

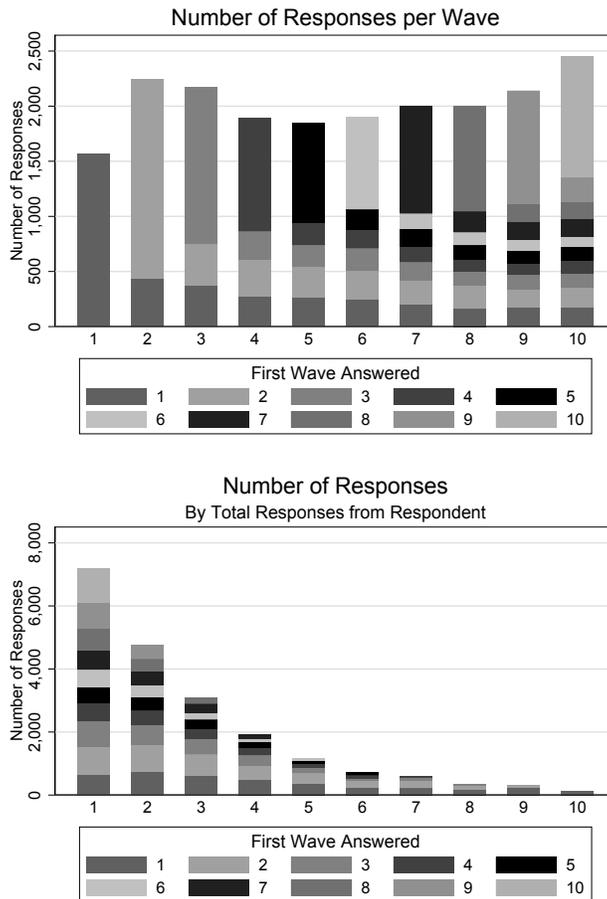
# APPENDIX FOR “FIVE FACTS ABOUT BELIEFS AND PORTFOLIOS”

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## A.1 RESPONSE RATES

We next provide more details on the response rates to the GMS-Vanguard Survey. The top panel of Figure A.1 reports the number of responses in each wave, with different shades of gray tracking the first wave in which an individual responded. Starting in wave 5, we receive more responses from individuals who are re-respondents than from individuals who are responding for the first time. The bottom panel shows that about 35% of responses come from individuals who have responded to one survey only (though some of these may end up responding to future surveys). Over 25% of responses come from individuals who have responded to at least four survey waves, and 10% come from individuals who have responded to at least six survey waves.

**Figure A.1:** Number of Responses by Wave

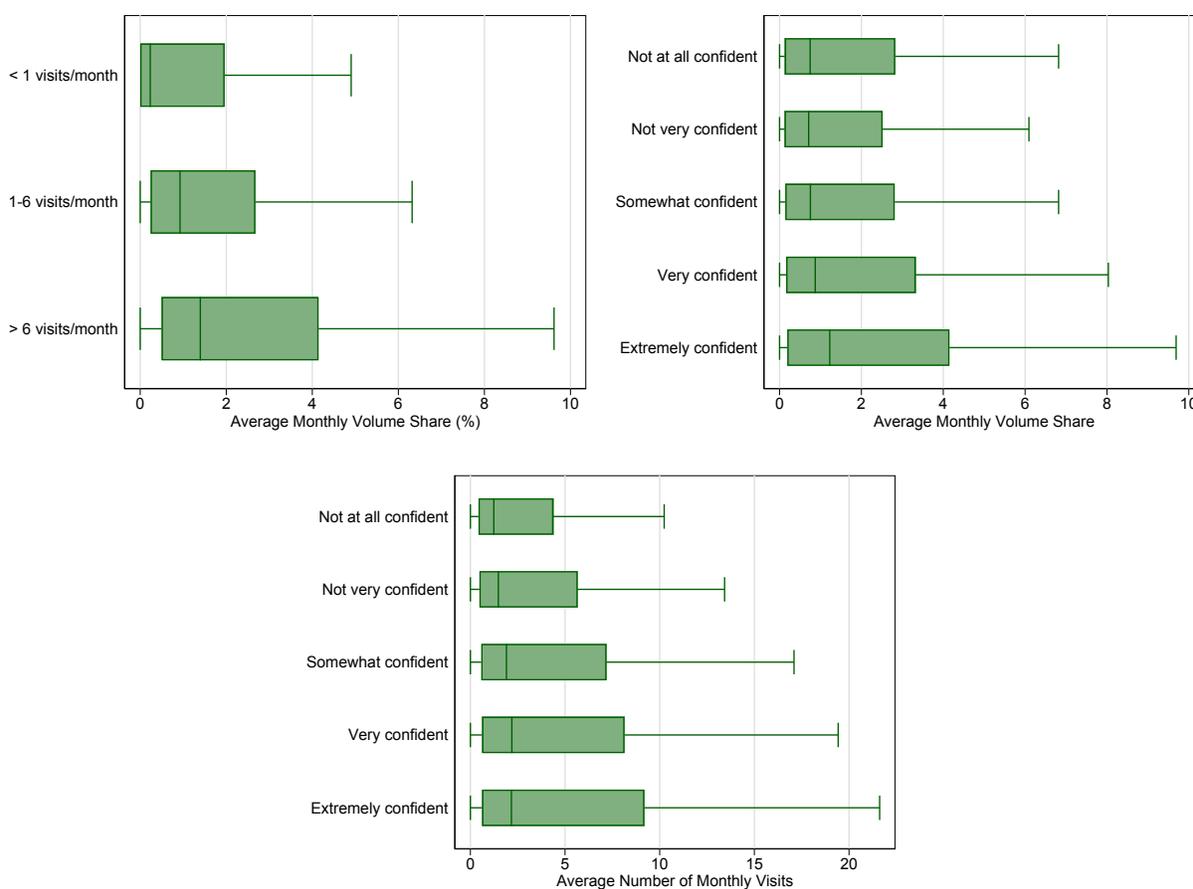


**Note:** Figure shows number of responses to the GMS-Vanguard Survey. The top panel shows the number of responses per wave. The bottom panel shows the total number of responses separately by how many survey waves a person has responded to. In both panels, the colors correspond to the waves in which these individuals first answered.

## A.2 CORRELATION ACROSS INVESTOR CHARACTERISTICS

In Section II of the paper, we show heterogeneities in the sensitivity of portfolio allocations to beliefs along a number of observable investor characteristics: investor trading volume (measured as the average monthly turnover as a share of portfolio value), investor attention (measured as the average number of days per month on which investors log into the Vanguard website), and investor confidence (expressed as the confidence in their beliefs about stock returns). Appendix Figure A.2 shows that these characteristics are relatively uncorrelated across individuals, and, as a result, that the various splits of the investor samples do capture economically and statistically distinct characteristics.

**Figure A.2: Trading Volume, Attention, and Confidence**



**Note:** Figure shows the distributions of the average monthly volume share by log ins (top left panel), the average monthly volume share by confidence (top right panel) and the average number of monthly Vanguard visits by confidence (bottom panel). The box plots show the 5th, 25th, 50th, 75th and 95th percentiles.

## A.3 TRADING DATA

In this Appendix, provide more details on the data construction for our trading analysis. For investors with retail accounts (which are 80% of the Vanguard investors we contacted), we have obtained transaction-level data since we began administering our survey (beginning of 2017).

For each trade by a Vanguard investor in our sample, we observe the anonymized id of the investor (that can be linked to the survey), the day of the trade, the amount traded, and the CUSIP and ticker of the security traded. We also observe the asset class composition of each security (individual security or fund): percentage invested in equity, fixed-income, cash, other, and unknown (we group other and unknown together). The classification is provided to us directly by Vanguard. For individual securities, the classification is relatively obvious: equity securities are classified as 100% equity, bonds as 100% fixed income, etc...For mutual funds and ETFs, Vanguard relies on both internal data (for Vanguard operated funds) and external data (from Morningstar) to divide the investment of the funds in the various asset classes. Finally, the data contains a code that describes the type of transaction: whether it's a purchase of an asset with cash, a sale, an exchange of two different stocks, a purchase with cash from outside Vanguard, and so on.

We use this information to compute, for each trade, how the portfolio allocation into equity, fixed income, cash and other investments (as well as outside money) changes as a result of the trade. We do so by combining the information about the type of trade (buy, sell, etc) with the dollar amount of the trade and with the allocation of the asset traded into asset classes (equity, fixed income, etc).

We divide our sample period in two-week "intervals" (for each month, from the 1st to the 15th of the month, and from the 15th to the end of the month). We do this in two-week increments because our survey is administered around the 15th of the month. Each trade is then assigned to the corresponding interval, and all trades are aggregated by interval. This procedure yields, for each interval, the total increase/decrease in equity, fixed income, cash, and other and unknown in the portfolio during the interval, as well as the total inflow/outflow of money from Vanguard and the total volume of trade during the interval.

We then merge this transaction data with the portfolio data, which are snapshots of the portfolios held at the end of each month. We can then compute the change during the interval in the fraction of portfolio allocated to equity, fixed income, cash and other due to trading. For intervals starting on the 15th of the month (for which therefore we do not observe the snapshot of the market value of the portfolio at that point in time), we use instead the imputed value of the portfolio combining the beginning-of-month portfolio value and the change in value due to trading during the first two weeks.

The analysis in the main body of the paper focuses on "windows" between any two consecutive surveys answered by each individual. An individual, for example, might have answered wave 1 and 3 of the survey, so that a four-month window has passed between the two answers. For the analysis in the paper, we aggregate all the 15-day intervals in each window to focus on trading that occurred during the window.

#### A.4 BELIEFS AND PORTFOLIOS: A LOG-LOG SPECIFICATION

We report here a modification to the specification in Equation 1 in which we regress the logarithm of portfolio shares on the logarithm of expected excess returns and the logarithm of the subjective variance. We have to exclude observations in which either the portfolio share or the expected

excess returns are too close to zero or negative.<sup>1</sup>

**Table A.1: Beliefs and Portfolios: The Log-Log Specification**

	log(Equity Share (%))		
	(1)	(2)	(3)
log(Expected 1Y Excess Stock Return (%))	0.092*** (0.010)	0.088*** (0.009)	0.009 (0.008)
log(Standard Deviation 1Y Stock Return (%))	0.046* (0.021)	-0.003 (0.020)	-0.004 (0.016)
Controls	N	Y	Y
Individual Fixed Effects	N	N	Y
R-Squared	0.011	0.075	0.970
N	14,489	14,483	14,483

**Note:** Table shows results from the Log-Log specification discussed in Section A.4. The unit of observation is a survey response, the dependent variable is the logarithm of the equity share. Column 2 also control for the respondents' age, gender, region of residence, wealth, and the survey wave. Column 3 includes individual fixed effects. Standard errors are clustered at the respondent level. Significance levels: \* ( $p < 0.10$ ), \*\* ( $p < 0.05$ ), \*\*\* ( $p < 0.01$ ).

Table A.1 reports the results. The first two columns differ only in the inclusion of controls. Similarly to our main specification, we find a robust and statistically significant relationship between portfolio shares and expected (excess) returns, but a weak relationship with the subjective standard deviation. According to the Merton (1969) model, the coefficient predictions are: 1 on expected excess returns and  $-2$  on subjective standard deviation. For expected returns, instead, we find a coefficient of 0.09, approximately 10 times too small. This specification, therefore, further confirms the result of a statistically robust but small sensitivity of portfolio shares to expected returns. Under the Merton (1969) model, the coefficient of relative risk aversion enters this specification in a linearly additive manner, and therefore individual heterogeneity in risk aversion can be controlled for by individual fixed effects. Column 3 of Table A.1 reports the corresponding results; the equity sensitivity is still positive but much smaller at 0.009. The estimate is also no longer statistically significant. The lack of significance can be understood in the context of our trading analysis in Section II.D. A regression with individual fixed effects is identifying off the time-series variation within each individual of beliefs and portfolio shares. Since trading occurs very infrequently, this variation mostly reflects market changes to which the agent does not respond, thus providing a noisy relationship between beliefs and portfolio changes.

## A.5 BELIEFS AND DEMOGRAPHICS: FULL RESULTS

In the main body of the paper, we explored the relationships between beliefs and portfolios, conditional on demographic characteristics of the individual survey respondents. In Table III, we focused on presenting our main coefficients of interest. Column 1 of Table A.2 additionally shows the coefficients on the control variables corresponding to Column 1 of Table III. Equity shares are

<sup>1</sup>We impose that portfolio equity share is between 1% and 100%, and expected excess return are between 1% and 13%. The upper bound of 13% is chosen to be comparable with the restriction of 15% expected returns used in the main body of the paper given 1-year treasuries rates around 2% during this period.

decreasing significantly across age groups. Relative to individuals below the age of 40, those aged above 60 have an equity share that more than 20 percentage points lower. This relationship between age and equity shares is consistent with standard advice on asset allocation when saving for retirement, where the implied risk aversion is increasing as individuals approach retirement age. It is also consistent with the asset allocation in target retirement funds. Equity shares are not systematically different across gender, region of location, and wealth quintiles.

**Table A.2: Beliefs by Demographics**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Equity Share (%)	Expected 1-Year Stock Returns	Standard Dev. Expected 1-Year Stock Returns	Probability 1-Year Stock Returns < -30%	Expected 10-Year Stock Returns	Expected 1-Year Bond Returns	Expected 3-Year GDP Growth	Expected 10-Year GDP Growth	Difficulty of Stock Question	Confidence in Stock Answer
Expected 1Y Stock Return (%)	0.749*** (0.052)									
Male	-0.355 (0.643)	0.008 (0.108)	0.191 (0.101)	0.016 (0.159)	-0.159* (0.076)	-0.313*** (0.060)	-0.210*** (0.045)	-0.434*** (0.053)	-0.241*** (0.022)	0.201*** (0.018)
Age ∈ [40, 50]	-5.498*** (0.920)	0.068 (0.235)	-0.504** (0.184)	0.209 (0.276)	0.01 (0.139)	0.319** (0.100)	0.109 (0.081)	-0.079 (0.095)	-0.071 (0.037)	0.148*** (0.037)
Age ∈ [50, 60]	-13.978*** (0.865)	0.656** (0.200)	-0.993*** (0.161)	-0.510* (0.235)	0.053 (0.125)	0.149 (0.093)	0.340*** (0.076)	0.109 (0.087)	-0.069* (0.033)	0.207*** (0.033)
Age ∈ [60, 70]	-21.657*** (0.859)	0.432* (0.187)	-1.288*** (0.152)	-0.371 (0.230)	-0.281* (0.116)	0.044 (0.088)	0.348*** (0.068)	0.145 (0.082)	0.118*** (0.032)	0.088** (0.031)
Age > 70	-22.918*** (0.982)	0.581** (0.204)	-1.702*** (0.164)	-0.666** (0.247)	-0.185 (0.124)	0.038 (0.097)	0.451*** (0.071)	0.220** (0.083)	0.270*** (0.036)	0.045 (0.033)
Region North	-0.05 (0.865)	-0.178 (0.145)	-0.124 (0.133)	0.287 (0.222)	0.122 (0.092)	0.076 (0.084)	0.035 (0.053)	-0.029 (0.064)	-0.03 (0.028)	-0.005 (0.024)
Region South	1.075 (0.802)	0.08 (0.135)	-0.103 (0.123)	0.145 (0.199)	0.254** (0.087)	0.162* (0.078)	0.062 (0.047)	0.001 (0.059)	-0.047 (0.026)	0.027 (0.023)
Region West	-0.757 (0.845)	-0.603*** (0.151)	0.195 (0.125)	0.630** (0.209)	-0.01 (0.089)	0.014 (0.080)	-0.138** (0.048)	-0.148* (0.060)	-0.015 (0.027)	-0.046 (0.024)
Wealth Quintile 2	-0.838 (1.008)	-0.489** (0.168)	-0.055 (0.143)	-0.077 (0.227)	-0.389*** (0.112)	-0.315*** (0.084)	-0.245*** (0.066)	-0.192* (0.078)	-0.036 (0.029)	-0.01 (0.026)
Wealth Quintile 3	-0.231 (1.004)	-0.291 (0.158)	-0.125 (0.144)	-0.117 (0.245)	-0.459*** (0.114)	-0.550*** (0.085)	-0.351*** (0.063)	-0.401*** (0.075)	-0.094** (0.030)	0.017 (0.026)
Wealth Quintile 4	-1.243 (1.041)	-0.287 (0.167)	-0.352* (0.147)	-0.38 (0.225)	-0.436*** (0.115)	-0.692*** (0.088)	-0.373*** (0.064)	-0.451*** (0.075)	-0.097** (0.031)	0.038 (0.027)
Wealth Quintile 5	0.086 (1.004)	-0.662*** (0.163)	-0.306* (0.144)	-0.743*** (0.212)	-0.771*** (0.109)	-1.158*** (0.096)	-0.570*** (0.059)	-0.690*** (0.070)	-0.107*** (0.031)	0.02 (0.027)
Wave Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
R-Squared	0.107	0.013	0.016	0.004	0.01	0.023	0.017	0.019	0.033	0.021
N	19,478	19,732	19,933	19,933	19,627	19,542	19,663	19,537	20,099	19,920

**Note:** Column 1 shows coefficients from a regression of portfolio equity shares on beliefs and demographic controls. Columns 2-10 show coefficients of regressions of answers to the various survey questions on demographic controls. Standard errors are clustered at the respondent level. Significance levels: \* ( $p < 0.10$ ), \*\* ( $p < 0.05$ ), \*\*\* ( $p < 0.01$ ).

Columns 2-10 of Table A.2 show the coefficients on the control variables from a regression of survey responses on these demographic controls. As highlighted in Section III, the overall predictive power of these controls for beliefs is relatively low, and all regressions have a relatively low  $R^2$ . A few interesting and systematic patterns emerge nevertheless. First, in our sample, older individuals are marginally more optimistic about expected stock returns and about 3-year GDP growth; their subjective distribution over future stock returns also has a lower standard deviation. Confidence in own beliefs about stock market returns by age has an inverse-U shape. Second, there is no large difference between men and women in terms of their stock market expectations, but men expect both GDP growth and bond returns to be lower. Men also find the questions less difficult, and are more confident in their answers. Wealthier individuals are more pessimistic across most of their beliefs; this effect is smallest for the 1-year stock market expectations. In addition, wealthier individuals find the questions easier, on average, though they are no more confident in their

answers than less wealthy individuals. Across Census regions, there is some evidence that residents from the Western Region are somewhat more pessimistic, both in terms of expected stock returns and expected GDP growth.

## A.6 VARIANCE DECOMPOSITION OF BELIEFS (RAND)

In this Appendix, we repeat the variance decomposition of beliefs from Section III using the RAND survey. The RAND survey covers a smaller cross-section (4,734 individuals) but a longer time series than the GMS-Vanguard survey, with 1,032 individuals responding at least 50 times.

**Table A.3:** Decomposing Variation in Beliefs: Individual and Time Fixed Effects (RAND)

	$R^2$ (%)			
	Reg (4)	Reg (5)	Reg (6)	N
Prob. Ret > 0% (1yr)	0.5	56.8	57.4	3,475
Prob. Ret > 20% (1yr)	1.4	47.1	48.2	3,358
Prob. Ret < -20% (1yr)	0.5	45.9	46.4	3,442
Prob. Ret > 0% (10yr, cumul.)	1.5	67.4	68.4	3,475
Prob. Ret > 20% (10yr, cumul.)	3.8	53.3	56.1	3,052
Prob. Ret < -20% (10yr, cumul.)	0.4	49.3	49.5	2,996

**Note:** Table shows  $R^2$ s corresponding to the three regressions 4, 5, and 6, using the RAND survey. Each row corresponds to a different question in the survey.

In Table A.3, we repeat the analysis from Table VII in the text, reporting the share of total variance that is explained by time fixed effects, individual fixed effects, and both. We require that individuals have responded at least 3 times, consistent with Table VII in the text that uses the GMS-Vanguard survey. We perform the analysis using six different questions asked in the RAND survey: the probability that the 1-year return is above 0%, above 20% or below -20%, and the probability that the cumulative 10-year return is above 0%, above 20%, or below -20%. Table A.4 repeats the robustness exercise from Table VIII, and increases the number of responses required to be included in the analysis from 3 to 50. Both tables show results qualitatively and quantitatively similar to the ones in the GMS-Vanguard survey, with the individual fixed effects robustly explaining 50-60% of the total variation, and the time fixed effects explaining 1-4%.

The RAND survey also includes several questions about individual portfolios. For example, it asks about the composition (equity, government bonds, certificate of deposits) of household portfolios both within and outside of retirement accounts. We have inspected the data but concluded that, since most observations for portfolios are missing, it does not provide a reliable sample to jointly analyze portfolios and answers about expected stock market performance.<sup>2</sup>

<sup>2</sup>Questions in the RAND survey about portfolios (question numbers: a008, a009, a010, st001, st003, ra001, ra002, ra007) tend to have many missing answers, especially outside of retirement accounts.

**Table A.4: Decomposing Variation in Beliefs: Robustness (RAND)**

<b>Panel A: R<sup>2</sup> (total, %)</b>	<b>#Resp≥3</b>	<b>#Resp≥4</b>	<b>#Resp≥5</b>	<b>#Resp≥6</b>	<b>#Resp≥10</b>	<b>#Resp≥30</b>	<b>#Resp≥50</b>
Prob. Ret > 0% (1yr)	56.8	56.8	56.8	56.8	56.9	57.9	58.1
Prob. Ret > 20% (1yr)	47.1	47.0	46.9	46.8	46.8	46.6	47.0
Prob. Ret < -20% (1yr)	45.9	45.9	45.8	45.8	45.9	45.5	49.1
Prob. Ret > 0% (10yr, cumul.)	67.4	67.4	67.4	67.4	67.6	68.7	70.2
Prob. Ret > 20% (10yr, cumul.)	53.3	53.2	53.1	53.0	52.7	-	-
Prob. Ret < -20% (10yr, cumul.)	49.3	49.3	49.2	49.1	48.2	-	-

<b>Panel B: N. of obs.</b>	<b>#Resp≥3</b>	<b>#Resp≥4</b>	<b>#Resp≥5</b>	<b>#Resp≥6</b>	<b>#Resp≥10</b>	<b>#Resp≥30</b>	<b>#Resp≥50</b>
Prob. Ret > 0% (1yr)	3,475	3,349	3,211	3,135	2,737	977	552
Prob. Ret > 20% (1yr)	3,358	3,215	3,067	2,970	2,587	932	510
Prob. Ret < -20% (1yr)	3,442	3,305	3,163	3,077	2,667	954	520
Prob. Ret > 0% (10yr, cumul.)	3,475	3,345	3,205	3,123	2,728	973	555
Prob. Ret > 20% (10yr, cumul.)	3,052	2,836	2,654	2,425	1,156	-	-
Prob. Ret < -20% (10yr, cumul.)	2,996	2,780	2,576	2,348	1,122	-	-

**Note:** Panel A of the table reports the  $R^2$  statistics corresponding to regression 5. In each column, going from left to right, we increase from 3 to 50 the minimum number of responses for an individual to be included in the sample. Panel B reports the number of observations. Each row corresponds to a different question in the survey.

## A.7 CAMPBELL-SHILLER DECOMPOSITION

In Section IV, we presented the results of the cross-sectional Campbell-Shiller decomposition for expectations of short-term dividend growth. But the disagreement about any term in equation 13 can be explained and matched by disagreement about the remaining terms in that equation. In this Appendix, we repeat the analysis in the text, focusing on each term in turn.

**Table A.5:** A Behavioral Campbell-Shiller Variance Decomposition

	$-E_{i,t}r_S$	$-\frac{\rho-\rho^{10}}{1-\rho}E_{i,t}r_L$	$\frac{1-\rho^3}{1-\rho}E_{i,t}\Delta d_S$	$\frac{\rho^3-\rho^{10}}{1-\rho}E_{i,t}\Delta d_L$	$\rho^{10}E_{i,t}pd_{t+10}$	$-pd_t$
$-E_{i,t}r_S$	1	-0.06	0.27	0.04	0.08	-0.06
$-\frac{\rho-\rho^{10}}{1-\rho}E_{i,t}r_L$	-0.73	1	0.68	0.43	0.66	-0.03
$\frac{1-\rho^3}{1-\rho}E_{i,t}\Delta d_S$	0.22	0.04	1	-0.19	0.04	0.02
$\frac{\rho^3-\rho^{10}}{1-\rho}E_{i,t}\Delta d_L$	0.14	0.13	-0.90	1	0.17	-0.16
$\rho^{10}E_{i,t}pd_{t+10}$	1.40	0.89	0.93	0.75	1	1.23
$-pd_t$	-0.04	0.00	0.02	-0.02	0.04	1

**Note:** Variance decomposition of equation 13. In the columns we report the term the variance of which is being decomposed using the variation in each of the terms in the rows.

Table A.5 reports the variance decomposition of each of the terms, one per column, in terms of all the remaining terms, reported in the rows. Excluding the diagonal, all number in the columns must sum to 100%, since the remaining terms need to explain 100% of the total disagreement of the variable on interest. For example, the case studied in the body of the text corresponds to the third column, which explains the disagreement in short-term dividend growth. That column shows the numbers reported in the text: disagreement in short-term expected returns contribute to match 27% of the total disagreement in short-term dividend growth; disagreement about long-term dividend growth contributes a negative 90% (because expectations of long-term dividend growth are correlated with expectations of short-term dividend growth, making it harder to justify the current price-dividend ratio), and so on. The expectations about the price-divided ration in 10 years picks up the slack, explaining 93% of the disagreement in short-term dividend growth.<sup>3</sup>

The rest of Table A.5 repeats the exercise for the other terms of equation 13, finding similar results: the high correlation of long-term and short-term expected returns requires balancing from dividend growth expectations to match prices, and in all cases expectations of price-dividend ratios 10 years ahead play a major role in matching the current price dividend ratio.

Column 6 of Table A.5 decomposes the variance of the price dividend ratio, which reflects only time-series variation. With only 10 survey waves (spaced two months apart), our time-series variation is limited. With that caveat in mind, the results suggest that higher price-dividend ratios are associated with higher expected returns at all horizons. This effect is consistent with the return extrapolation patterns documented by Greenwood and Shleifer (2014), and runs contrary to the implications of rational asset pricing models, which usually explain higher price-dividend ratios

<sup>3</sup>Note that variation in the *current* pd ratio explains 2% of the total variation. This is because we don't have only a cross-sectional dimension, but also a time-series dimension. That 2% is due to the fact that the price-dividend ratio changes across the ten survey waves.

with lower expected returns. Similarly, higher price-dividend ratios are associated with lower expected growth (in the long run). This runs contrary to the behavioral finance literature that explains higher price-dividend ratios with higher expected cash flows.<sup>4</sup>

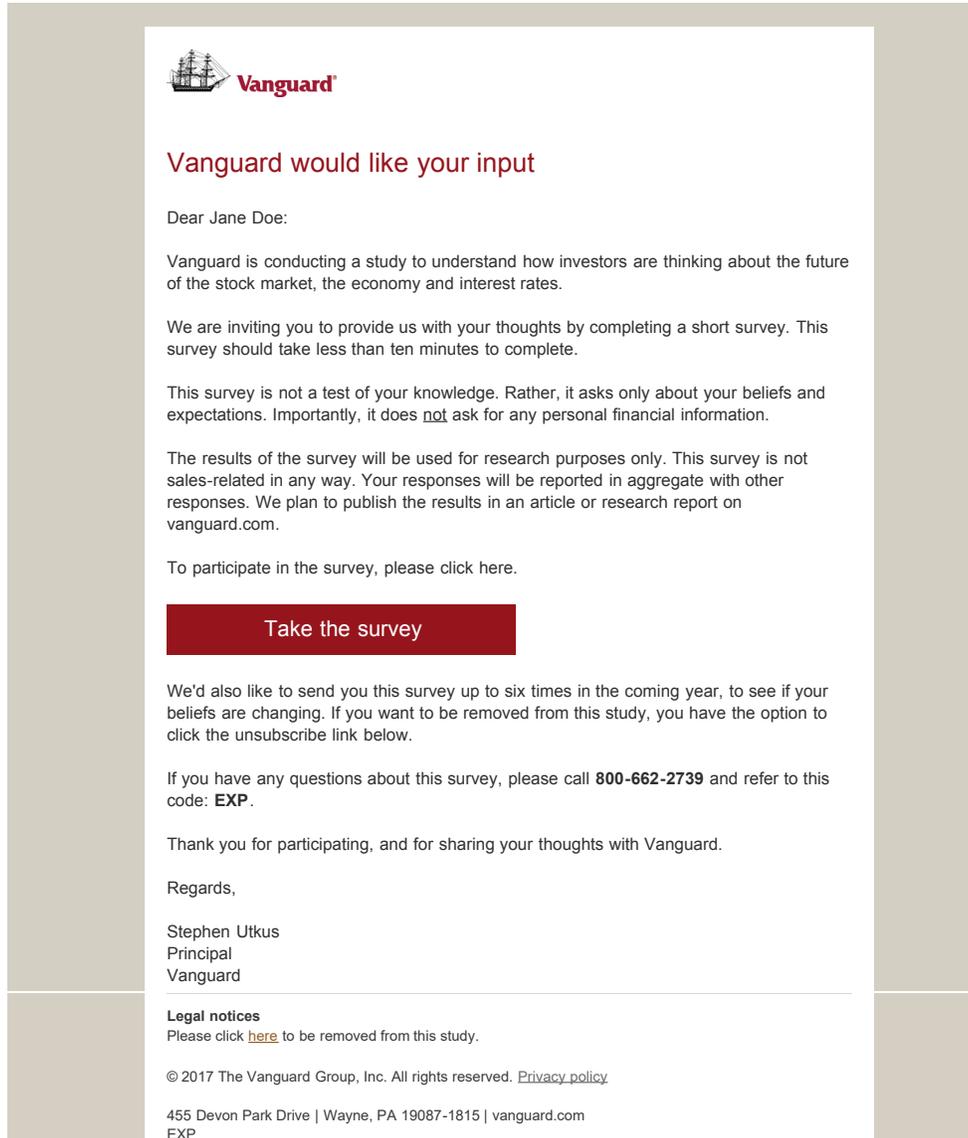
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<sup>4</sup>De la O and Myers (2017) have applied this decomposition to survey data in a time-series context and found an important role for expected short-run growth in cash-flows.

## B.1 INVITATION EMAIL AND SURVEY FLOW

In this Appendix, we present screenshots of one complete survey flow. In this iteration of the flow, questions about expected stock returns were asked ahead of questions about expected GDP growth; the survey implementation randomizes across these two blocks of questions. We begin by reviewing the invitation email sent to individuals from Vanguard.

<b>Subject:</b>	[TEST]We need your help, Jane Doe
<b>From:</b>	Vanguard (vanguard@eonline.e-vanguard.com)
<b>To:</b>	oea_test@yahoo.com;
<b>Date:</b>	Monday, February 13, 2017 10:58 AM



 Vanguard

### Vanguard would like your input

Dear Jane Doe:

Vanguard is conducting a study to understand how investors are thinking about the future of the stock market, the economy and interest rates.

We are inviting you to provide us with your thoughts by completing a short survey. This survey should take less than ten minutes to complete.

This survey is not a test of your knowledge. Rather, it asks only about your beliefs and expectations. Importantly, it does not ask for any personal financial information.

The results of the survey will be used for research purposes only. This survey is not sales-related in any way. Your responses will be reported in aggregate with other responses. We plan to publish the results in an article or research report on vanguard.com.

To participate in the survey, please click here.

[Take the survey](#)

We'd also like to send you this survey up to six times in the coming year, to see if your beliefs are changing. If you want to be removed from this study, you have the option to click the unsubscribe link below.

If you have any questions about this survey, please call **800-662-2739** and refer to this code: **EXP**.

Thank you for participating, and for sharing your thoughts with Vanguard.

Regards,

Stephen Utkus  
Principal  
Vanguard

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455 Devon Park Drive | Wayne, PA 19087-1815 | vanguard.com  
EXP



Dear Investor,

Thank you for participating in this study.

At Vanguard we are interested in understanding investor views on the future of the stock market, the economy and interest rates. We plan to create an investor sentiment index to share these findings with the investing public.

This is a short survey that should take you no more than 5-10 minutes to complete.

The survey does not collect any personal information. It relies on your general knowledge.

**If you feel you are not familiar with a topic, that is fine. Please just give us your best prediction.**

**Please do not use the browser's navigation button to move through the survey.**

Next

For these questions, we would like to know what you are expecting the future returns of the US stock market to be.

Next

Powered by CONSENT

What do you expect the return of the US stock market to be **over the next 12 months**?

Note: This expected return is the change in value, in percent, that you expect to receive **over the next 12 months** from investing in a portfolio that holds all stocks listed on the US stock market. It includes both dividends and capital gains/losses.

*(Please answer only with a positive or negative numeric value, with at most 1 decimal.)*

% over the next 12 months

Next

Powered by CONSENT

What do you expect the **average** annual return of the US stock market to be **over the next 10 years**?

Note: This expected return is the change in value, in percent, that you expect to receive **each year on average over the next 10 years** from investing in a portfolio that holds all stocks listed on the US stock market. It includes both dividends and capital gains/losses.

(Please answer only with a positive or negative numeric value, with at most 1 decimal.)

% per year, over the next 10 years

Next

In this question we present you with five possible scenarios for US stock market returns **over the next 12 months**:

The US stock market return will be...

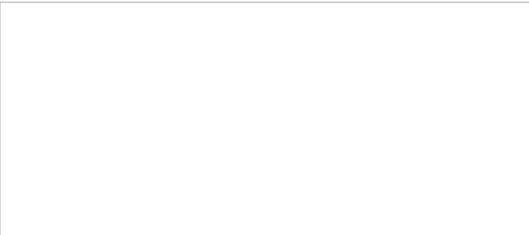
- Scenario 1: **more than 40%** over the next year.
- Scenario 2: **between 30% and 40%** over the next year.
- Scenario 3: **between -10% and 30%** over the next year.
- Scenario 4: **between -30% and -10%** over the next year.
- Scenario 5: **less than -30%** over the next year.

Please let us know how likely you think it is that each scenario will occur.

Please type in the number to indicate the probability, in percent, that you attach to each scenario. The probabilities of the five scenarios have to sum up to 100%. The graphic bar chart on the right updates automatically to reflect your answers.

(Please answer only with a positive numeric value, with at most 1 decimal.)

more than 40%	<input type="text"/>	%
between 30% and 40%	<input type="text"/>	%
between -10% and 30%	<input type="text"/>	%
between -30% and -10%	<input type="text"/>	%
less than -30%	<input type="text"/>	%
Total		0.0%



Remaining probability to fill in: 100.0%

Next

In this question we present you with five possible scenarios for US stock market returns **over the next 12 months**:

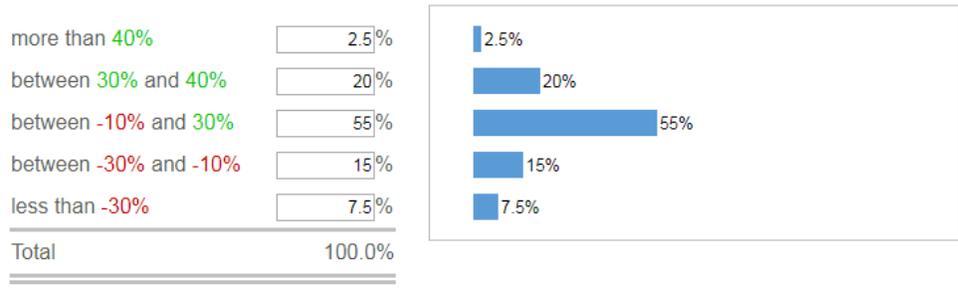
The US stock market return will be...

- Scenario 1: **more than 40%** over the next year.
- Scenario 2: **between 30% and 40%** over the next year.
- Scenario 3: **between -10% and 30%** over the next year.
- Scenario 4: **between -30% and -10%** over the next year.
- Scenario 5: **less than -30%** over the next year.

Please let us know how likely you think it is that each scenario will occur.

Please type in the number to indicate the probability, in percent, that you attach to each scenario. The probabilities of the five scenarios have to sum up to 100%. The graphic bar chart on the right updates automatically to reflect your answers.

*(Please answer only with a positive numeric value, with at most 1 decimal.)*



Remaining probability to fill in: 0.0%

Next

POWERED BY CONFIRMIT

How difficult were the questions about the stock market that you were just asked?

- Not at all difficult
- Not very difficult
- Somewhat difficult
- Very difficult
- Extremely difficult

Next

POWERED BY CONFIRMIT

How confident are you with your answers to the questions about the stock market that you were just asked?

- Extremely confident
- Very confident
- Somewhat confident
- Not very confident
- Not at all confident

Next

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In the next questions, we would like to know what you are expecting future economic growth in the US to be.  
**Again, even if you feel that you are not familiar with the topic, please give us your best prediction.**

Next

POWERED BY CONFIRMITY

What do you expect the **average** annual growth rate of real GDP in the US to be **over the next 3 years**?

Note: Real Gross Domestic Product (GDP) is a measure of economic activity. Real GDP is the total real value of goods and services produced in the US in a year.

*(Please answer only with a positive or negative numeric value with at most 1 decimal.)*

% per year, over the next 3 years

Next

POWERED BY CONFIRMITY

What do you expect the **average** annual growth rate of real GDP in the US to be **over the next 10 years**?

Note: Real Gross Domestic Product (GDP) is a measure of economic activity. Real GDP is the total real value of goods and services produced in the US in a year.

(Please answer only with a positive or negative numeric value with at most 1 decimal.)

% per year, over the next 10 years

Next

POWERED BY CONFINIT

## radius

In this question we present you with five possible scenarios for US real GDP **average annual growth rate, over the next 3 years**:

US real GDP average annual growth rate over the next 3 years will be...

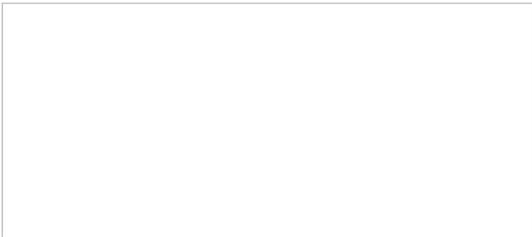
- Scenario 1: **more than 9%** per year.
- Scenario 2: **between 3% and 9%** per year.
- Scenario 3: **between 0% and 3%** per year.
- Scenario 4: **between -3% and 0%** per year.
- Scenario 5: **less than -3%** per year.

Please let us know how likely you think it is that each scenario will occur.

Please type in the number to indicate the probability, in percent, that you attach to each scenario. The probabilities of the five scenarios have to sum up to 100%. The graphic bar chart on the right updates automatically to reflect your answers.

(Please answer only with a positive numeric value, with at most 1 decimal.)

more than 9%	<input type="text"/>	%
between 3% and 9%	<input type="text"/>	%
between 0% and 3%	<input type="text"/>	%
between -3% and 0%	<input type="text"/>	%
less than -3%	<input type="text"/>	%
<hr/>		
Total		0.0%



Remaining probability to fill in: 100.0%

Next

POWERED BY CONFINIT

How difficult were the questions about real GDP growth that you were just asked?

- Not at all difficult
- Not very difficult
- Somewhat difficult
- Very difficult
- Extremely difficult

Next

POWERED BY CONFIRMIT

How confident are you with your answers to the questions about real GDP growth that you were just asked?

- Extremely confident
- Very confident
- Somewhat confident
- Not very confident
- Not at all confident

Next

POWERED BY CONFIRMIT

In these final questions, we would like to know what you are expecting future returns on US bonds and future US interest rates to be.

**Again, even if you feel that you are not familiar with the topic, please give us your best prediction.**

Next

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Suppose that you were to buy a 10-year US Treasury bond today that makes all of its payments at maturity 10 years from now.

Suppose that you were to sell this bond a year from today. What do you expect the return from this bond investment to be **over the next 12 months**?

Note: This expected return is the change in price of the bond that you expect to occur during the next 12 months.

(Please answer only with a positive or negative numeric value with at most 1 decimal.)

% over the next 12 months

Next

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In this question we would like to understand your views of future interest rates on US Treasury bonds of different maturities.

To familiarize yourself with the question, review the figure below of the current annual interest rates on 1-year, 5-year and 10-year US Treasury bonds.

Note: These annual interest rates, also known as yields to maturity, are the annual returns that these different government bonds will pay if you hold them to their maturity—in one, five or ten years, respectively.



Next

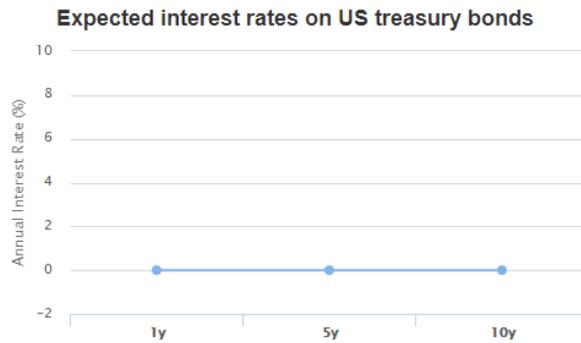
POWERED BY CONFIRMIT

What do you expect annual interest rates to be **one year from today** on US Treasury bonds of 1-year, 5-year, and 10-year maturity?

Please type in the number to indicate the annual interest rate, i.e. yield to maturity, that you expect will prevail one year from today for each maturity. The yield curve graphic on the right updates automatically to reflect your answers.

*(Please answer only with a positive or negative numeric value, ranging from -2% to 10%, with at most 1 decimal.)*

1-year bond  % annual interest rate  
 5-year bond  % annual interest rate  
 10-year bond  % annual interest rate



Next

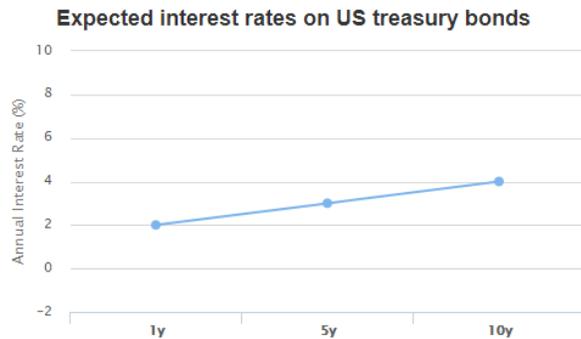
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What do you expect annual interest rates to be **one year from today** on US Treasury bonds of 1-year, 5-year, and 10-year maturity?

Please type in the number to indicate the annual interest rate, i.e. yield to maturity, that you expect will prevail one year from today for each maturity. The yield curve graphic on the right updates automatically to reflect your answers.

*(Please answer only with a positive or negative numeric value, ranging from -2% to 10%, with at most 1 decimal.)*

1-year bond  % annual interest rate  
 5-year bond  % annual interest rate  
 10-year bond  % annual interest rate



Next

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How difficult were the questions about bonds and interest rates that you were just asked?

- Not at all difficult
- Not very difficult
- Somewhat difficult
- Very difficult
- Extremely difficult

Next

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How confident are you with your answers to the questions about bonds and interest rates that you were just asked?

- Extremely confident
- Very confident
- Somewhat confident
- Not very confident
- Not at all confident

Next

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