in economics?") and considered the response to the question to be informative. Harris and Keane (1998) find that survey responses about how important various health insurance plan attributes are to respondents have substantial predictive power for which health insurance plan they actually choose. Parker and Souleles (2019) report that asking survey respondents how much economic stimulus payments in 2008 caused their spending to change yields answers that correspond well to econometric estimates of these spending responses that exploit the quasi-random timing of the payments.

Second, perceptions and beliefs can help us choose between theories that have identical predictions for prices and quantities but very different implications for welfare, policy, optimal investment strategies, and our understanding of the world. For example, an asset may have a high

expected return either because it is undervalued or because it is highly risky. The latter explanation becomes less likely if most people believe the asset to have low risk or a low expected return.

Third, individuals' perceptions of their decision-making process affect how they will forecast their future actions, which is itself an input into their actions today. Fourth, these perceptions can affect an individual's demand for debiasing mechanisms, information, and advice. Finally, we believe that it is inherently interesting to know what individuals believe about themselves and the reasons for their behavior.

The remainder of the paper proceeds as follows. Section 1 discusses the process of designing our questions and our survey sample. Section 2 presents our questions and results relating to equity allocation decisions. Sections 3 and 4 present the same for concentrated equity holdings and active equity investment strategies, respectively. Section 5 discusses our questions and results regarding investors' perceptions of the cross-section of stock returns. Section 6 concludes. An online appendix contains the survey text.

1. Survey design and sample

Our questions build upon the survey that Choi and Robertson (2020) administered to a representative sample of U.S. adults after multiple pilot-tests of the questions for comprehension among Mechanical Turk respondents.[3] We retained most of that survey's questions and added questions about relative wealth concerns, illiquid investments, reasons for choosing to hold a concentrated equity position, and the expected returns and risks of high-profitability and high-investment-expenditure stocks. We removed some questions that seemed irrelevant to wealthy individuals, such as whether not having enough money to make investing in stocks worthwhile drove stock market non-participation.[4]

Our questions about the respondent's portfolio equity share and concentrated equity positions were included as sections of a quarterly survey that UBS conducts of high net worth individuals. Our questions about investment funds and the cross-section of stock returns were included as sections of a one-off survey UBS conducted of high net worth individuals. The surveys were run by Research Now SSI, a company that works with a wide range of partners such as

[3] For a discussion of the process used in designing the initial survey questions, see Choi and Robertson (2020).
[4] For the sake of survey brevity, we also removed some follow-up questions that Choi and Robertson (2020) asked of individuals who gave certain responses to certain questions.

American Airlines, Hilton, Macy's, and Best Buy to recruit participants for surveys. Individuals are selected from partners' customer databases and invited via email to join Research Now SSI's survey panel. Those who have opted out of marketing, live outside the U.S., or are under the age of 15 are excluded from the invitations. Acceptance rates are between 1% and 5%, depending on the partner.

Upon entering the survey panel, respondents fill out a lengthy profiling questionnaire, which includes questions about their demographic characteristics, work, family, and other information. All of the data provided are self-reported. Each attribute has a lifecycle in the system. For example, gender and ethnicity are checked once a year, while residential zip code and employment status are checked every six months. Respondents not providing reliable data are removed from the panel. Importantly, one does not need to be wealthy in order to enter the panel, since Research Now SSI runs surveys on a variety of populations for its clients, so there is no incentive to misreport one's assets in order to earn compensation for taking surveys. We discuss evidence at the end of this section that supports the hypothesis that our self-identified wealthy respondents really are wealthy.

For the quarterly survey (which asked about the respondent's portfolio equity share and concentrated equity positions), UBS specified that the sample include 300 UBS clients with at least $1 million in investable assets, 1,000 non-business-owners with at least $1 million in investable assets who were not UBS clients, 300 individuals with at least $5 million in investable assets, and 300 owners of businesses with at least one employee other than the respondent and at least $250,000 in annual revenue who were not UBS clients.[5] For the one-off survey (which asked about investment funds and the cross-section of stock returns), UBS specified that the sample include 300 owners of businesses with at least one employee other than the respondent and at least $250,000 in annual revenue, and 700 non-business-owners with at least $1 million in investable assets. These sample specifications were driven by UBS's interest in responses to survey questions not analyzed in this paper.

Panelists are offered e-Rewards points as an incentive to complete surveys. Points can be accumulated and redeemed for a variety of items, gift cards, or frequent customer points that

[5] Research Now SSI was not able to identify UBS clients in their panel using data linkages from UBS. Instead, UBS clients were identified by a question in the quarterly survey asking at which financial services firms the respondent had an account, product, or service.

depend upon the partner through which the panelist was recruited. For example, participants recruited through American Airlines can redeem 50 e-Rewards points for 1,000 American Airlines miles. Participants recruited through Hilton can redeem 50 e-Rewards points for 2,500 Hilton points. Respondents whom Research Now SSI believed to be business owners prior to the survey's administration were offered 6 points to complete one of our surveys, and all others were offered 4.5 points.

Even though Research Now SSI sent survey invitations only to panelists it believed had a high chance of meeting the sample criteria, respondents' eligibility was assessed by screener questions at the beginning of each survey. The first asked, "What is your role in making financial and investment decisions for your household?" Those who answered that they make all decisions, most decisions, or share the decision-making equally with their spouse/partner were retained, while those who said their spouse/partner makes most decisions or that they do not participate in the decision-making were excluded.

The second screener question asked, "Please think about the total value of your **household's investable assets**. By investable assets, we mean all of your household's savings and investments, including deposit accounts, mutual funds, stocks, bonds, IRAs, and 401(k)'s or 403(b)'s, **EXCLUDING real estate and any private business assets**. Which of the following broad categories includes your household's total investable assets?" Those who chose a category under $1 million or who said they preferred not to answer were excluded from the quarterly survey. Nobody was excluded from the one-off survey based on this question, but to create consistency between the two survey samples, we drop from our analysis one-off survey respondents who reported less than $1 million of investable assets.

The third screener question asked in what year the respondent was born. Respondents born after 1991 were excluded from the survey, which means that the minimum allowed age is 26.

Respondents who said they were a business owner were asked how many employees they had and what their approximate annual revenue was. Those who had no employees other than themselves or who had less than $250,000 of annual revenue were dropped.

For the quarterly survey, 3,633 individuals clicked the link, 1,662 completed the survey, 319 only partially completed the survey, and 1,652 were disqualified—1,550 for not meeting the sample criteria and 102 because the quota for respondents of their type had already been reached. This survey was completed between March 14, 2018, and March 20, 2018. The average time spent

answering questions (including those not part of this study) was 32 minutes, while the median completion time was 26 minutes. The questions for our study took about 5 minutes to complete. For the one-off survey, 2,214 individuals clicked the invitation link, 1,020 completed the survey, 81 only partially completed the survey, and 1,113 were disqualified—631 for not meeting the sample criteria and 482 because the quota for respondents of their type had already been filled. We eliminate an additional 198 respondents who reported having less than $1 million in investable assets, leaving a total of 822 respondents. This survey was completed between January 8, 2018, and January 12, 2018. The average time spent answering questions (including those not part of this study) was 12 minutes, while the median completion time was 10 minutes. The questions for our study took about 3 minutes to complete. Research Now SSI conducts survey quality checks by monitoring the time it takes to complete a survey and dropping participants who take suspiciously little time.

Table 1 shows summary statistics for our two survey samples. Our sample characteristics skew away from those of the overall U.S. population in ways that are consistent with our respondents truthfully reporting their high-net-worth status.

Our respondents tend to be older, with 87% of the quarterly survey and 83% of the one-off survey respondents being 55 or above. This differs greatly from the age distribution in the 2016 Survey of Consumer Finances (SCF), where only 44% of all respondents are 55 or above, but is similar to the 76% of SCF respondents with more than $1 million of investable assets who are 55 or above.[6] Relative to these wealthy SCF respondents, our respondents tend to be older, although they are less likely to be 75 or above. Reflecting their older ages, our respondents are more likely to be retired (58% and 49% in the two surveys) than the wealthy SCF respondents (36%).

Our respondents are overwhelmingly married or living with a partner (85%), which is similar to the proportion among wealthy SCF respondents (83%) and much higher than the proportion in the overall SCF (60%). Between 72% and 73% of our respondents are male. The "SCF respondent" is the household member who is identified by the SCF to be the most financially knowledgeable[7]—closely related to the financial decision-making screening criterion we used for

[6] We define investable assets in the SCF as total assets minus primary residence minus residential property excluding primary residence minus net equity in non-residential real estate minus businesses (with either an active or non-active interest).

[7] This is different from the household head, which the SCF automatically designates as the male in a heterosexual couple and the older individual in a same-sex couple.

our surveys. Among wealthy SCF respondents, 70% are male, which is much closer to our samples' proportion than the 48% of all SCF respondents who are male.

We also see that the distribution of investable financial assets in our survey samples is similar to what is found in the SCF conditional on having more than $1 million. About half of all three samples have between $1 million and $2 million, about a third have between $2 million and $5 million, about a tenth have between $5 million and $10 million, and about 5% have over $10 million. The most common primary sources of wealth in our sample are labor income (45%) and investments (39%). Finally, median household income in our surveys is between $150,000 and $249,999. This is considerably lower than in the wealthy SCF sample, but our survey question did not specify to respondents a definition of income. The SCF uses an expansive definition of income that includes realized capital gains and withdrawals from retirement accounts, which many people may not colloquially consider to be income. The lower income in our samples may also be due to the larger fraction of retirees in our samples relative to the wealthy SCF population.

2. Equity Share of Portfolio

In this section, we discuss the factors that determine the fraction of wealth invested in equities, for which we have relevant responses from the 1,662 individuals in our quarterly survey. Table 2 shows the mean and standard deviation of the percent of portfolio held in each asset class, as well as the fraction of the sample that has positive holdings in each asset class. On average, respondents hold 53% of their portfolio in equities. Non-participation in equities is rare—only 6% of respondents hold no stocks, in contrast to the 48% non-participation rate in the total 2016 SCF population. There is strong home bias in respondents' equity holdings; 83% of their stocks are U.S. stocks. Only 10% hold any assets in hedge funds, venture capital, or private equity, but conditional on doing so, they allocate 13% of their portfolio to these funds.

We began by asking respondents, "How important are the following factors in determining the total percentage of your net worth that is currently invested in stocks—both in private businesses and publicly traded companies? (Don't count factors that affect which stocks you hold but don't affect the total amount invested across all stocks.)" The answer options for each question were "Not important at all," "A little important," "Moderately important," "Very important," and "Extremely important." The order in which factors were presented was randomized across respondents.

Table 3 presents a high-level summary of the results across all categories. The first column shows the percent of respondents who report that each factor is very or extremely important.[8] The second column shows the percent who report each factor to be moderately, very, or extremely important. The third column shows the mean rating when each possible response is given a numerical value between 1 and 5 (where 5 represents "extremely important"). The fourth column shows the average value of a standardized variable designed to capture whether a respondent indicated that a factor is important relative to the other factors. This variable is constructed by subtracting the mean numerical value of the respondent's ratings from the numerical value of each response and dividing by the standard deviation of that respondent's numerical rating values. This standardization purges some of the variation in ratings that arises from different individuals having different interpretations of the response categories. The correlations between the first measure and each of the other three are 0.82 or higher, so we will focus on the percent who report a factor to be very or extremely important.

A few factors stand out as particularly important. No matter which column's variable we sort on, the same five factors remain in the top five: Advice from a professional financial adviser, personal experience investing in the stock market, experience of living through stock market returns, rare disaster risk, and the risk of illness or injury. Each of these has at least 20% of respondents rating it as very or extremely important in determining their equity share. Among employed respondents, years left until retirement is also one of the most important factors, with 26% rating it as very or extremely important.

At the other end of the spectrum are six factors cited as very or extremely important by no more than 7% of respondents: loss aversion; external habit; illiquid non-equity investments; advice from a friend, family member or acquaintance; wealth relative to other rich people; and advice from media. These are the six lowest-ranked factors when sorting by the percent rating a factor to be at least very important, or when sorting by the percent rating a factor to be at least moderately important. They are all in the bottom eight when sorting by the average numerical rating, and in the bottom nine when sorting by the standardized rating.

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[8] The question about the importance of professional advice was asked only of respondents who answered yes to the question, "Do you **work with a professional financial adviser** who helps you manage your finances and make investment decisions?" We impute an answer of "not important at all" for this factor for the 542 respondents (33% of the quarterly survey sample) who said they do not work with a professional financial adviser.

How likely is this spread of responses if respondents were answering randomly? Let p be the empirical probability, pooled across all the factors in Table 3, of a respondent rating a factor as very or extremely important. We run a Monte Carlo analysis where respondents randomly and independently rate each factor about which they were asked as very or extremely important with probability p, and as moderately, a little, or not important with probability $1 - p$. The actual across-factor standard deviation of the percent rating each factor as very or extremely important is 6.3%, which is more than five times larger than the maximum standard deviation we obtain across 1,000 simulation runs. In Section 2.7, we show that the first five principal components explain 46% of the variance in whether individuals rate factors as very or extremely important. Hence, it is exceedingly unlikely that respondents were answering in a random haphazard fashion.

In the exposition that follows, we group the factors into six categories: social and personal factors, background risks and assets, expected return beliefs, factors from neoclassical asset pricing models, nonstandard preferences, and miscellaneous factors.[9] We also report results in the tables separately by whether the respondent has assets greater than $5 million (i.e., in the top 1.1% of the SCF wealth distribution), is employed, or is at least 65 years old. However, for the sake of brevity, we will mostly not discuss these subsample results.

2.1. Social and Personal Factors

We measure the importance of nine social and personal factors. In Table 4, we present the percentage of respondents who report that each of these factors is very or extremely important in determining the proportion of their portfolio invested in equity, along with the exact text used to describe each factor in the survey.

We asked respondents about advice from various sources: a professional financial adviser the respondent hired ("advice from professional financial adviser"); advice from a friend, family member, or other acquaintance ("advice from friend, family, or other acquaintance"); and advice from media sources ("advice from media"). We also asked about the reverse: the difficulty of finding a trustworthy investment adviser ("lack of trustworthy adviser"). Guiso, Sapienza, and Zingales (2008) present evidence that a general lack of trust in other market participants is an important driver of reluctance to invest in stocks, so we ask respondents about the importance of

[9] Some of the descriptions of the survey questions and their motivation in the remainder of the paper are taken from Choi and Robertson (2020).

the concern that companies, managers, brokers, or other market participants might cheat them out of their investments ("low trust in market participants"). We additionally ask about the importance of a general lack of knowledge about how to invest ("lack of knowledge about how to invest").

A growing literature documents the role of personal experience in financial decision making. For example, Vissing-Jørgensen (2003) finds that the idiosyncratic component of an investor's own portfolio return positively affects her expectation of future *aggregate* stock market returns, and Malmendier and Nagel (2011) find evidence that households who have lived through higher stock market returns invest more in stocks. To investigate whether individuals are conscious of these effects, we ask our respondents about the importance of feelings, attitudes, and beliefs about the stock market gotten from living through stock market returns, whether or not they were invested in stocks at the time ("experience of living through returns"), and the importance of feelings, attitudes, and beliefs about the stock market gotten from personal experiences of investing in the stock market ("personal experience investing in stock market").

Religion has been hypothesized to influence economic risk-taking since at least Weber (1930), and a large body of empirical literature has found that Catholics are less risk averse than Protestants (Barsky et al., 1997; Hilary and Hui, 2009; Kumar, 2009; Kumar, Page, and Spalt, 2011; Shu, Sulaeman, and Yeung, 2012; Schneider and Spalt, 2016, 2017; Benjamin, Choi, and Fisher, 2016). We therefore ask respondents whether their religious beliefs, values, and experiences played an important role in their equity allocation decision ("religion").

Social and personal factors dominate the top of the summary list in Table 3, representing three of the top four (and five of the top nine) factors. The most commonly cited factor—both in this section (as shown in Table 4) and overall—is advice from a professional financial advisor, which is described as very or extremely important by 33% of respondents. Next are personal experience investing in the stock market (24%) and experience of living through returns (23%). Lack of a trustworthy advisor and religion are each described as very or extremely important by 18% of respondents. Relatively few respondents point to a lack of trust in market participants (12%) or a lack of knowledge about how to invest (11%), and the least important factors are advice from peers and family members (6%) and advice from the media (5%).

2.2. Background Risks and Assets

We explore how eight background risks and assets affect allocations to equities. Even though our sample consists of individuals with substantial financial assets, human capital may still represent a substantial fraction of their total wealth. This is particularly likely to be true of individuals who are employed (40% of our sample), under 65 years old (42%), or both (29%). Because human capital is subject to both wage risk and health risk, it could affect an individual's optimal allocation to equities, whether or not these risks are correlated with stock returns (Bodie, Merton, and Samuelson, 1992; Pratt and Zeckhauser, 1987; Kimball, 1993; Gollier and Pratt, 1996).[10] To capture portfolio effects of human capital risk, we ask respondents about the importance of the risk of expenses related to illness or injury to themselves or a family member ("risk of illness/injury expenses"). We also ask respondents who are currently employed about the importance of unemployment and wage growth risk in their equity allocation decision ("labor income risk").

An individual's human capital wealth depends on the number of future years in which the individual expects to earn labor income. As a result, as an individual approaches retirement, the individual's financial portfolio represents an increasing fraction of the individual's total wealth. This should affect the allocation of the financial portfolio (Bodie, Merton, and Samuelson, 1992). We therefore ask employed respondents about the importance of the number of years remaining until retirement ("years left until retirement"). Time until retirement can also affect portfolio choice in other ways, even if respondents fail to consider the human capital portion of their total wealth—for example, due to a belief in time diversification or negative serial correlation of stock returns (Barberis, 2000). We therefore separately ask about the importance of wages to be earned over the remainder of one's lifetime relative to current financial wealth ("human capital") to isolate the human capital channel. We also ask all respondents about the importance of time remaining until a significant non-retirement expense such as a home purchase, school tuition, or a major charitable donation ("time until significant non-retirement expense"), motivated by Wachter

[10] The empirical literature on background labor income risk has generally found negative effects on equity allocations (Guiso, Jappelli, and Terlizzese, 1996; Hochguertel, 2003; Angerer and Lam, 2009; Palia, Qi, and Wu, 2014; Schmidt, 2016; Fagereng, Guiso, and Pistaferri, 2018), although the estimated magnitudes tend to be small, perhaps because of difficulty isolating exogenous variation that is unpredictable by the individual. Rosen and Wu (2004) find that households in poor health hold less in risky assets.

(2002), who shows that the timing of intermediate-period consumption can affect the optimal current portfolio allocation if risky asset returns are mean-reverting.

We ask about the importance of two other types of investment. Flavin and Yamashita (2002), Cocco (2004), and Yao and Zhang (2005) present models where housing affects the demand for stocks. While housing may be a smaller proportion of wealthy individuals' portfolios than it is of the typical homeowner, we nevertheless ask respondents about concern that one's home value might fall ("home value risk"). We also ask about the importance of significant holdings in illiquid, non-equity assets, such as fine art or real estate ("illiquid non-equity investments"). Ang, Papanikolaou, and Westerfield (2014) find that uncertainty about when illiquid assets can be traded reduces optimal allocations to both liquid and illiquid risky assets.

Finally, we investigate the effect of inflation. Stocks hedge against inflation over longer horizons (Boudoukh and Richardson, 1993; Solnik and Solnik, 1997), although stock returns are negatively correlated with inflation over shorter horizons (Lintner, 1975; Bodie, 1976; Nelson, 1976; Fama and Schwert, 1977; Gultekin, 1983). We ask our respondents about the importance of the belief that when their living expenses increase unexpectedly, the stock market will tend to rise ("stocks are an inflation hedge").

Table 5 summarizes the results for these eight factors. Among factors that apply to all respondents, risk of illness or injury expenses is the most prominent, with 20% describing it as very or extremely important. This factor is notable for having the largest difference among all 40 of our equity share factors between respondents with more versus less than $5 million. Only 12% of those with more than $5 million cite health expense risk as very or extremely important, versus 22% of those with less than $5 million.

Among employed respondents, the number of years remaining until retirement is somewhat more important than health risk; 26% of employed respondents say it is very or extremely important, compared to 24% of employed respondents who say the same about risk of illness or injury expenses. Twenty-six percent is considerably higher than the 17% of employed respondents who say that the human capital fraction of their total wealth is very or extremely important, indicating that belief in time diversification or negative return autocorrelation plays some role in making time horizon important. In contrast, labor income risk receives less support, with only 12% of employed respondents describing it as very or extremely important. The importance of stocks as an inflation hedge receives a similar level of support among all of our respondents (12%). Two

factors associated with concentrated investment positions—home value risk (9%) and significant illiquid non-equity investments (6%)—are somewhat less salient. The number of years until a significant non-retirement expenditure receives roughly the same level of support, with 8% of respondents describing it as very or extremely important.

2.3. Expected Return Beliefs

We elicited the importance of four factors related to beliefs about expected stock market returns. We asked about the belief that low stock market returns tend to be followed by more low stock market returns ("stock market returns have momentum"). DeBondt (1993), Fisher and Statman (2000), Vissing-Jørgensen (2003), and Greenwood and Shleifer (2014) find survey evidence that individuals hold extrapolative beliefs about aggregate stock market returns on average. Positive return autocorrelation should decrease an individual's unconditional willingness to hold equities, since it implies that poor stock returns are associated with worse future investment opportunities. We also asked about the converse: whether a belief that low stock market returns tend to be followed by high stock market returns played an important role in their portfolio choice ("stock market returns mean-revert"). Because negative return autocorrelation implies that stocks are a hedge, it should make people unconditionally more willing to hold stocks (Barberis, 2000).

If individuals believe that expected returns are time-varying, their view that expected returns are particularly high or low around the survey date could affect their equity share at that point in time. We therefore ask respondents whether a belief that the returns they can expect to earn from investing in stocks right now are lower than usual played an important role in their portfolio choice ("expected stock returns lower than usual right now"), as well as the reverse question about expected returns being higher than usual ("expected stock returns higher than usual right now").

The results are presented in Table 6. Fifteen percent of respondents describe a belief that expected returns are currently higher than usual as a very or extremely important factor, which is significantly higher than the 10% who cite expected returns being lower than usual. This optimism may have been fed by the fact that the S&P 500 returned 17% in the twelve months prior to March 2018, the quarterly survey date, and only one of those months had a negative return. Nevertheless, more respondents cite as very or extremely important a belief in negative stock return correlation (15%) than a belief in positive stock return correlation (9%). The coexistence of optimism fueled

by the prior year's returns and a belief in mean reversion is not necessarily contradictory. For example, it could be that respondents believe that returns are positively autocorrelated over the short run but mean revert over longer horizons. Vissing-Jørgensen (2003) finds that individuals' forecasts of one-year-ahead stock returns respond strongly positively to the market index level, but forecasts of stock returns over the next ten years are insensitive to recent returns.

2.4. Neoclassical Asset Pricing Factors

We asked about nine factors drawn from neoclassical representative agent asset pricing models. Each factor has been hypothesized to affect the equity premium, which implies that it affects portfolio choice.

One of the most basic predictions of standard asset pricing theory is that assets that tend to have high payoffs when the marginal utility of money is high are more attractive than assets that tend to have low payoffs when the marginal utility of money is high. To investigate whether wealthy individuals consciously think in these terms, we asked each respondent to rate the importance of this factor in their investment decision ("return covariance with marginal utility of money"). Specifically, we asked about the concern that when the respondent especially needs the money, the stock market will tend to drop. We did not want to tell the respondent that the stock market *actually* has this property, which is why we described this factor as a "concern" about such a property. If the respondent did not believe this property to be true, it would be natural to respond that such a concern is not an important factor. As with the other theories addressed in this section, we did not directly measure our respondents' beliefs about the existence or nature of the phenomenon emphasized by the theory.

A special case in the class of models where return covariance with the marginal utility of money matters is the consumption-based capital asset pricing model (CCAPM) (Rubenstein, 1976; Breeden and Litzenberger, 1978; Lucas, 1978; Breeden, 1979). In the CCAPM, an asset's risk premium is determined by its return covariance with consumption growth. We asked respondents about the importance of the concern that when they need to cut their spending, the stock market will tend to drop ("return covariance with marginal utility of consumption").

We also asked about models based on specific conceptions of consumption risk. Following the rare disaster literature (e.g., Rietz, 1988; Barro, 2006; Gabaix, 2012; Wachter, 2013), we asked our respondents about the importance of a concern that a dollar invested in stocks will lose more

money than a dollar in a bank savings account or government bond during an economic disaster like the Great Depression, where the U.S. economy's annual output drops by more than 10% ("rare disaster risk"). Our definition of a disaster is drawn from the cutoff of Barro and Ursúa (2012). If a respondent did not believe that such a disaster is possible, believed that safe assets would lose as much value as the stock market in such a disaster, or if she had not considered such a possibility, then it would be natural to respond that such a concern was not important for her equity allocation decision.

An alternative hypothesis about the nature of consumption risk comes from the long-run risk model (Bansal and Yaron, 2004), which emphasizes concerns that when bad news arrives about the expectation and volatility of consumption growth over the long run, stock returns tend to be low. We ask separate questions about the importance of a concern that stocks tend to drop with the arrival of bad news about aggregate consumption growth over the next year ("risk of aggregate consumption over next year"), or with the arrival of bad news about aggregate consumption growth over the five-year period starting one year in the future ("risk of long-run aggregate consumption"). Whereas the first of these could be viewed as a nearly contemporaneous covariance (consistent with the risk the CCAPM is concerned with), the second is more clearly about the long term.[11] The five-year period in the latter question is based on the half-life of expected growth shocks in the Bansal, Kiku, and Yaron (2012) calibration, which is about 2.25 years.

We ask analogous questions about economic uncertainty—concern about stock return covariance with the arrival of news about higher aggregate consumption uncertainty over the next year ("risk of aggregate consumption volatility over next year") or with the arrival of news about higher aggregate consumption uncertainty over the ten-year period starting one year in the future ("risk of long-run aggregate consumption volatility"). The ten-year period in the second question is motivated by the high persistence of volatility shocks in Bansal, Kiku, and Yaron (2012).

Piazzesi, Schneider, and Tuzel (2007) hypothesize that the relevant consumption risk is consumption *composition* risk. They posit that households have nonseparable preferences over housing and a numeraire good, leading them to fear changes to the relative share of housing in

[11] Cochrane (2017) emphasizes the importance of the news about non-contemporaneous future consumption growth in distinguishing the long-run risks model from the Merton ICAPM model, where "reduction in today's consumption reveals all we need to know about how much the bad news hurts."

their consumption basket. Because of this, assets that have low numeraire payoffs when housing consumption is low relative to numeraire consumption command a higher risk premium. We thus ask about the importance of the concern that stock returns will tend to be low when the quality of one's physical living situation is dropping more quickly than the rest of one's material quality of life ("consumption composition risk").

Finally, Chetty and Szeidl (2007) and Chetty, Sándor, and Szeidl (2017) show how difficulty in adjusting components of one's consumption bundle in the short run can cause individuals to invest less in risky assets. In such a situation, a negative shock must be accommodated entirely through adjustment of uncommitted consumption (e.g., food), raising the local curvature of utility. To capture this factor, we ask respondents about the importance of fixed expenses like mortgage payments, tuition bills, charitable commitments, etc. that are difficult to adjust in the short run ("consumption commitments").

Rare disaster risk receives substantially more support among our respondents than the other neoclassical asset pricing factors. Table 7 shows that 23% of respondents describe it as a very or extremely important factor. Indeed, it is the fourth most important factor among all the ones we asked our entire sample about (see Table 3). Covariance with the marginal utility of money is next, with 15% of respondents describing it as very or extremely important, but this level of support is surprisingly middling for such a fundamental building block of modern finance theory. It is also the factor in Table 7 that shows the greatest divergence between the level of support received from those with more than $5 million of investable assets (11%) and those with less (16%), further calling into question its importance in determining asset prices. Consistent with the well-documented empirical failure of the CCAPM (Mehra and Prescott, 1985), covariance with the marginal utility of consumption receives even less support (9%). Interestingly, the aggregate version of the CCAPM ("risk of aggregate consumption over next year") receives more support (13%) than the version tied to the respondent's own marginal utility of consumption.

Long-run consumption risk and long-run consumption volatility risk are cited as very or extremely important slightly more often (14% and 13%, respectively) than the risk of aggregate consumption over the next year (13%) or the risk of aggregate consumption volatility over the next year (12%). Like covariance with the marginal utility of consumption, consumption composition risk (11%) and consumption commitments (9%) receive relatively little support.

2.5. Nonstandard Preferences

We investigate the importance of five types of nonstandard preferences: loss aversion, ambiguity aversion (which we do not separately identify from the effects of parameter uncertainty), internal habit, external habit, and the desire to be wealthier than other wealthy people.

Barberis, Huang, and Santos (2001), Barberis and Huang (2001), and Barberis, Huang, and Thaler (2006) present models where loss aversion reduces the demand for stocks. Although loss aversion is frequently described as the feeling that a loss is more painful than an equivalent-sized gain is enjoyable, an agent with classical risk aversion feels this way as well. In order to isolate the importance of loss aversion, we focus on a distinguishing feature of loss aversion: an aversion to *small* gambles (Segal and Spivak, 1990; Rabin, 2000). We ask respondents if worry about the possibility of even small losses on their stock investments was an important factor in their equity allocation decision ("loss aversion").

Bayesian investors will reduce their allocation to the risky asset as uncertainty about its return distribution increases, and investors who are ambiguity averse (Ellsberg, 1961) will reduce their risky allocation even further (Dow and Werlang, 1992; Barberis, 2000; Garlappi, Uppal, and Wang, 2007; Kan and Zhou, 2007). Dimmock et al. (2016) show that those who exhibit ambiguity aversion in a laboratory experiment are less likely to hold stocks in their real-life portfolios, and conditional on holding stocks, allocate less to them. However, they also find that many individuals are ambiguity-seeking. We elicit the role of ambiguity and parameter uncertainty, which we do not disentangle from each other, by asking about the importance of not having a good sense of the average returns and risks of stocks ("ambiguity/parameter uncertainty").

We ask respondents questions about two kinds of habits. In the Constantinides (1990) internal habit model, individuals derive utility from consumption today relative to their own past consumption. In contrast, in the Campbell and Cochrane (1999) external habit model, individuals derive utility from their own consumption today relative to past aggregate consumption. In both models, habit decreases the willingness to hold stocks by increasing risk aversion. We investigate the extent to which individuals are consciously considering these factors by asking respondents about the importance of the difference between their current material standard of living and the level they are used to ("internal habit"), and the importance of the difference between their current material standard of living and the level everybody else around them has experienced recently ("external habit").

A desire to increase one's wealth relative to wealthy peers may also drive risky asset allocations. Roussanov (2010) models a "getting ahead of the Joneses" motive and finds that it can explain why the very wealthy take more financial risks than the remainder of the population. We therefore ask about the importance of a desire to become wealthier than other wealthy people ("desire to become wealthier than other wealthy people").

Table 8 shows that we find relatively little support for the importance of non-standard preferences. Ambiguity/parameter uncertainty is described as very or extremely important by 10% of respondents, internal habit by 9%, and loss aversion by 7%. Six percent of respondents describe external habit and a desire to become wealthier than other wealthy people as very or extremely important.

2.6. Miscellaneous Factors

We asked about the importance of five factors that do not neatly fall into the above categories. We asked about rules of thumb, such as investing 100 minus age percent of assets in stocks, or investing one-third of one's wealth in each of stocks, bonds, and real estate ("rule of thumb"). We also asked about two transactional factors related to those in the model of Lagos (2010), where equities command a high expected return because they are less useful for facilitating exchange: the concern that stock investments will take too long to convert into spendable cash in an emergency ("stocks take too long to convert to cash in emergency"), and the amount of cash the respondent needs to have on hand to pay routine expenses ("need cash on hand for routine expenses"). As a point of comparison to the two personal experience factors discussed previously, we asked respondents about the importance of what they know about the stock market's returns during the decades *before* they were born ("stock market returns before I was born"). Finally, we asked about the difficulty associated with selling private equity shares ("hard to sell PE shares"), which might decrease equity investment ex ante but increase it ex post if the respondent would like to reduce her equity exposure but cannot find a buyer for her private equity stake.

Table 9 presents the results. Despite the fact that our sample consists of high net worth individuals, 19% reported that having cash on hand for routine expenses is a very or extremely important factor in their decision about what percentage of their net worth to allocate to equity. While this factor is slightly more important among individuals with less than $5 million (20%), it receives substantial support even among respondents with more than $5 million (16%). Returns

from the decades before the respondent's birth are described as very or extremely important by only 9% of respondents—substantially less than the 24% and 23% who say the same for their personal experiences investing in the stock market or their experience of living through stock market returns, respectively. Those who are younger than 65 are more likely (13%) to say that those pre-birth returns are very or extremely important than those older than 65 (6%). The remaining three factors garner even less support than pre-birth returns: illiquidity of private equity shares (9%), stocks taking too long to convert to cash (8%), and a rule of thumb (7%).

2.7. Principal Components Analysis

In this section, we discuss a principal components analysis that explores whether respondents who report that a certain equity share factor is very or extremely important tend to report that certain other equity share factors are also very or extremely important. The factors we include in this analysis are the 38 factors in Table 3 about which all quarterly survey respondents were asked.[12] The outcome variables are binary indicators for whether the respondent rated each factor as very or extremely important.

Using the common criterion of retaining only principal components with an eigenvalue above 1, we identify five important principal components which together capture 46% of the variance in whether individuals rate factors as very or extremely important. To aid interpretation, we perform an orthogonal varimax rotation of these principal components. We employ the common rule of thumb of considering loadings whose magnitude is at least 0.30 to be economically significant when interpreting the principal components, but show in Table 10 all factors whose loading on a principal component has a magnitude of at least 0.20.[13]

The first principal component captures external social factors and unsophisticated advice. Those who rate the desire to become wealthier than other rich people more highly also tend to rate advice from the media as more important. Other factors whose loadings are just below the 0.30 cutoff also fall into the categories of external social factors (external habit) and unsophisticated advice (rules of thumb and peer advice).

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[12] We include advice from a professional financial adviser in this analysis because we imputed "not at all important" responses to this factor for those who do not use such an adviser and hence were not asked about this factor.

[13] There is an arbitrariness to this commonly used cutoff. Tabachnick and Fidell (2007) suggest an alternative cutoff of 0.32, but this higher cutoff would leave no significant factors in the first principal component.

The second principal component captures the importance of neoclassical asset pricing factors: long-run risk, aggregate consumption covariance with stock returns, rare disaster risk, and stock return covariance with the marginal utility of money. The third principal component shows that those whose lack of trust in advisers and market participants importantly influenced their portfolio allocation also tend to rate their religious beliefs, values, and experiences as more important for this choice. The fourth principal component loads heavily on personal experiences of returns and investing. The fifth principal component indicates that those who rate advice from a professional financial adviser as more important also tend to say that their need for cash on hand for routine expenses is important for their equity share.

Table 11 shows the results of regressing portfolio equity share on the first five principal component scores, using either ordinary least squares or tobit regressions where the dependent variable is considered censored at 0% and 100%. The scores are normalized so that they each have unit standard deviation. Higher scores on the first three principal components (external social factors and unsophisticated advice, neoclassical asset pricing factors, and trust and religion) are associated with lower equity allocations, although the statistical significance of the coefficient on the first principal component score fades when respondent demographics are controlled for. Higher scores on the fourth principal component (personal experiences) are associated with higher equity allocations, and scores on the fifth principal component have no significant relationship with equity allocations. These coefficients do not necessarily represent causal relationships; it is quite plausible that relevant omitted variables such as risk aversion are correlated with principal component scores. Nonetheless, the significance of these correlations are further suggestive evidence that the factor importance ratings contain meaningful information rather than being pure noise.

2.8. Comparison with Representative U.S. Sample

How does our wealthy sample differ from typical U.S. households in the factors that affect portfolio equity share? In this subsection, we compare our results to those of Choi and Robertson (2020), who administered a similar survey to a representative sample of U.S. households. Table 12 lists, for all 37 factors both samples were asked about, the percent in each sample who responded that the factor is very or extremely important. Generally, wealthy investors are less likely to describe a factor as very or extremely important, which could either be because academic

theories are a poorer description of the wealthy's decision-making process or because the wealthy having a higher bar for describing something as very or extremely important. In the discussion below, we will focus on comparing each sample's ordinal rankings of the factors.

There are a number of similarities between the two groups. Both cite years left until retirement, the risk of illness or injury, the need for cash on hand for routine expenses, and rare disasters as among the most important factors for determining their risky share. Among the least important factors for both groups are external habit, advice from non-professionals, and rules of thumb.

However, the typical investor's asset allocation is much more driven by discomfort with the market, financial constraints, and human capital considerations. Lack of trust in market participants and lack of knowledge about how to invest are the sixth and seventh most important factors for the representative sample, whereas these factors are ranked 17th and 21st for the wealthy. In contrast, the wealthy's market decisions are aided by advice from a professional financial advisor (their number one most important factor, versus the 23rd most important factor for the representative sample), and they lean more on their personal experiences (third and fourth most important factors for the wealthy, versus 21st and 26th most important factors for the representative sample). Time until a significant non-retirement expense and consumption commitments are the 9th and 10th most important factors for the representative sample, but only the 32nd and 29th most important factors for the wealthy. Labor income risk and the human capital fraction of one's total wealth are the 5th and 8th most important factors for the representative sample, versus the 18th and 22nd most important factors for the wealthy. The lesser importance of human capital considerations for the wealthy is sensible given their older ages and the fact that they have significant financial assets.

3. Concentrated Stock Ownership

Wealthy households are particularly likely to hold a large undiversified equity position (Carroll, 2002; Roussanov, 2010). We therefore asked nine questions about why the wealthy would choose to forego the benefits of diversification.

We began by asking the individuals in our quarterly survey whether they currently held more than 10% of their net worth in a single company's stock. Of the 1,662 respondents, 15% replied that they did. More specifically, 12% reported that more than 10% of their net worth was

currently invested in the stock of one and only one company, and an additional 3% reported that more than 10% of their net worth was currently invested in the stock of each of two or more companies.[14]

We asked the 256 respondents with concentrated holdings, "How does the fact that you have a concentrated ownership stake in one or more companies affect the total amount of stock (summed across both concentrated and non-concentrated investments) you choose to hold in your portfolio?" The possible answer choices are, "It makes me hold more in stocks than I otherwise would," "It has no effect on the total amount I invest in stocks," "It makes me hold less in stocks than I otherwise would," and "I don't know." A surprisingly high 67% report that their concentrated position has no effect on their total amount invested in equities; standard portfolio choice theory predicts that their total equity position should decrease. Slightly more say that the concentrated position causes them to hold more in stocks than less in stocks (14% and 12%, respectively).[15] These results suggest that, while concentrated holdings affect (by definition) the allocations of high net worth investors *within* equities, they have little effect on average on these investors' *total* investment in equities.

We then asked the questions about why the individual decided to hold a concentrated position, with question order randomized across respondents. We told respondents who had concentrated positions in multiple companies to answer these questions with respect to their largest single holding.[16] As in the equity share section, the answer options are, "Not important at all," "A little important," "Moderately important," "Very important," and "Extremely important."

There is substantial evidence that a controlling stake in a corporation is more valuable than an equivalent number of shares held by dispersed investors (e.g., Barclay and Holderness, 1989; Dyck and Zingales, 2004). Therefore, we asked about the desire to maintain a significant voting stake in the company ("voting stake"). We also asked about a personal reason for choosing to maintain a concentrated position: a strong association between the individual or her family and the company ("personal/family association"). Iconic examples of what we had in mind here are the association between Henry Ford and Ford Motor Company, or Sam Walton and Walmart.

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[14] Four percent of respondents reported being unsure about the answer to the question.
[15] The remaining 6% report that they do not know the effect on their allocation to equities.
[16] We showed the following text to illustrate how to answer when the respondent had more than one one concentrated holding: "For example, if 11% of your net worth is invested in Company A and 12% in Company B, please answer with respect to your investment in Company B."

The existence of such a strong association might engender a desire for it to continue to the next generation. To measure this motive, we asked about the desire to hold a significant amount of stock in the company in order to pass it on to one's heirs ("bequest motive"). This question may also capture a tax motivation for holding a concentrated position, although its wording doesn't match such a motivation precisely. The U.S. federal income tax code subsidizes bequests of appreciated assets by adjusting the cost basis of bequeathed assets to equal the assets' value at the time of the bequest, allowing the unrealized capital gains accrued during the decedent's life to permanently escape taxation (Joulfaian, 2005). Thus, it may be advantageous to hold onto an ownership position that has appreciated rather than diversifying the stake and paying the resulting capital gains tax.

We asked about two reasons driven by selling constraints. We asked about the difficulty of finding a buyer for the shares in question ("difficulty finding a buyer"). This could be due to the illiquidity of the private equity market, or concerns about adverse price impact when selling shares in a public market. We also asked about the importance of lockup agreements that prevent the individual from selling shares in either the company or an investment fund ("lockup"). Corporate executives are often granted restricted stock that cannot be sold for a number of years. In addition, lockups of 90 or 180 days are common after IPOs and SEOs (Karpoff et al., 2013).

Lockups and restricted stock exist to mitigate adverse selection and moral hazard. Even in the absence of formal restrictions, an individual who is significant to a company may choose to hold a large stake in order to certify the company's quality to outsiders and assure other shareholders that his interests are aligned with theirs. To measure these motives, we asked about the desire to build others' confidence in the company ("signaling confidence") and the desire to build others' confidence in the respondent's commitment to the company as an employee or board member ("signaling commitment").

Finally, we asked about two factors related to beliefs. First, we asked about the belief that the stock would have higher returns on average than other stocks in the market ("higher returns"). Second, we asked about the belief that the stock would be less risky than other stocks ("lower risk"). These motives may be diagnostic of overconfidence or familiarity bias. An individual stock's return is at best only modestly predictable without inside information, and any given

individual stock usually has large amounts of idiosyncratic risk, which would cause a substantial expected return premium to be required to rationalize holding a concentrated position in it.[17]

Table 13 shows that the most popular factor motivating a concentrated holding is the belief that the stock would provide higher returns on average (46%), followed by the belief that it would provide lower risk (33%). Respondents who described one of these two factors as very or extremely important are disproportionately likely to say the same thing about the other. Of the 117 individuals who say higher expected returns are very or extremely important, 72 (62%) say the same about lower risk. These 72 individuals represent 85% of the 85 individuals who described lower risk as very or extremely important. Unconditionally, 28% of the respondents with concentrated equity holdings say *both* that a belief that the stock in question would provide higher returns *and* the belief that it would provide lower risk are very or extremely important.

The other factors are cited less frequently than the union of the beliefs that the concentrated position has higher expected returns and lower risk. Twenty-six percent of respondents report that a personal or family association with the company is a very or extremely important factor in their decision to hold a concentrated position in a single company's stock. Lockups are very or extremely important to 17% of respondents, and signaling confidence in the company is a very or extremely important factor to 14% of respondents, as is signaling commitment to the company. Bequests are very or extremely important to 13%. The desire to maintain a significant voting stake and difficulty in finding a buyer are each described as very or extremely important by 12% of respondents.

In sum, the belief that the concentrated position is a superior investment seems to be the predominant motive for foregoing diversification.

4. Active Equity Investment Managers

The merits of active investing are controversial. French (2008) and many others argue that investing in an actively managed fund instead of an index fund is a mistake. On the other hand, Moskowitz (2000), Glode (2011), Kosowski (2011), and Savov (2014) argue that investment in active funds could be rational despite their lower average returns, since active funds outperform in states of the world where marginal utility is high, such as recessions. In the model of Berk and

[17] The exclusion of relative wealth concerns (DeMarzo, Kaniel, and Kremer, 2004; Roussanov, 2010) from this section of questions was an unintentional oversight.

Green (2004), the returns on active management should match those of passive management on average. Two key features of this model are that managers have heterogeneous skill in generating alpha, and this skill has decreasing returns to scale. In equilibrium, there is neither persistence in alphas nor outperformance of active management because money rationally flows out of funds with low past returns and into funds with high past returns until every manager's alpha going forward is the same in expectation.

To investigate why the wealthy invest in active equity strategies, we first told the 822 respondents in the one-off survey, "An active stock investment strategy tries to beat the overall stock market's return by picking stocks to buy. A passive stock investment strategy holds stocks in order to match the performance of a market benchmark (such as the S&P 500 stock market index) as closely as possible." We then asked, "Have you ever pursued an active investment strategy through a fund or a professional manager?" Three hundred seventy-one (45%) reported that they had, 399 (49%) reported that they had not, and a further 52 (6%) reported being unsure of the answer to the question. The 371 who answered yes were asked, "How important were the following factors in your decision(s) to pursue an active strategy instead investing the money in a passive strategy?" The factors we asked about were the recommendation of an investment adviser that they hired ("adviser recommendation"), a belief that the active strategy would give them higher returns on average than a passive strategy ("higher returns"), and a belief that even though the active strategy would have lower returns than a passive strategy on average, it would have higher returns when the economy is doing poorly ("hedging"). The answer options are "Not important at all," "A little important," "Moderately important," Very important," and "Extremely important."

To investigate whether our respondents have beliefs that are consistent with the assumptions of the Berk and Green (2004) model, we asked all respondents—whether or not they had invested in an active strategy—how much they agreed with the statement that when a stock investment fund following an active strategy gets more money to manage, it becomes harder for it to generate higher returns than the overall stock market ("decreasing returns to scale"). We also asked how much they agreed with the statement that when a stock investment fund following an active strategy has had significantly higher past returns than the overall stock market, this is strong evidence that its manager has good stock-picking skills ("managerial skill"). For both questions,

the answer options are “Strongly disagree,” “Disagree,” “Neither agree nor disagree,” “Agree,” and “Strongly agree.”

Table 14 summarizes the results on motives for pursuing an active strategy. Two of the three factors behind choosing to invest actively receive substantial support: advisor recommendation, which is described as very or extremely important by 45% of eligible respondents, and a belief that the active strategy would deliver higher average returns (44%). Hedging demand also receives non-trivial support; it is described as very or extremely important by 23% of eligible respondents.

Table 15 reports levels of agreement with the Berk and Green (2004) assumptions. Forty-two percent of respondents agree or strongly agree that past returns are evidence of stock-picking skill, but only 33% agree or strongly agree that there are decreasing returns to scale in active equity investment management. Relatively few disagree or strongly disagree with these statements (9% and 14%, respectively), but about half of our sample (49% and 53%, respectively) have no opinion about the statements, responding that they neither agree nor disagree. Interestingly, levels of agreement with the assumptions are substantially higher among those who have actively invested than among those who have not. Despite moderate levels of agreement with each of the two assumptions in isolation, only 20% of respondents (and 26% of those who have invested actively) agree with both assumptions.

Of course, the fact that only a minority of respondents agree with the model assumptions need not imply that the model does not accurately explain the dynamics of the mutual fund industry. If the model’s assumptions about fund managers are true, only the *marginal* investors need to believe them in order to equalize expected alphas across funds. On the other hand, the fewer are the investors who believe the assumptions, the less likely they are to be able to be the marginal investors, especially because fund managers cannot be sold short.

Overall, the pattern of responses indicates that a significant amount of active investing through funds by the wealthy is driven by a belief that they can identify managers who will deliver superior unconditional average returns.

5. Cross-Section of Stock Returns

In this section, we discuss respondent beliefs about four well-established equity return anomalies: value (Fama and French, 1992), momentum (Jegadeesh and Titman, 1993), profitability, and investment (Fama and French, 2015; Hou, Xue, and Zhang, 2015).

Because not everybody is familiar with the terms "value stock" and "growth stock," we began by telling the 822 respondents in the one-off survey, "A value stock is a stock that has a low price relative to its company's current profits (and other fundamentals). A growth stock is a stock that has a high price relative to its company's current profits (and other fundamentals)." We then asked them to complete eight sentences. The first was about the relative risk of value and growth stocks: "Compared to a growth stock, I expect a value stock to normally be…" Respondents chose among four possible answers: "Riskier over the next year, on average," "Equally risky over the next year, on average," "Less risky over the next year, on average," and "No opinion."

We next asked them to complete a sentence about the relative expected returns of value and growth stocks. This sentence reads, "Compared to a growth stock, I expect a value stock to normally have…" The answer options were, "Higher returns over the next year, on average," "About the same returns over the next year, on average," "Lower returns over the next year, on average," and "No opinion."

We also asked respondents to complete similar sentences about the risks and expected returns of momentum (comparing "a stock whose price fell a lot over the past year" to "a stock whose price rose a lot over the past year"), profitability (comparing "the stock of a company with low current profits" to "the stock of a company with high current profits"), and investment (comparing "the stock of a company that currently has low investment expenditures" to "the stock of a company that currently has high investment expenditures").

Table 16 summarizes the responses. Respondents are quite convinced that value stocks are less risky than growth stocks, with 47% ranking value as less risky versus only 13% saying the reverse. Betermeier, Calvet, and Sodini (2017) argue that households hold growth stocks in order to hedge human capital risk, which is why they tilt their portfolios towards value stocks as they age and their human capital risk diminishes. However, we see that among retired wealthy investors, who have no human capital risk, the fraction that says that value stocks are less risky than growth stocks is nearly identical to the fraction in the full sample. Consistent with a belief in a positive risk-expected return tradeoff, respondents collectively believe that value stocks have lower

expected returns than growth stocks, although with considerably less conviction; 24% say value stocks have lower expected returns, compared to 22% who say the reverse. Choi and Robertson (2020) find that in a sample representative of the entire U.S. population, respondents also tend to believe that value stocks have lower expected returns and lower risk. Of course, historically, value stocks have had *higher* average returns than growth stocks, which could be due to investors undervaluing value stocks. Interestingly, respondents with assets above $5 million are more likely to expect value stocks to have higher average returns than the reverse (30% versus 22%), while continuing to believe that value stocks are less risky than growth stocks. In other words, in the view of these richer investors, value stocks are good deals.

In contrast, respondents collectively believe that high-momentum stocks are bad deals. More people believe that high-momentum stocks are riskier rather than safer (28% versus 8%), and more also believe that high-momentum stocks have lower expected returns than higher expected returns (27% versus 11%). This pattern holds for respondents with assets above $5 million as well. Historically, high-momentum stocks have appeared to be anomalously good deals; they have certainly had higher average returns, not lower average returns. Choi and Robertson (2020) find that their representative sample also tends to believe that high-momentum stocks have higher risk, but (unlike our wealthy respondents) with higher expected returns.

Our respondents' beliefs about high-profitability stocks line up more closely with empirical academic research, which finds that these stocks seem to offer positive alphas. Thirty-four percent believe that high-profitability stocks have higher expected returns—consistent with the historical data—versus only 11% who believe the opposite. Thirty-eight say that high-profitability stocks have less risk, versus only 8% who believe the opposite. Those with more than $5 million of assets are even more optimistic about high-profitability stocks; 41% believe they have higher expected returns, and 53% believe they have lower risk.

Finally, respondents think that high-investment-expenditure stocks are bad deals. More believe that they have lower expected returns (24%) than higher expected returns (18%), consistent with the historical pattern. But more believe that they are riskier (26%) than less risky (12%). The pattern of beliefs about this stock characteristic is similar among those with more than $5 million in assets.

These responses cast some doubt on rational explanations for why these stock characteristics are associated with different expected returns. For two of the four characteristics,

wealthy investors believe that their correlation with expected returns has the opposite sign of the historical data. For three of the characteristics, wealthy investors do not believe there is a positive association between risk and expected return. That said, there are ways to rationalize these responses. It is possible that at the time of the survey, the rational forward-looking expectation of the relationship between characteristics and expected returns was the reverse of their historical relationship. And it could be that the relationship between characteristics and risk *specific to wealthy investors* has a different sign than this relationship for the marginal investor.

6. Conclusion

Our surveys of wealthy U.S. individuals reveal that professional advice, time until retirement, personal experience, rare disaster risk, and health risk are the most important factors in determining their portfolio equity share. Our respondents often exhibit confidence in their ability to make superior investment decisions. Concentrated equity holdings are most often motivated by a belief that the overweighted stock will have higher returns and less risk than other stocks. Nearly half of our respondents have invested in an active investment strategy through a fund or professional manager, and the most common reason for doing so is that they expected to earn higher average returns as a result. Past fund manager performance is seen as a strong evidence of stock-picking skill, and there is only weak consensus that there are diminishing returns to scale in active management; only a fifth of respondents believe both of these propositions to be true. At the individual stock level, rich investors collectively believe that high-profitability stocks offer high risk-adjusted returns. Indeed, it is not that such stocks have risk that is elevated, but not sufficiently elevated to offset their higher expected returns; our respondents tend to believe that these stocks have *lower* risk while offering higher expected returns. Conversely, they believe that high-momentum and high-investment-expenditure stocks offer low risk-adjusted returns, featuring lower expected returns and *higher* risk. Value stocks are thought to have both low expected returns (contrary to the historical record) and lower risk.

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Table 1: Sample Summary Statistics

This table shows the percent of our respondents who have various characteristics for each of our samples. The quarterly survey (N = 1,662) contains the respondents who were given questions about the equity share of their portfolio and concentrated equity holdings. The one-off survey (N = 822) contains the respondents who were given questions about active equity investment strategies and the cross section of stock returns. The SCF columns show the characteristics of 2016 Survey of Consumer Finances respondents—either those with more than $1 million of investable assets or all SCF respondents.

	Quarterly survey	One-off survey	SCF (rich)	SCF (all)		Quarterly survey	One-off survey	SCF (rich)	SCF (all)
Age					Gender				
< 27	0.0%	0.0%	0.5%	7.8%	Male	72.1%	72.7%	69.9%	47.5%
27-34	1.1%	1.7%	0.9%	13.7%					
35-44	3.2%	3.8%	6.3%	16.8%	Investable financial assets				
45-54	8.5%	11.9%	16.4%	18.0%	$0 - $999,999	0.0%	0.0%	0.0%	93.1%
55-64	29.3%	31.0%	34.3%	19.4%	$1,000,000-$1,999,999	46.9%	57.2%	50.8%	3.5%
65-74	45.1%	39.7%	24.4%	14.3%	$2,000,000-$4,999,999	31.4%	33.3%	32.3%	2.2%
75-84	11.6%	10.8%	12.2%	7.4%	$5,000,000-$9,999,999	16.6%	7.2%	10.8%	0.7%
≥ 85	1.1%	1.1%	5.1%	2.6%	$10,000,000+	5.1%	2.3%	6.2%	0.4%
Employment status					Primary source of wealth				
Self-employed	10.7%	12.0%	19.2%	9.4%	Salary/Bonus/Stock options	45.4%	--	--	--
Employed full-time	25.2%	31.5%	36.3%	46.4%	Inheritance/Marriage	5.2%	--	--	--
Employed part-time	4.5%	5.6%	4.3%	7.7%	Investments	39.4%	--	--	--
Unemployed	0.4%	0.6%	0.6%	4.0%	Business income	8.8%	--	--	--
Student	0.1%	0.0%	0.0%	1.0%					
Retired	57.9%	49.1%	36.1%	27.0%	Household income				
Homemaker	1.3%	1.1%	3.6%	4.5%	< $50,000	0.6%	0.9%	2.4%	45.9%
					$50,000 - $74,999	5.4%	7.7%	3.6%	16.8%
Living situation					$75,000 - $99,999	11.2%	11.4%	5.0%	11.3%
Married/living with partner	84.6%	---	83.0%	60.1%	$100,000 - $149,999	26.8%	27.6%	13.2%	12.2%
Divorced	4.8%	---	5.6%	14.3%	$150,000 - $249,999	30.6%	32.0%	23.5%	8.0%
Widowed	4.5%	---	7.2%	8.6%	$250,000 - $399,999	16.2%	13.3%	20.8%	3.0%
Single	6.1%	---	4.1%	16.9%	$400,000+	8.6%	6.8%	31.5%	2.7%

Table 2: Portfolio Holdings

This table shows the mean and standard deviation of the fraction of portfolio held in each asset class, as well as the percent of the sample that has positive holdings in the asset class. The sample is respondents to the quarterly survey (N = 1,662). The question that elicited these percentages read, "Please provide your approximate **overall asset allocation** across all your accounts. Please refer to your latest statement(s) if needed."

	Mean	Standard deviation	Has positive holdings
Cash	11.1%	15.2%	93.1%
CDs/Money market funds	9.0%	15.5%	57.5%
Government bonds	4.1%	9.1%	34.8%
Other U.S. bonds	9.6%	14.0%	51.5%
International bonds	1.7%	5.0%	19.2%
Stocks	53.3%	26.4%	94.3%
U.S. stocks	44.3%	25.0%	93.3%
International stocks	7.7%	9.9%	58.0%
Hedge funds/Venture capital/Private equity	1.3%	5.9%	10.2%
Structured products	4.4%	14.1%	18.5%
Real estate investments (excluding own home)	5.9%	12.5%	34.8%
Commodities/futures/options	0.9%	4.3%	9.7%

Table 3: Summary of Importance of Equity Allocation Factors

The first column shows the percent of quarterly survey respondents (N = 1,662) who described the factor as very or extremely important. The second shows the percent of respondents who described the factor as at least moderately important. The third column shows the mean response, where the responses are translated into a five-point scale: not important = 1, a little important = 2, moderately important = 3, very important = 4, and extremely important = 5. The fourth column shows the average value of a standardized variable designed to capture whether a respondent indicated that a factor is important relative to the other factors. This variable is constructed by subtracting the mean numerical value of the respondent's ratings from the numerical value of each response and dividing by the standard deviation of that respondent's numerical rating values.

	Very or extremely important	Moderately important or more	Mean rating	Mean standardized rating
Advice from a professional financial adviser	33.2%	53.3%	2.59	0.44
Years left until retirement*	25.8%	58.1%	2.64	0.34
Personal experience investing in stock market	23.6%	60.3%	2.71	0.64
Experience of living through stock market returns	22.9%	59.8%	2.70	0.63
Rare disaster risk	22.9%	54.8%	2.66	0.59
Risk of illness/injury expenses	20.0%	52.8%	2.58	0.50
Need cash on hand for routine expenses	19.3%	44.3%	2.36	0.26
Lack of trustworthy adviser	18.4%	39.0%	2.21	0.06
Religious beliefs, values, and experiences	17.5%	35.4%	2.10	-0.06
Expected stock returns higher than usual right now	14.8%	51.6%	2.47	0.38
Return covariance with marginal utility of money	14.6%	41.5%	2.33	0.21
Stock market returns mean-revert	14.5%	51.0%	2.44	0.33
Risk of long-run aggregate consumption	14.3%	44.5%	2.41	0.30
Risk of long-run aggregate consumption volatility	13.2%	44.8%	2.39	0.26
Risk of aggregate consumption over next year	12.7%	44.0%	2.36	0.24
Risk of aggregate consumption volatility over next year	12.4%	45.6%	2.37	0.26
Lack of trust in market participants	12.2%	35.7%	2.12	-0.02
Labor income risk*	12.1%	34.5%	2.04	-0.33
Stocks are an inflation hedge	11.4%	43.9%	2.30	0.19
Consumption composition risk	10.8%	36.0%	2.11	-0.05
Lack of knowledge about how to invest	10.7%	31.3%	2.00	-0.16
Human capital fraction of total wealth	10.3%	35.9%	2.07	-0.08
Ambiguity / Parameter uncertainty	9.9%	33.0%	2.02	-0.14
Expected stock returns lower than usual right now	9.5%	38.8%	2.20	0.07
Stock market returns have momentum	9.4%	35.6%	2.10	-0.04
Internal habit	9.4%	32.6%	1.99	-0.17
Stock market returns before I was born	9.1%	35.3%	2.10	-0.05
Home value risk	9.0%	30.4%	1.99	-0.18
Consumption commitments	9.0%	30.3%	1.92	-0.24
Return covariance with marginal utility of consumption	8.8%	35.1%	2.11	-0.03
Hard to sell private equity shares	8.5%	26.7%	1.82	-0.37
Stocks take too long to convert to cash in emergency	7.9%	30.9%	1.99	-0.17
Time until significant non-retirement expense	7.6%	27.8%	1.85	-0.33
Rule of thumb	7.3%	34.2%	2.04	-0.09
Loss aversion	7.2%	25.3%	1.86	-0.32
External habit	6.3%	26.4%	1.80	-0.37
Illiquid non-equity investments	6.3%	25.7%	1.76	-0.42
Advice from a friend, family member, or acquaintance	6.0%	23.8%	1.79	-0.38
Desire to become wealthier than other rich people	5.7%	19.8%	1.60	-0.61
Advice from media	5.0%	21.4%	1.72	-0.46

* Among employed respondents only (N = 670).

Table 4: Social and Personal Factors

This table presents the percent of quarterly survey respondents (N = 1,662) who described the factor in the first column as very or extremely important, either for the entire sample or split by investable assets, employment status, or age. The second column gives the text used to describe the factor in the survey. Standard errors are in parentheses below the point estimates.

	Question Text	All	Assets > $5M		Employed		65 and Older	
			Yes	No	Yes	No	Yes	No
Advice from a professional financial adviser	Advice from a professional financial advisor I hired	33.2% (1.2)	28.3% (2.4)	34.6% (1.3)	31.0% (1.8)	34.7% (1.5)	35.7% (1.5)	29.8% (1.7)
Personal experience investing in stock market	The feelings, attitudes, and beliefs about the stock market I've gotten from my personal experiences of investing in the stock market	23.6% (1.0)	26.9% (2.3)	22.7% (1.2)	24.3% (1.7)	23.1% (1.3)	24.1% (1.4)	22.8% (1.6)
Experience of living through stock market returns	The feelings, attitudes, and beliefs about the stock market I've gotten from living through stock market ups and downs (whether or not I was invested in stocks at the time)	22.9% (1.0)	24.7% (2.3)	22.4% (1.2)	24.2% (1.7)	22.1% (1.3)	23.3% (1.4)	22.4% (1.6)
Lack of trustworthy adviser	Difficulty in finding a trustworthy advisor	18.4% (0.9)	15.0% (1.9)	19.3% (1.1)	20.3% (1.6)	17.0% (1.2)	17.3% (1.2)	19.8% (1.5)
Religious beliefs, values, and experiences	My religious beliefs, values, and experiences	17.5% (0.9)	16.3% (1.9)	17.8% (1.1)	20.3% (1.6)	15.6% (1.2)	16.1% (1.2)	19.4% (1.5)
Lack of trust in market participants	Concern that companies, managers, brokers, or other market participants might cheat me out of my investments	12.2% (0.8)	11.4% (1.7)	12.4% (0.9)	16.7% (1.4)	9.1% (0.9)	8.9% (0.9)	16.5% (1.4)
Lack of knowledge about how to invest	My lack of knowledge about how to invest	10.7% (0.8)	8.9% (1.5)	11.2% (0.9)	14.6% (1.4)	8.1% (0.9)	8.7% (0.9)	13.4% (1.3)
Advice from a friend, family member, or acquaintance	Advice from a friend, family member, or other acquaintance	6.0% (0.6)	7.2% (1.4)	5.7% (0.6)	10.1% (1.2)	3.2% (0.6)	3.7% (0.6)	9.1% (1.1)
Advice from media	Advice from a book or an article I read, or from somebody on TV, radio, or the internet	5.0% (0.5)	5.5% (1.2)	4.8% (0.6)	9.1% (1.1)	2.2% (0.5)	2.5% (0.5)	8.4% (1.0)

Table 5: Background Risks and Assets

This table presents the percent of quarterly survey respondents (N = 1,662) who described the factor in the first column as very or extremely important, either for the entire sample or split by investable assets, employment status, or age. The second column gives the text used to describe the factor in the survey. Standard errors are in parentheses below the point estimates.

	Question Text	All	Assets > $5M		Employed		65 and Older	
			Yes	No	Yes	No	Yes	No
Years left until retirement*	The number of years I (and my spouse/partner, if applicable) have left until retirement	25.8% (1.7)	20.3% (3.6)	27.1% (1.9)	25.8% (1.7)	---	19.3% (2.9)	28.2% (2.0)
Risk of illness/injury expenses	The risk of expenses due to illness or injury to me or someone else in my family	20.0% (1.0)	11.9% (1.7)	22.2% (1.2)	23.7% (1.6)	17.4% (1.2)	18.0% (1.2)	22.7% (1.6)
Labor income risk*	Concern that I (or my spouse/partner, if applicable) might become unemployed, receive a pay cut, or not receive an expected bonus or pay increase	12.1% (1.3)	16.4% (3.3)	11.1% (1.3)	12.1% (1.3)	---	6.6% (1.8)	14.1% (1.6)
Stocks are an inflation hedge	A belief that stocks are attractive because when my living expenses increase unexpectedly, the stock market will tend to rise	11.4% (0.8)	10.0% (1.6)	11.8% (0.9)	15.4% (1.4)	8.7% (0.9)	9.1% (0.9)	14.6% (1.3)
Human capital fraction of total wealth	The difference between how much money I have available to invest right now and all the money I (and my spouse/partner, if applicable) expect to earn in wages or other compensation over the rest of my life	10.3% (0.7)	8.6% (1.5)	10.8% (0.9)	16.6% (1.4)	6.1% (0.8)	7.4% (0.8)	14.4% (1.3)
Home value risk	Concern that the value of my home(s) might fall	9.0% (0.7)	8.3% (1.5)	9.2% (0.8)	13.0% (1.3)	6.4% (0.8)	6.1% (0.8)	13.0% (1.3)
Time until significant non-retirement expense	How soon I will have significant expenses (like a home purchase, school tuition, major charitable donation, etc.)	7.6% (0.6)	6.9% (1.3)	7.8% (0.7)	12.4% (1.3)	4.3% (0.6)	5.3% (0.7)	10.7% (1.2)
Illiquid non-equity investments	The fact that a significant fraction of my non-stock assets are in illiquid investments (such as fine art, real estate, etc.)	6.3% (0.6)	5.8% (1.2)	6.5% (0.7)	9.3% (1.1)	4.3% (0.6)	4.9% (0.7)	8.3% (1.0)

* Among employed respondents only (N = 670).

Table 6: Expected Return Beliefs

This table presents the percent of quarterly survey respondents (N = 1,662) who described the factor in the first column as very or extremely important, either for the entire sample or split by investable assets, employment status, or age. The second column gives the text used to describe the factor in the survey. Standard errors are in parentheses below the point estimates.

	Question Text	All	Assets > $5M		Employed		65 and Older	
			Yes	No	Yes	No	Yes	No
Expected stock returns higher than usual right now	A belief that the returns I can expect to earn from investing in stocks right now are higher than usual	14.8% (0.9)	15.2% (1.9)	14.7% (1.0)	19.7% (1.5)	11.5% (1.0)	11.9% (1.0)	18.8% (1.5)
Stock market returns mean-revert	A belief that low stock market returns tend to be followed by high stock market returns	14.5% (0.9)	11.9% (1.7)	15.2% (1.0)	17.8% (1.5)	12.3% (1.0)	12.3% (1.1)	17.5% (1.4)
Expected stock returns lower than usual right now	A belief that the returns I can expect to earn from investing in stocks right now are lower than usual	9.5% (0.7)	8.0% (1.4)	9.9% (0.8)	13.9% (1.3)	6.6% (0.8)	6.6% (0.8)	13.6% (1.3)
Stock market returns have momentum	A belief that low stock market returns tend to be followed by more low stock market returns	9.4% (0.7)	9.7% (1.6)	9.4% (0.8)	12.8% (1.3)	7.2% (0.8)	7.3% (0.8)	12.4% (1.2)

Table 7: Neoclassical Asset Pricing Factors

This table presents the percent of quarterly survey respondents (N = 1,662) who described the factor in the first column as very or extremely important, either for the entire sample or split by investable assets, employment status, or age. The second column gives the text used to describe the factor in the survey. Standard errors are in parentheses below the point estimates.

	Question Text	All	Assets > $5M		Employed		65 and Older	
			Yes	No	Yes	No	Yes	No
Rare disaster risk	Concern that in an economic disaster where the amount that the U.S. economy produces in a year shrinks by more than 10%—like the Great Depression—a dollar I invested in stocks would lose more value than a dollar I put in a bank savings account or government bond	22.9% (1.0)	23.5% (2.2)	22.7% (1.2)	23.4% (1.6)	22.5% (1.3)	22.4% (1.3)	23.5% (1.6)
Return covariance with marginal utility of money	Concern that when I especially need the money, the stock market will tend to drop	14.6% (0.9)	10.8% (1.6)	15.6% (1.0)	18.1% (1.5)	12.2% (1.0)	12.0% (1.0)	18.1% (1.5)
Risk of long-run aggregate consumption	Concern that when bad news arrives about how the U.S.'s material standard of living will change over the 5 year period starting 1 year in the future, the stock market will tend to drop	14.3% (0.9)	13.3% (1.8)	14.5% (1.0)	16.4% (1.4)	12.8% (1.1)	13.0% (1.1)	16.0% (1.4)
Risk of long-run aggregate consumption volatility	Concern that when uncertainty increases about how the U.S.'s material standard of living will change over the 10 year period starting 1 year in the future, the stock market will tend to drop	13.2% (0.8)	11.9% (1.7)	13.6% (1.0)	16.0% (1.4)	11.4% (1.0)	12.4% (1.1)	14.4% (1.3)
Risk of aggregate consumption over next year	Concern that when bad news arrives about how the U.S.'s material standard of living will change over the next year, the stock market will tend to drop	12.7% (0.8)	12.7% (1.8)	12.7% (0.9)	16.9% (1.4)	9.9% (0.9)	11.4% (1.0)	14.4% (1.3)
Risk of aggregate consumption volatility over next year	Concern that when uncertainty increases about how the U.S.'s material standard of living will change over the next year, the stock market will tend to drop	12.4% (0.8)	11.4% (1.7)	12.7% (0.9)	15.5% (1.4)	10.3% (1.0)	11.2% (1.0)	14.0% (1.3)
Consumption composition risk	Concern that when the quality of my physical living situation (how nice my housing is, the safety of my neighborhood, etc.) is dropping faster than the rest of my material quality of life, the stock market will tend to drop	10.8% (0.8)	11.4% (1.7)	10.7% (0.9)	15.5% (1.4)	7.7% (0.8)	8.7% (0.9)	13.7% (1.3)
Consumption commitments	My fixed expenses (like mortgage payments, tuition bills, charitable commitments, etc.) that are difficult to adjust in the short run	9.0% (0.7)	8.9% (1.5)	9.1% (0.8)	13.7% (1.3)	5.8% (0.7)	6.6% (0.8)	12.4% (1.2)
Return covariance with marginal utility of consumption	Concern that when I have to cut my spending, the stock market will tend to drop	8.8% (0.7)	7.5% (1.4)	9.2% (0.8)	13.4% (1.3)	5.7% (0.7)	6.5% (0.8)	12.1% (1.2)

Table 8: Nonstandard Preferences

This table presents the percent of quarterly survey respondents (N = 1,662) who described the factor in the first column as very or extremely important, either for the entire sample or split by investable assets, employment status, or age. The second column gives the text used to describe the factor in the survey. Standard errors are in parentheses below the point estimates.

	Question Text	All	Assets > $5M		Employed		65 and Older	
			Yes	No	Yes	No	Yes	No
Ambiguity / Parameter uncertainty	I don't have a good sense of the average returns and risks of investing in stocks	9.9%	9.4%	10.1%	12.7%	8.1%	8.5%	11.8%
		(0.7)	(1.5)	(0.8)	(1.3)	(0.9)	(0.9)	(1.2)
Internal habit	The difference between my current material standard of living and the level I am used to	9.4%	7.2%	10.0%	13.6%	6.6%	7.3%	12.3%
		(0.7)	(1.4)	(0.8)	(1.3)	(0.8)	(0.8)	(1.2)
Loss aversion	The possibility of even small losses on my stock investments makes me worry	7.2%	8.0%	7.0%	10.4%	5.0%	5.4%	9.7%
		(0.6)	(1.4)	(0.7)	(1.2)	(0.7)	(0.7)	(1.1)
External habit	The difference between my current material standard of living and the level everybody else around me has experienced recently	6.3%	6.1%	6.4%	11.2%	3.0%	3.4%	10.3%
		(0.6)	(1.3)	(0.7)	(1.2)	(0.5)	(0.6)	(1.1)
Desire to become wealthier than other wealthy people	The desire to become wealthier than other wealthy people	5.7%	5.8%	5.7%	10.0%	2.8%	3.0%	9.4%
		(0.6)	(1.2)	(0.6)	(1.2)	(0.5)	(0.6)	(1.1)

Table 9: Miscellaneous Factors

This table presents the percent of quarterly survey respondents (N = 1,662) who described the factor in the first column as very or extremely important, either for the entire sample or split by investable assets, employment status, or age. The second column gives the text used to describe the factor in the survey. Standard errors are in parentheses below the point estimates.

	Question Text	All	Assets > $5M		Employed		65 and Older	
			Yes	No	Yes	No	Yes	No
Need cash on hand for routine expenses	The amount of cash I need to have on hand to pay routine expenses	19.3% (1.0)	15.8% (1.9)	20.2% (1.1)	22.2% (1.6)	17.2% (1.2)	17.4% (1.2)	21.8% (1.6)
Stock market returns before I was born	What I know about the stock market's returns during the decades before I was born	9.1% (0.7)	10.2% (1.6)	8.8% (0.8)	14.6% (1.4)	5.4% (0.7)	6.3% (0.8)	13.0% (1.3)
Hard to sell PE shares	The difficulty in selling private equity shares	8.5% (0.7)	10.0% (1.6)	8.1% (0.8)	11.9% (1.3)	6.3% (0.8)	7.1% (0.8)	10.6% (1.2)
Stocks take too long to convert to cash in emergency	Concern that stock investments will take too long to convert into spendable cash in an emergency	7.9% (0.7)	7.2% (1.4)	8.1% (0.8)	12.2% (1.3)	5.0% (0.7)	5.1% (0.7)	11.8% (1.2)
Rule of thumb	A rule of thumb (for example, "The percent you invest in stocks should be 100 minus your age" or "Invest one-third in stocks, one-third in bonds, and one-third in real estate")	7.3% (0.6)	6.6% (1.3)	7.5% (0.7)	11.8% (1.2)	4.3% (0.6)	4.7% (0.7)	11.0% (1.2)

Table 10: Principal Components Analysis

This table shows loadings on the first five principal components computed over the equity share factors asked of every respondent in Table 3. Factors with a loading magnitude above 0.30 are bolded.

Principal component 1 (External social factors and unsophisticated advice)		Principal component 2 (Neoclassical asset pricing factors)		Principal component 3 (Trust and religion)		Principal component 4 (Personal experiences)		Principal component 5 (Professional advice and cash on hand)	
Desire to become wealthier than other rich people	**0.313**	**Risk of long-run aggregate consumption volatility**	**0.386**	**Lack of trustworthy adviser**	**0.502**	**Personal experience investing in stock market**	**0.633**	**Advice from a professional financial adviser**	**0.630**
Advice from media	**0.309**	**Risk of long-run aggregate consumption**	**0.381**	**Religious beliefs, values, and experiences**	**0.373**	**Experience of living through stock market returns**	**0.623**	**Need cash on hand for routine expenses**	**0.350**
Rule of thumb	0.294	**Risk of aggregate consumption over next year**	**0.367**	**Lack of trust in market participants**	**0.328**	Stock market returns mean-revert	0.254	Lack of knowledge about how to invest	0.241
Peer advice	0.286	**Rare disaster risk**	**0.336**	Hard to sell private equity shares	0.267	Stock market returns before I was born	0.208	Expected stock returns higher than usual right now	0.226
External habit	0.281	**Return covariance with marginal utility of money**	**0.314**	Lack of knowledge about how to invest	0.229			Risk of illness/injury expenses	0.210
Time until significant non-retirement expense	0.250	Risk of aggregate consumption volatility over next year	0.285	Ambiguity/ Parameter uncertainty	0.220			Ambiguity/ Parameter uncertainty	0.208
Loss aversion	0.246	Risk of illness/ injury expenses	0.249	Rare disaster risk	0.212			Hard to sell private equity shares	-0.208
Internal habit	0.216			Stock market returns mean-revert	-0.226				
Illiquid non-equity investments	0.206								

Table 11: Regression of Equity Share on Normalized Principal Component Scores

This table shows coefficients from regressions of the fraction of each respondent's investible financial assets held in equities on the respondent's first five principal component scores normalized by each of their standard deviations. The regressions in columns (2) and (4) additionally control for respondent demographics: age, age squared, and dummies for gender, living situation, employment status, household income category, primary source of wealth, and investable financial asset amount category (the categories are those in Table 1). Columns (1) and (2) are estimated using OLS, and columns (3) and (4) are estimated using tobit regressions censored at 0% and 100%. Standard errors robust to heteroskedasticity are in parentheses below each point estimate. * Significant at the 5% level. ** Significant at the 1% level.

	OLS		Tobit	
	(1)	(2)	(3)	(4)
PC 1 (External social factors and unsoph. advice)	-2.57*	-1.78	-2.93*	-1.98
	(1.04)	(1.11)	(1.15)	(1.20)
PC 2 (Neoclassical asset pricing factors)	-1.95*	-2.03*	-1.95*	-2.06*
	(0.92)	(0.94)	(0.96)	(0.97)
PC 3 (Trust and religion)	-2.25**	-2.06**	-2.48**	-2.27**
	(0.82)	(0.79)	(0.87)	(0.83)
PC4 (Personal experiences)	2.96**	2.61**	3.07**	2.68**
	(0.70)	(0.70)	(0.73)	(0.73)
PC 5 (Professional advice and cash on hand)	0.52	0.76	0.70	0.93
	(0.75)	(0.76)	(0.80)	(0.80)
Constant	53.3**	-6.15	52.7**	-17.7
	(0.64)	(17.8)	(0.68)	(20.6)
Demographic controls	No	Yes	No	Yes
Observations	1,662	1,662	1,662	1,662
R^2	0.036	0.087		
Adjusted R^2	0.033	0.071		
McFadden's pseudo R^2			0.004	0.010

Table 12: Importance of Equity Allocation Factors, Representative U.S. Adults vs. Wealthy Investors

The left column of this table shows the percent of the representative U.S. adult sample in Choi and Robertson (2020) who described each factor as very or extremely important in determining the fraction of their portfolio invested in equities. The right column of this table shows the same percentages for the wealthy population in our quarterly survey.

Representative population		Wealthy investors	
1. Years left until retirement *	47.5%	1. Advice from pro financial adviser	33.2%
2. Risk of illness/injury expenses	47.3%	2. Years left until retirement*	25.8%
3. Need cash on hand for routine expenses	47.2%	3. Personal experience investing in stocks	23.6%
4. Rare disaster risk	45.5%	4. Experience living through stock returns	22.9%
5. Labor income risk *	41.6%	5. Rare disaster risk	22.9%
6. Lack of trust in market participants	37.5%	6. Risk of illness/injury expenses	20.0%
7. Lack of knowledge about how to invest	36.2%	7. Need cash on hand for routine expenses	19.2%
8. Human capital fraction of total wealth	35.9%	8. Lack of trustworthy adviser	18.4%
9. Time until sig. non-retirement expense	35.7%	9. Religion	17.5%
10. Consumption commitments	35.5%	10. Expect. stock returns higher than usual	14.8%
11. Return covariance with MU of money	35.2%	11. Return covariance with MU of money	14.6%
12. Lack of trustworthy adviser	31.1%	12. Stock market returns mean-revert	14.5%
13. Risk of agg. consumption over next year	30.3%	13. Risk of LR aggregate consumption	14.3%
14. Risk of long-run aggregate consumption	29.8%	14. Risk of LR agg. consumption volatility	13.2%
15. Return covar. with MU of consump.	29.1%	15. Risk of agg. consump. over next year	12.7%
16. Stocks take too long to convert to cash	29.1%	16. Risk of agg. cons. vol. over next year	12.4%
17. Risk of agg. consump. vol. over next year	28.7%	17. Lack of trust in market participants	12.2%
18. Consumption composition risk	28.6%	18. Labor income risk*	12.1%
19. Home value risk ***	28.5%	19. Stocks are an inflation hedge	11.4%
20. Loss aversion	28.2%	20. Consumption composition risk	10.8%
21. Experience living through stock returns	26.9%	21. Lack of knowledge about how to invest	10.7%
22. Internal habit	26.9%	22. Human capital fraction of total wealth	10.4%
23. Advice from pro financial adviser	26.7%	23. Ambiguity / Parameter uncertainty	9.9%
24. Ambiguity / Parameter uncertainty	26.7%	24. Expect. stock returns lower than usual	9.5%
25. Risk of LR aggregate consump. volatility	26.3%	25. Stock market returns have momentum	9.4%
26. Personal experience investing in stocks	25.8%	26. Internal habit	9.4%
27. Religion	25.6%	27. Stock market returns before I was born	9.1%
28. Expect. stock returns lower than usual	25.2%	28. Home value risk	9.0%
29. Expect. stock returns higher than usual **	24.3%	29. Consumption commitments	9.0%
30. Stocks are an inflation hedge **	20.4%	30. Return covar. with MU of consump.	8.8%
31. Stock market returns have momentum	18.7%	31. Stocks take too long to convert to cash	7.9%
32. Stock market returns mean-revert	17.2%	32. Time until sig. non-retirement expense	7.6%
33. External habit	16.3%	33. Rule of thumb	7.3%
34. Stock market returns before I was born	15.9%	34. Loss aversion	7.2%
35. Advice from friend, family, coworker	15.3%	35. External habit	6.3%
36. Rule of thumb	12.7%	36. Advice from friend, family, acquaint.	6.0%
37. Advice from media	11.9%	37. Advice from media	5.0%

* Among employed respondents only. ** Among stock market participants only. *** Among homeowners only.

Table 13: Concentrated Stock Ownership

This table presents, among respondents who said that they currently held more than 10% of their net worth in a single company's stock (*N* = 256), the percent who described the factor in the first column as very or extremely important in causing them to hold more than 10% of their net worth in a single company's stock. Respondents who had more than 10% of their net worth currently invested in the stock of each of two or more companies were asked to answer with respect to their largest single holding. The percentages are calculated over either the entire subsample or split by investable assets, employment status, or age. The second column gives the text used to describe the factor in the survey. Standard errors are in parentheses below the point estimates.

	Question Text	All	Assets > $5M		Employed		65 and Older	
			Yes	No	Yes	No	Yes	No
Higher returns	I believe this stock will give me higher returns on average than other stocks in the market	45.7% (3.1)	38.8% (5.3)	49.1% (3.8)	48.8% (4.4)	42.6% (4.4)	40.5% (4.4)	50.8% (4.4)
Lower risk	I believe this stock will give me less risky returns than other stocks in the market	33.2% (2.9)	31.8% (5.0)	33.9% (3.6)	35.4% (4.2)	31.0% (4.1)	29.4% (4.1)	36.9% (4.2)
Personal / family association	A strong association between me or my family and the company	25.8% (2.7)	29.4% (4.9)	24.0% (3.3)	31.5% (4.1)	20.2% (3.5)	21.4% (3.7)	30.0% (4.0)
Lockup	A lockup agreement that prevents me from selling shares in the company or an investment fund	16.8% (2.3)	15.3% (3.9)	17.5% (2.9)	28.3% (4.0)	5.4% (2.0)	7.1% (2.3)	26.2% (3.9)
Signaling confidence	The desire to build others' confidence in the company by holding a significant ownership stake in it	14.1% (2.2)	14.1% (3.8)	14.0% (2.7)	24.4% (3.8)	3.9% (1.7)	3.2% (1.6)	24.6% (3.8)
Signaling commitment	The desire to build others' confidence in my commitment to the company as an employee or board member by holding a significant ownership stake in it	13.7% (2.1)	12.9% (3.6)	14.0% (2.7)	22.0% (3.7)	5.4% (2.0)	5.6% (2.0)	21.5% (3.6)
Bequest motive	The desire to maintain a significant amount of stock in the company in order to pass it on to my heirs	13.3% (2.1)	12.9% (3.6)	13.5% (2.6)	21.3% (3.6)	5.4% (2.0)	5.6% (2.0)	20.8% (3.6)
Difficulty finding a buyer	The difficulty of finding a buyer for my shares	12.1% (2.0)	10.6% (3.3)	12.9% (2.6)	19.7% (3.5)	4.7% (1.9)	4.0% (1.7)	20.0% (3.5)
Voting stake	The desire to maintain a significant voting stake in the company	12.1% (2.0)	12.9% (3.6)	11.7% (2.5)	20.5% (3.6)	3.9% (1.7)	4.0% (1.7)	20.0% (3.5)

Table 14: Determinants of Choosing an Active Investment Strategy

This table presents, among respondents who said that they had ever pursued an active investment strategy through a fund or a professional manager (N = 371), the percent who described the factor described in the second column as very or extremely important in their decision to pursue an active strategy instead investing the money in a passive strategy. The second column gives the text used to describe the factor in the survey. Standard errors are in parentheses below the point estimates. The percentages are calculated over either the entire subsample or split by investable assets, employment status, and age.

	Question text	All	Assets > $5M		Employed		65 and Older	
			Yes	No	Yes	No	Yes	No
Advisor recommendation	The recommendation of an investment advisor I hired	45.0% (2.6)	45.2% (7.7)	45.0% (2.7)	40.3% (3.5)	50.6% (3.8)	48.0% (3.7)	42.2% (3.6)
Higher returns	A belief that the active strategy would give me higher returns on average than a passive strategy	43.7% (2.6)	50.0% (7.7)	42.9% (2.7)	45.3% (3.5)	41.8% (3.8)	41.9% (3.7)	45.3% (3.6)
Hedging demand	A belief that even though the actively strategy would have lower returns on average than a passive strategy, the active strategy would have higher returns than the passive strategy when the economy does poorly (for example, during recessions or stock market crashes)	23.2% (2.2)	28.6% (7.0)	22.5% (2.3)	26.9% (3.1)	18.8% (3.0)	19.0% (2.9)	27.1% (3.2)

Table 15: Agreement with Berk and Green (2004) Assumptions

The first two rows present the percent of one-off survey respondents (N = 822) who agree or strongly agree with the statement in the second column. The third row presents the percent of survey respondents who agree or strongly agree with both of the first two rows' statements. Standard errors are in parentheses below the point estimates. The percentages are calculated over either the entire sample or split by whether the respondent had ever pursued an active investment strategy through a fund or professional manager, investable assets, employment status, or age.

	Question text	All	Invested Actively		Assets > $5M		Employed		65 and Older	
			Yes	No	Yes	No	Yes	No	Yes	No
Managerial skill	When a stock investment fund following an active strategy has had significantly higher past returns than the overall stock market, this is strong evidence that its manager has good stock-picking skills	42.0% (1.7)	49.3% (2.6)	35.9% (2.3)	42.3% (5.6)	41.9% (1.8)	42.3% (2.5)	41.6% (2.4)	43.4% (2.4)	40.5% (2.5)
Decreasing returns	When a stock investment fund following an active strategy gets more money to manage, it becomes harder for it to generate higher returns than the overall stock market	33.5% (1.6)	42.3% (2.6)	26.2% (2.1)	38.5% (5.5)	32.9% (1.7)	34.7% (2.4)	32.3% (2.3)	34.7% (2.3)	32.2% (2.3)
Both of the above statements	N/A	19.5% (1.4)	25.6% (2.3)	14.4% (1.7)	20.5% (4.6)	19.4% (1.4)	21.3% (2.0)	17.7% (1.9)	18.6% (1.9)	20.4% (2.0)

Table 16: Cross-Section of Stock Returns

This table presents the distribution of responses (N = 822) to questions about the expected returns and risks of value stocks versus growth stocks, high-momentum stocks versus low-momentum stocks, high profitability versus low profitability stocks, and high investment expenditure versus low investment expenditure stocks. Standard errors are in parentheses below the point estimates.

Panel A: Value stocks versus growth stocks							
Compared to a growth stock, I expect a value stock to normally be ... over the next year, on average.				Compared to a growth stock, I expect a value stock to normally have ... over the next year, on average.			
	All	Assets > $5M	Retired		All	Assets > $5M	Retired
Riskier	12.7%	16.7%	12.9%	Higher returns	21.7%	29.5%	23.3%
	(1.2)	(4.2)	(1.7)		(1.4)	(5.2)	(2.1)
Equally risky	28.3%	26.9%	25.7%	About the	39.4%	38.5%	38.6%
	(1.6)	(5.0)	(2.2)	same	(1.7)	(5.5)	(2.4)
Less risky	47.1%	47.4%	47.3%	Lower returns	24.3%	21.8%	22.3%
	(1.7)	(5.7)	(2.5)		(1.5)	(4.7)	(2.1)
No opinion	11.9%	9.0%	14.1%	No opinion	14.6%	10.3%	15.8%
	(1.1)	(3.2)	(1.7)		(1.2)	(3.4)	(1.8)
Panel B: High-momentum stocks versus low-momentum stocks							
Compared to a stock whose price fell a lot over the past year, I expect a stock whose price rose a lot over the past year to normally be ... over the next year, on average.				Compared to a stock whose price fell a lot over the past year, I expect a stock whose price rose a lot over the past year to normally have ... over the next year, on average.			
	All	Assets > $5M	Retired		All	Assets > $5M	Retired
Riskier	28.0%	30.8%	27.5%	Higher returns	10.5%	12.8%	9.4%
	(1.6)	(5.2)	(2.2)		(1.1)	(3.8)	(1.5)
Equally risky	47.9%	41.0%	44.8%	About the	43.7%	41.0%	42.8%
	(1.7)	(5.6)	(2.5)	same	(1.7)	(5.6)	(2.5)
Less risky	7.9%	7.7%	8.4%	Lower returns	27.1%	23.1%	24.5%
	(0.9)	(3.0)	(1.4)		(1.6)	(4.8)	(2.1)
No opinion	16.2%	20.5%	19.3%	No opinion	18.7%	23.1%	23.3%
	(1.3)	(4.6)	(2.0)		(1.4)	(4.8)	(2.1)
Panel C: High profitability versus low profitability stocks							
Compared to the stock of a company with low current profits, I expect the stock of a company with high current profits to normally be ... over the next year, on average.				Compared to the stock of a company with low current profits, I expect the stock of a company with high current profits to normally have ... over the next year, on average.			
	All	Assets > $5M	Retired		All	Assets > $5M	Retired
Riskier	7.7%	5.1%	5.7%	Higher returns	33.8%	41.0%	34.9%
	(0.9)	(2.5)	(1.2)		(1.7)	(5.6)	(2.4)
Equally risky	40.5%	25.6%	34.7%	About the	40.0%	35.9%	37.1%
	(1.7)	(4.9)	(2.4)	same	(1.7)	(5.4)	(2.4)
Less risky	38.0%	52.6%	42.6%	Lower returns	10.6%	7.7%	8.2%
	(1.7)	(5.7)	(2.5)		(1.1)	(3.0)	(1.4)
No opinion	13.9%	16.7%	17.1%	No opinion	15.6%	15.4%	19.8%
	(1.2)	(4.2)	(1.9)		(1.3)	(4.1)	(2.0)

Panel D: High investment expenditure versus low investment expenditure stocks							
Compared to the stock of a company that currently has low investment expenditures, I expect the stock of a company that currently has high investment expenditures to normally be ... over the next year, on average.				Compared to the stock of a company that currently has low investment expenditures, I expect the stock of a company that currently has high investment expenditures to normally have ... over the next year, on average.			
	All	Assets > $5M	Retired		All	Assets > $5M	Retired
Riskier	26.4%	23.1%	27.5%	Higher returns	17.8%	15.4%	14.1%
	(1.5)	(4.8)	(2.2)		(1.3)	(4.1)	(1.7)
Equally	38.4%	39.7%	31.4%	About the	36.6%	29.5%	34.2%
risky	(1.7)	(5.5)	(2.3)	same	(1.7)	(5.2)	(2.4)
Less risky	12.2%	12.8%	13.4%	Lower returns	24.1%	32.1%	25.2%
	(1.1)	(3.8)	(1.7)		(1.5)	(5.3)	(2.2)
No opinion	23.0%	24.4%	27.7%	No opinion	21.5%	23.1%	26.5%
	(1.5)	(4.9)	(2.2)		(1.4)	(4.8)	(2.2)