Subjective Beliefs and Portfolio Choice: Evidence from Financial Advisors

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EEA-ESEM 2024 Rotterdam

August 28, 2024

Beliefs are central to models of macroeconomics and finance

- Surveys are increasingly used to test and characterize investors' subjective beliefs
- Existing evidence focuses on *retail* investors and *overall* return expectations
  - Relative to retail investors, we know much less about institutional investors
    - they are important for asset prices (large AUM, prototype of "arbitrageurs")
    - but hard to reach
  - Return expectation captures multiple forces
    - risk compensation, belief in pricing, higher-order beliefs, etc.
    - different forces may have different effects on portfolios (e.g., risk vs. mispricing)
    - separating different components is important for theory and empirics

In this paper, we survey professional wealth managers of wealthy U.S. investors:

1. We elicit two types of beliefs: return expectation and required rate of return,
   - Over two horizons (1Y, 10Y), across several asset classes
2. The survey also collects planned portfolio changes, beliefs about fundamentals
3. Survey responses are linked to portfolio data

Preview of main results

We document a disconnect between return expectation and required rate of return:

1. Decompose subjective return expectation into subjective risk premium + subjective alpha
    - Two components of return expectation play distinct roles
    - Subjective risk premium drives long-run return expectations
    - Subjective alpha drives short-term return expectation

2. Subjective alpha primarily drives changes to asset allocation
    - Higher (lower) return expectations are associated with intention to buy (sell)
    - This is driven by subjective alpha not subjective risk premia
    - Actual portfolio changes reflect stated plans
        - These portfolios are large, and relatively active across asset classes
        - Despite advisory role, sensitivity of trading to beliefs appears sizeable

Related literature

Outline

1. Survey questions and interpretation

   Survey design and respondents

   Required returns and risk

2. Results

   Drivers of short and long-run return expectations

   Beliefs and portfolio changes

Survey questions and interpretation

Survey respondents are wealth advisors who use Addepar

- Addepar is a leading technology provider for wealth managers
  - Platform provides financial reporting and analysis
  - Advisors range from single family offices to large firms
  - Survey is targeted towards executives and investment professionals
- We observe anonymized portfolio and returns for investors managed by respondents
  - Investment level value at start and end of month
  - Total returns including income, trading profits, capital gains
  - Limited attributes about the advisor, no investor characteristics

Survey consists of three main sections:

1. Screening: advisory role (e.g. title), extent of decision making capacity (0-100)
2. Existing and planned investments: broad asset classes, e.g. US Treasuries, US Equities
3. Subjective beliefs about return expectations, required rate of returns, fundamentals

Survey distribution: four waves so far; 250 responses to date

- Survey waves: May 2022, January 2023, July 2023, February 2024 (ongoing)
- 210 unique respondents: 40 have taken the survey more than once
- 179 underlying firms, of which 175 have portfolio data in June 2023

Table: Summary statistics for respondents and portfolios

	Mean	p25	p50	p75	N
Respondent level:					
Manager AUM (millions)	2,444.5	355.1	1,032.7	2,287.7	175
Portfolios managed	223.3	10.0	29.0	171.0	175
Investor level:					
Investor AUM (millions)	10.9	0.1	0.7	3.0	39,076
Number of investments	68.5	8.0	22.0	54.0	39,076

Notes: Data as of June 30, 2023. Investments include single stocks, ETFs, mutual funds, private equity investments, etc. First three rounds link to portfolio data; fourth does not (89 respondents).

Survey design detail | Screening questions detail | Frequency of communication

For each relevant asset class, we ask:

1. Expected total return (nominal capital appreciation plus payouts) over the next year and the expected average (annualized) return over the next ten years
2. Minimum rate of return required to make an investment in [asset class] for one year
   - Slider between [-5, 10] for bonds; [-15, 30] otherwise
   - Clicking through the survey records the minimum values, which we discard

Table: Summary statistics for survey responses

	Mean	p25	p50	p75	S.D.	N
1Y return expectation, $\mathbb{E}[r^{1Y}]$	5.2	3.0	5.0	8.0	5.6	768
10Y return expectation, $\mathbb{E}[r^{10Y}]$	8.4	5.0	8.0	10.0	4.6	768
1Y required rate of return, $\mathbb{R}[r^{1Y}]$	7.6	5.0	7.0	10.0	5.1	768

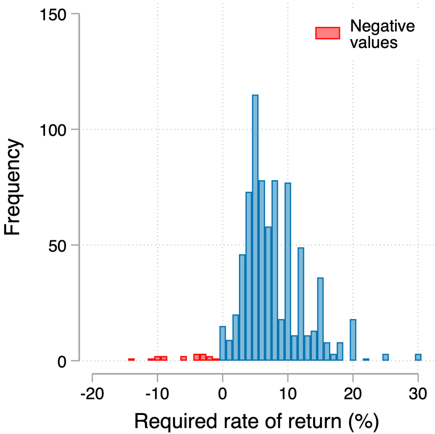
Interpreting required rate of return, $\mathbb{R}[r^{1Y}]$

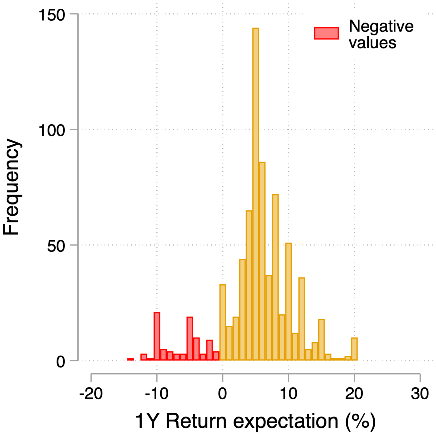
- "Minimum rate of return required" as in Gallup (Greenwood and Shleifer, 2014):
  - "percentage return they expect on the market" → proxy for expectations
  - "minimum acceptable rate of return" → a measure of required returns
- This is a *model-free* way of eliciting required rate of return
  - By contrast, Couts et al. (2024) estimate required rate of return under CAPM assumption

We interpret the required rate of return as a compensation for risk.

1. Very few $\mathbb{R}[r^{1Y}]$ are negative values (2%)
2. $\mathbb{R}[r^{1Y}]$ are mostly higher than reported risk-free rates
3. $\mathbb{R}[r^{1Y}]$ line up well with ex-ante perception of risk at asset class level
4. $\mathbb{R}[r^{1Y}]$ line up well with subjective perception of risk

1. Only 2% of required return responses are negative

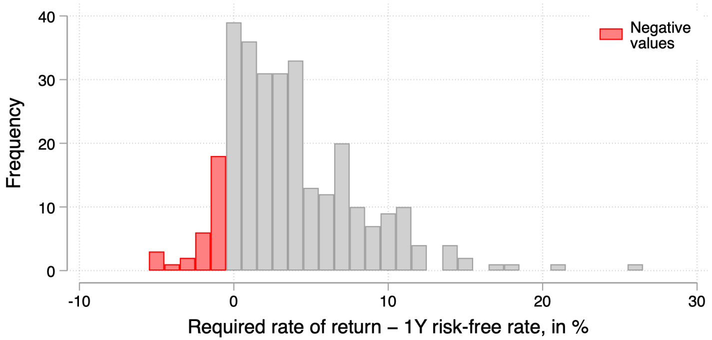




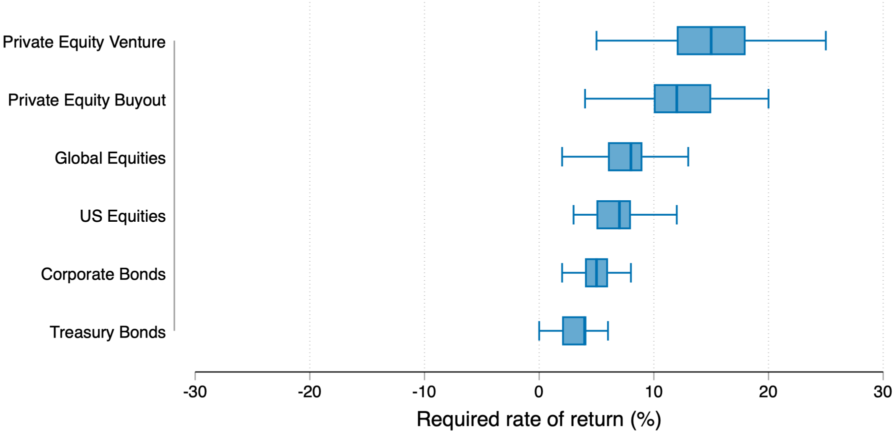
2. Required return rates are mostly higher than risk-free rates

In the third survey wave, we also ask:

- Please enter the expected total nominal return on a risk free asset (i.e. the risk-free rate), for 1 year and 10 year

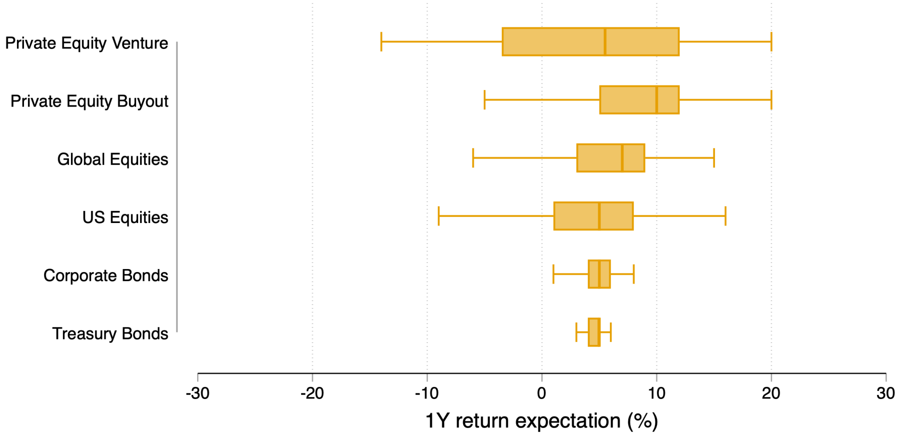


3. Required returns are higher for assets typically considered riskier



Note: We omit some asset classes here because their ex-ante risk is difficult to pin down.

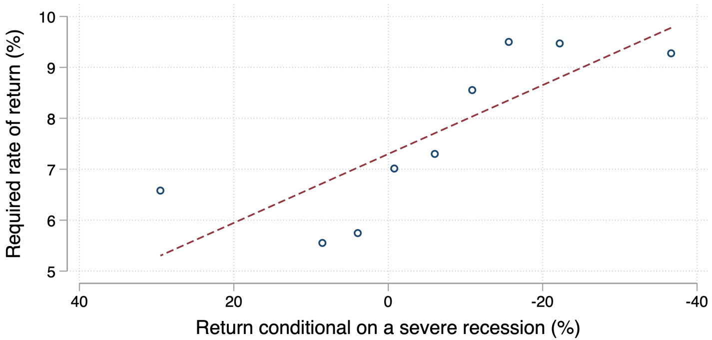
This does not hold for return expectations over the same horizon



4. Required return lines up well with perceived risk at asset class level

Respondents are also asked:

- If there were a severe recession, what market movement would you expect for the following asset classes? (−100 means a total loss in value; 100 means a doubling in value)



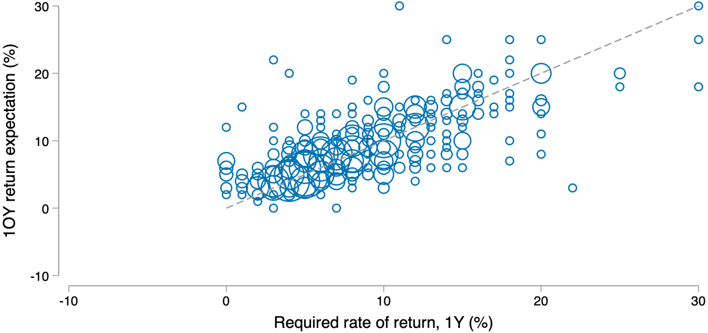
Fundamentals

Results

Result 1: Long run vs short run return expectations

Variation in the 10-year return expectation is primarily driven by the required rate of return

1. required rate of return is highly correlated with long-term return expectation



2. 1% increase in $\mathbb{R}[r^{1Y}] \rightarrow 0.74\%$ to 0.85% increase in $\mathbb{E}[r^{10Y}]$

Result 1: Long run vs short run return expectations

Variation in the 10-year return expectation is primarily driven by the required rate of return

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2. 1% increase in $\mathbb{R}[r^{1Y}] \rightarrow$ 0.74% to 0.85% increase in $\mathbb{E}[r^{10Y}]$

For investor i in asset class j: $\mathbb{E}[r^{10Y}]_{ijt} = \beta_0 + \beta_1 \mathbb{R}[r^{1Y}] + \varepsilon_{ijt}$

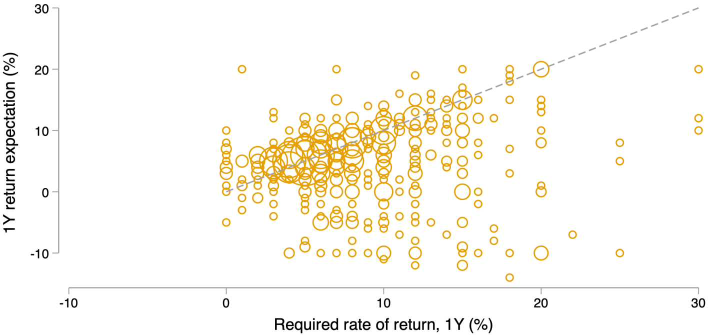
	Full sample (1)	Full sample (2)	Risky assets (3)	Equities only (4)
$\mathbb{R}[r^{1Y}]$	0.74***	0.85***	0.79***	0.83***
	(0.06)	(0.05)	(0.04)	(0.02)
Respondent×time fixed effect		Y	Y	Y
Observations	751	743	542	406
R-squared	0.57	0.78	0.77	0.80

Notes: Standard errors are clustered at the respondent level. Full sample excludes minimum responses, which may be due to respondents skipping a question. Risky assets excludes bonds. Equities only includes US Equities, Global Equities, Hedge Fund Equity Strategies, Private Equity Buyout and Venture Capital.

$\mathbb{R}[r^{1Y}]$ is weakly correlated with $\mathbb{E}[r^{1Y}]$

Variation in the 1-year return expectation is much less driven by the required rate of return

1. $\mathbb{R}[r^{1Y}]$ is weakly correlated with $\mathbb{E}[r^{1Y}]$



2. Low and statistically insignificant association between $\mathbb{E}[r^{1Y}]$ and $\mathbb{R}[r^{1Y}]$

$\mathbb{R}[r^{1Y}]$ is weakly correlated with $\mathbb{E}[r^{1Y}]$

Variation in the 1-year return expectation is much less driven by the required rate of return

1. $\mathbb{R}[r^{1Y}]$ is weakly correlated with $\mathbb{E}[r^{1Y}]$
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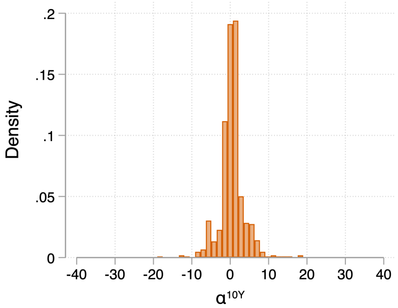
	Full sample (1)	Full sample (2)	Risky assets (3)	Equities only (4)
$\mathbb{R}[r^{1Y}]$	0.16**	0.16*	0.13	0.13
	(0.08)	(0.11)	(0.19)	(0.19)
Respondent×time fixed effect		Y	Y	Y
Observations	751	743	542	406
R-squared	0.02	0.41	0.49	0.58

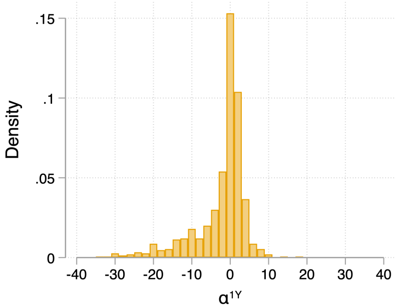
Notes: Standard errors are clustered at the respondent level. Full sample excludes minimum responses, which may be due to respondents' skipping a question. Risky assets excludes bonds. Equities only includes US Equities, Global Equities, Hedge Fund Equity Strategies, Private Equity Buyout and Venture Capital.

Return expectation ≠ required returns, especially in the short run

Define the gap between expected and required returns, i.e. "subjective alpha": ⏩ x assets ⏩ x rounds

$$\alpha^{10Y} = \mathbb{E}[r^{10Y}] - \mathbb{R}[r^{1Y}] \qquad \alpha^{1Y} = \mathbb{E}[r^{1Y}] - \mathbb{R}[r^{1Y}]$$





Implications:

1. Long-term return expectations are primarily driven by risk premium ⏩ Couts et al.
2. Short-term return expectations are primarily driven by subjective alpha ⏩ Variance decomposition

Result 2: Beliefs and portfolios

Survey question:

- Do you plan to change your allocation to the following assets over the next year? If so, how?
  - Increase / Decrease / No Change / Don't Know

We examine how beliefs are associated with portfolio changes:

1. Identify variation in return expectations associated with respondents' stated plans
2. Portfolio changes are driven by subjective alpha, rather than risk compensation
3. Estimate elasticity of portfolio changes to variation in return expectations

Beliefs and stated plans

Table: Summary statistics by stated plans, asset class × respondent level

Stated action	$\mathbb{E}[r^{1Y}]$	$\mathbb{E}[r^{10Y}]$	$\mathbb{R}[r^{1Y}]$	α^{1Y}	α^{10Y}	N
Increase	6.1	8.8	7.8	-1.7	1.0	345
No Change	5.1	8.3	7.6	-2.5	0.7	263
Decrease	3.0	7.5	8.8	-5.8	-1.4	117
Increase - Decrease	3.1	1.3	-1.0	4.1	2.4	

- Plans to buy have higher return expectations and alphas; plans to sell have lower
- Required return is slightly lower for assets where respondents plan to increase
- On average, difference in 1Y return expectation between increase and decrease is 3.1%

Regression of plans to increase Regression of plans to decrease

Regression tests: plans to increase allocations

Dummy dependent variable: Plan to increase

	(1)	(2)	(3)	(4)
$\mathbb{E}[r^{1Y}]$	0.016***			
	(0.005)			
$\mathbb{E}[r^{10Y}]$			0.002	
			(0.010)	
$\mathbb{R}[r^{1Y}]$		-0.015*		-0.017*
		(0.008)		(0.010)
α^{1Y}		0.018***		
		(0.005)		
α^{10Y}				0.022*
				(0.011)
Asset class fixed effects	Y	Y	Y	Y
Respondent fixed effects	Y	Y	Y	Y
Observations	743	743	743	743
R-squared	0.32	0.34	0.30	0.32

Notes: Standard errors clustered at the respondent level.

W/ asset class and respondent f.e.s:

- One pp increase in 1Y return expectation is associated with an 1.6% increase in probability of planning to increase
- This is mostly driven by subjective alpha: required return has opposite sign
- 10Y return expectation is not associated with plans, however, long-run subjective alpha is associated with plans to increase

Regression tests: plans to decrease allocations

Dummy dependent variable: Plan to decrease

	(1)	(2)	(3)	(4)
$\mathbb{E}[r^{1Y}]$	-0.013***			
	(0.004)			
$\mathbb{E}[r^{10Y}]$			-0.012	
			(0.008)	
$\mathbb{R}[r^{1Y}]$		0.014**		0.006
		(0.006)		(0.008)
α^{1Y}		-0.014***		
		(0.004)		
α^{10Y}				-0.031***
				(0.009)
Asset class fixed effects	Y	Y	Y	Y
Respondent fixed effects	Y	Y	Y	Y
Observations	743	743	743	743
R-squared	0.28	0.31	0.26	0.30

Notes: Standard errors clustered at the respondent level.

W/ asset class and respondent f.e.s:

- One pp increase in 1Y return expectation is associated with an 1.3% decrease in probability of planning to decrease
- Again, this is mostly driven by subjective alpha: required return has opposite sign
- 10Y return expectation is not associated with plans, however, long-run subjective alpha is negatively associated with plans to decrease

Link responses to value-weighted averages across managed portfolios

- For portfolio shares ω_{ijt}, we calculate Overall change $= \frac{\omega_{ijt}}{\omega_{ij,t-1}} - 1$ and active change ⏩
  - We only look at the quarter after the first three surveys, for now ⏩ Asset class breakdown

Table: Overall change in asset-class share, one quarter after survey (%)

Stated action	Mean	p25	p50	p75	SD	N
Increase	-0.0	-5.5	-0.3	4.1	16.1	285
No Change	-1.2	-4.1	-0.0	2.6	10.3	248
Decrease	-2.3	-5.7	-1.1	1.2	13.7	82
Increase - Decrease	2.3	0.2	0.8	2.9	2.4	

Notes: This is calculated as the value-weighted growth rate of the share, across portfolios managed by each respondent. The observations are at the respondent-asset class-date level, and condition on respondents who also provided return expectations. This includes changes in asset class shares that are driven by valuation, if advisors are not actively rebalancing.

- Implied sensitivity of trading to alphas $\approx 2.3/3.1 = 0.7$

⏩ Portfolio share regression ⏩ Active changes

Regression tests: % overall change (t to $t+1$)

Dependent variable: % overall change in asset class share (t to $t+1$)	(1)	(2)	(3)	(4)
$\mathbb{E}[r^{1Y}]$	0.30**			
	(0.12)			
$\mathbb{E}[r^{10Y}]$			-0.04	
			(0.43)	
$\mathbb{R}[r^{1Y}]$		0.38*		0.11
		(0.20)		(0.48)
α^{1Y}		0.31***		
		(0.12)		
α^{10Y}				0.79**
				(0.38)
Asset class fixed effects	Y	Y	Y	Y
Respondent fixed effects	Y	Y	Y	Y
Observations	625	586	686	611
R-squared	0.38	0.40	0.34	0.40

Notes: Changes in shares are value-weighted averages of the overall change in share, across portfolios managed by the same respondent. Regression observations are weighted by AUM. Standard errors clustered at the respondent level.

W/ asset class and respondent f.e.s:

- One pp increase in short-run subjective alpha is associated with an 0.3% increase in the change in asset class share j
- One pp increase in long-run subjective alpha is associated with 0.8% increase in the change in asset class share
- Average change in asset-class share is 1.6%, so these changes are economically significant

Active changes OLS regression | IV

Conclusion

Understanding what return expectations reflect is central to linking beliefs and portfolios:

- We design a survey to elicit both subjective risk premia and subjective alpha
- Show that these components affect actions differently

Summary:

1. Subjective risk premia drive long-run return expectation
2. Subjective alpha drives short-run return expectation
3. Subjective alpha also drives planned changes to portfolios and actual portfolio decisions
    - Our results indicate a higher sensitivity of trading to beliefs than in Giglio et al. (2021)
    - This is despite measuring advisor beliefs and investor portfolios

Appendix

Related literature

1. Survey evidence on subjective return expectation focuses largely on either:
   - Retail investors (Gnan and Schleritzko, 2023; Bender et al., 2022)
   - Institutional investors (Bastianello and Peng, 2024; Couts et al., 2024)

2. Limited studies that can link survey evidence to portfolio data
   - Retail investors (Giglio et al., 2021)
   - Institutional investors (Dahlquist and Ibert, 2023)

3. Financial advisors:
   - Exert substantial influence with limited customization (Foerster et al., 2017)
   - Beliefs they hold are reflected in investors' portfolios (Linnainmaa et al., 2021)

Survey design

1. Screening:
   - Advisory role
   - Extent of decision making capacity
2. Investment
   - Asset classes actively investing
   - Planned actions for each asset class over the next year
3. Subjective beliefs
   - Expected total nominal return over next year / 10 years (expected rate of return)
   - Required rate of return to make an investment over the next year (required rate of return)
   - Other variables such as GDP growth, inflation, recession probability, etc.

* Others
   - Asset class returns conditional on a severe recession (crash risk)
   - Risk-free rate (in some waves)

Screening questions

1. In which of the following asset classes are you actively investing?
    - US Treasuries and Agency Debt
    - US Corporate Bonds (e.g. Barclays AGG)
    - US Equities (e.g. S&P 500)
    - International Equities (e.g. MSCI World, non-US equities)
    - Hedge Funds Equity Strategies
    - Hedge Funds Multi-Strategy
    - Private Equity Buyout
    - Private Equity Venture
    - Real Estate Funds

2. Do you plan to change your allocation to the following assets over the next year? If so, how?
    - Increase / Decrease / No Change / Don't Know

Frequency of communication and decision power

Table: Self-reported decision power (%)

Frequency of communication	Decision power (%) Mean	Decision power (%) Median	AUM (millions) Mean	AUM (millions) Median	N
Frequently	83	89	1,689	737	94
Often	67	70	3,299	1,240	25
Sometimes	45	50	623	540	19
Infrequently	21	10	1,892	957	13
Never	9	1	3,731	965	14
Total	65	75	1,999	774	165

Comparison to Giglio et al. (2021)

Five facts:

1. Beliefs are reflected in portfolio allocations, with low sensitivity
2. Belief changes do not predict when investors trade, but conditional on trading, they affect both the direction and the magnitude of trades
3. Beliefs are mostly characterized by large and persistent individual heterogeneity
4. Expected cash flow growth and return expectation are positively related
5. Return expectation and the subjective probability of rare disasters are negatively related

Our evidence is consistent with facts 1-3, and in our data:

- In the short run, expected cash flow growth and return expectation are positively related, but expected cash flow growth and required returns are negatively related
  - Expected cash flow growth associated with higher subjective alpha (1Y)
- In the long run, no relationship between expected cash flow and required return or return expectation
- Respondents with higher expected probability of recession have lower short-run subjective alpha, and no higher required return or long-run subjective alpha

Cash flow growth and return expectation, short-run

	$\mathbb{E}[r^{1Y}]$ (1)	$\mathbb{R}[r^{1Y}]$ (2)	α^{1Y} (3)
$\mathbb{E}[GDP]^{1Y}$	0.36***	-0.26***	0.62***
	(0.11)	(0.05)	(0.12)
Asset class fixed effects	Y	Y	Y
Round fixed effects	Y	Y	Y
Observations	709	709	709
R-squared	0.13	0.53	0.30

Notes: Robust standard errors.

- Return expectation positively correlated with expected GDP growth
- However, required returns negatively correlated (lower discount rate)
- Subjective alpha highly positively correlated

Cash flow growth and return expectation, long-run

	$\mathbb{E}[r^{10Y}]$	$\mathbb{R}[r^{1Y}]$	α^{10Y}
	(1)	(2)	(3)
$\mathbb{E}[GDP]^{10Y}$	0.47**	0.13	0.34*
	(0.22)	(0.11)	(0.18)
Asset class fixed effects	Y	Y	Y
Round fixed effects	Y	Y	Y
Observations	719	719	719
R-squared	0.62	0.52	0.08

Notes: Robust standard errors.

- In the long run, no correlation with required return
- Subjective alpha correlation is smaller, borderline significant

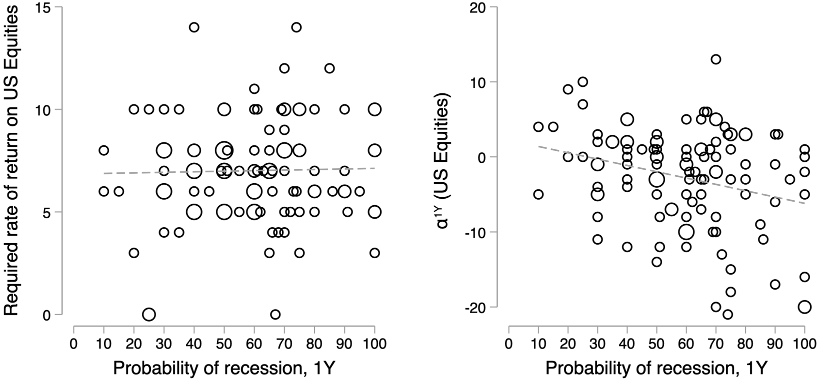
Return expectation and the subjective probability of a recession

	$\mathbb{R}[r^{1Y}]$		α^{1Y}		α^{10Y}	
	(1)	(2)	(3)	(4)	(5)	(6)
P(recession)	-0.001	-0.002	-0.05***	-0.05***	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Asset class fixed effects	Y	Y	Y	Y	Y	Y
Round fixed effects		Y		Y		Y
Observations	743	743	743	743	743	743
R-squared	0.51	0.52	0.22	0.29	0.03	0.06

Notes: Robust standard errors.

In the cross-section, respondents who expect a recession with higher probability do not have higher required returns. They do however have lower subjective alpha.

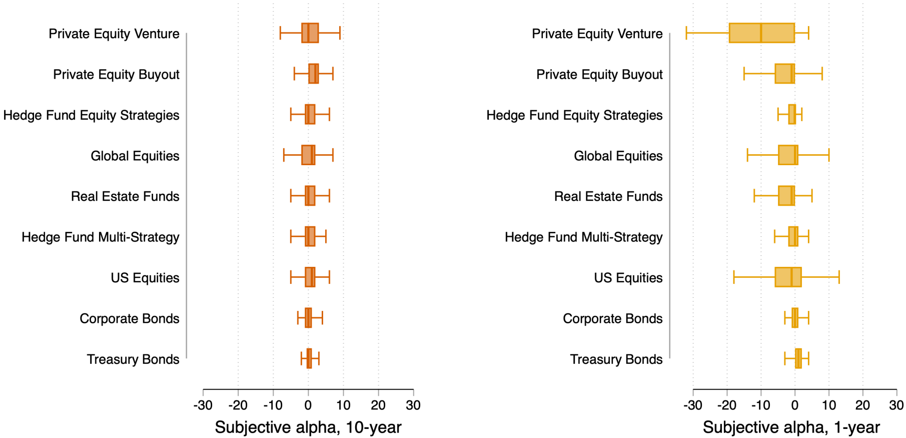
Recession probability and return expectation: US Equities



Comparison to Gnan and Schleritzko (2023)

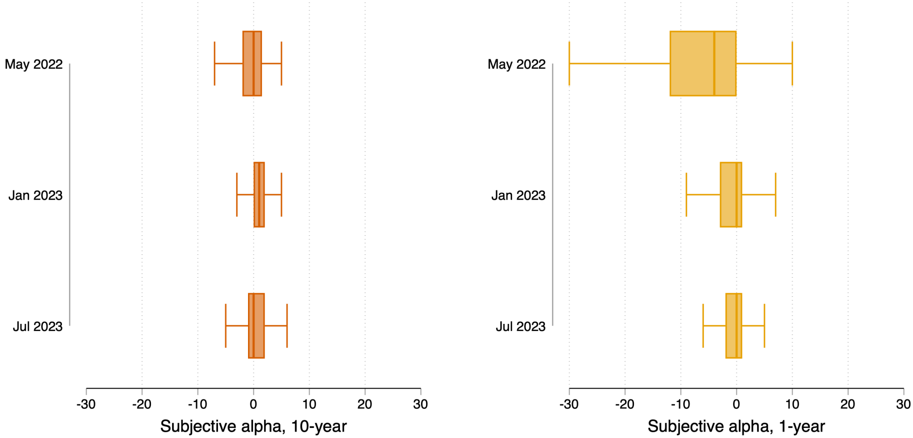
- Uses Gallup/UBS Investor Optimism Index (1988-2003)
- US households that actively participate in financial markets with a minimum portfolio size of $10,000
- Highlight differences between expected and required returns
  - Expected stock market return is measured directly (overall rate of return)
  - Stock market valuation question (overvalued/valued about right/undervalued) is used to infer required returns
  - For households with the same return expectations, those who perceive the market price as too high must have a higher required return
- Show that *required returns* increase with perceptions of stock market risk
- Risk-return tradeoff is stronger for financially literate investors and during times of economic distress

10-year alpha is close to zero for all asset classes



Next slide: variance decomposition of return expectation

10-year alpha is close to zero in all survey rounds



Variance decomposition (Couts et al., 2024)

Taking variance of both sides of $\mathbb{E}[r] = \mathbb{R}[r] + \alpha$:

$$\text{Var}[\mathbb{E}[r]] = \text{Cov}[\mathbb{E}[r], \mathbb{R}[r]] + \text{Cov}[\mathbb{E}[r], \alpha]$$

rearranging allows us to decompose variance in $\mathbb{E}[r]$ into:

$$1 = \underbrace{\frac{\text{Cov}[\mathbb{E}[r], \mathbb{R}[r]]}{\text{Var}[\mathbb{E}[r]]}}_{\text{\% from risk premia}} + \underbrace{\frac{\text{Cov}[\mathbb{E}[r], \alpha]}{\text{Var}[\mathbb{E}[r]]}}_{\text{\% from alpha}}$$

where:

- $\frac{\text{Cov}[\mathbb{E}[r], \mathbb{R}[r]]}{\text{Var}[\mathbb{E}[r]]}$ is the coefficient from a regression of $\mathbb{R}[r]$ on $\mathbb{E}[r]$
- $\frac{\text{Cov}[\mathbb{E}[r], \alpha]}{\text{Var}[\mathbb{E}[r]]}$ is the coefficient from a regression of α on $\mathbb{E}[r]$
- Account for fixed effects (e.g. dates, advisors) to remove variation explained by those
- Explore both long-run and short-run return expectations

In the long-run, most variation comes from risk premia

- Most variability in $\mathbb{E}[r^{10Y}]$ comes from $\mathbb{R}[r^{1Y}]$ (with asset class f.e.s, around half)
- Across asset classes, most of variation comes from risk premia
- Across advisors or dates, variation comes equally from risk premia and alpha

Identification from variation across	Multiple Sources				Assets		Advisors		Dates	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
% of $\mathbb{E}[r^{10Y}]$ variation from $\mathbb{R}[r^{1Y}]$	77	77	78	53	78	78	54	53	49	51
% of $\mathbb{E}[r^{10Y}]$ variation from α^{10Y}	23	23	22	47	22	22	46	47	51	49
Date fixed effects		Y			Y		Y			
Advisor fixed effects			Y		Y				Y	
Asset class fixed effects				Y			Y		Y	
Date×Advisor fixed effects						Y				
Date×Asset class fixed effects								Y		
Advisor×Asset class fixed effects										Y

Long-run result is extremely similar to Couts et al. (2024)

Risk premia in Couts et al. (2024) calculated as the product of institutions' return expectation and β calculated from covariances

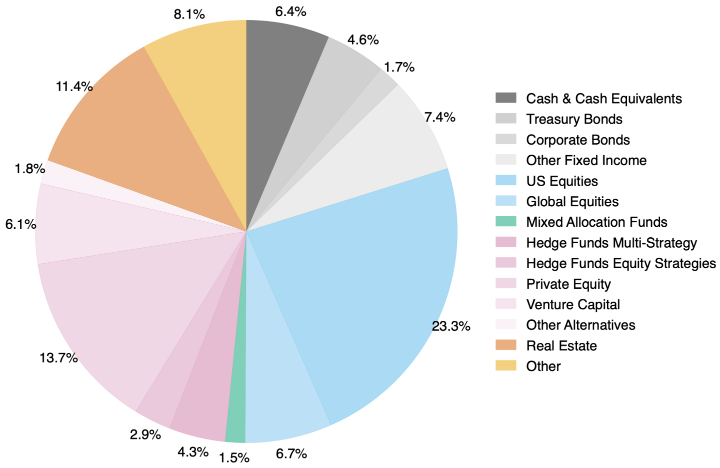
Identification from Variation Across =	**Multiple Sources**				**Asset Classes**		**Institutions**		**Years**	
	[1]	**[2]**	**[3]**	**[4]**	**[5]**	**[6]**	**[7]**	**[8]**	**[9]**	**[10]**
Equity CAPM										
% of μ Variation from Risk Premia	76%	76%	76%	52%	77%	77%	50%	47%	47%	49%
% of μ Variation from Alphas	24%	24%	24%	48%	23%	23%	50%	53%	53%	51%
Pension CAPM										
% of μ Variation from Risk Premia	91%	91%	91%	63%	92%	92%	62%	56%	56%	61%
% of μ Variation from Alphas	9%	9%	9%	37%	8%	8%	38%	44%	44%	39%
Year Fixed Effect		x			x		x			
Institution Fixed Effect			x		x				x	
Asset Class Fixed Effect				x			x		x	
Year×Institution Fixed Effect						x				
Year×Asset Class Fixed Effect								x		
Institution×Asset Class Fixed Effect										x

In the short-run, almost all the variation comes from alpha

Identification from variation across	Multiple Sources				Assets		Advisors		Dates	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Long run return expectation										
% of $\mathbb{E}[r^{10Y}]$ variation from $\mathbb{R}[r^{1Y}]$	77	77	78	53	78	78	54	53	49	51
% of $\mathbb{E}[r^{10Y}]$ variation from α^{10Y}	23	23	22	47	22	22	46	47	51	49
Short run return expectation										
% of $\mathbb{E}[r^{1Y}]$ variation from $\mathbb{R}[r^{1Y}]$	11	15	10	6	10	10	9	8	5	2
% of $\mathbb{E}[r^{1Y}]$ variation from α^{1Y}	89	85	90	94	90	90	91	92	95	98
Date fixed effects		Y			Y		Y			
Advisor fixed effects			Y		Y				Y	
Asset class fixed effects				Y			Y		Y	
Date×Advisor fixed effects						Y				
Date×Asset class fixed effects								Y		
Advisor×Asset class fixed effects										Y

Survey categories map to 3/4 of portfolio value, on average

Figure: Breakdown of managed portfolios' asset allocations, 2022



Mapping stated plans to actions

For investor i in time t, ω_{ijt} is the share of asset class j in the portfolio

- Subjective risk premia drives existing portfolio shares (in the cross section)

Active portfolio changes measure effect of buys/sells on asset-class shares:

$$\text{Active change}_{ijt} = \frac{\omega_{ijt}}{\omega_{ijt}^{CF}} - 1$$

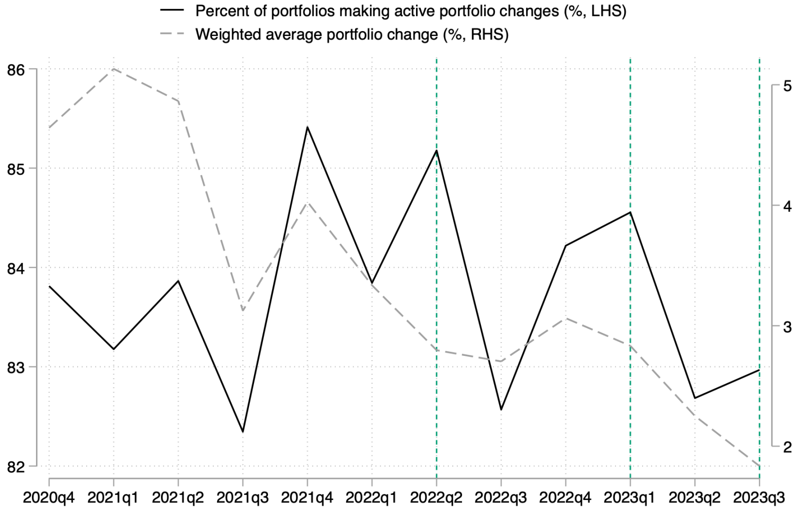
where ω_{ijt}^{CF} is what the share would have been without any buys or sells (i.e. due to valuation)

Overall changes include the effect of valuation changes

$$\text{Overall change}_{ijt} = \frac{\omega_{ijt}}{\omega_{ij,t-1}} - 1$$

On average, most portfolios are active in each quarter

84 percent of portfolios make some active change (e.g. buy, sell); average change is 3.4% of portfolio value



Regression tests: Value-weighted portfolio share at t (mean: 15.9%)

Dummy dependent variable: Portfolio share at t

	(1)	(2)	(3)	(4)
$\mathbb{E}[r^{1Y}]$	-0.16			
	(0.22)			
$\mathbb{E}[r^{10Y}]$			-0.38	
			(0.47)	
$\mathbb{R}[r^{1Y}]$		-1.63**		-1.68**
		(0.77)		(0.70)
α^{1Y}		-0.10		
		(0.18)		
α^{10Y}				-0.29
				(0.50)
Asset class fixed effects	Y	Y	Y	Y
Respondent fixed effects	Y	Y	Y	Y
Observations	680	639	761	670
R-squared	0.65	0.66	0.65	0.66

Notes: Portfolio shares are value-weighted averages across portfolios managed by the same respondent. Regression observations are weighted by AUM. Standard errors clustered at the respondent level.

Portfolios change according to plan: active changes

Table: Active change in asset-class share, one quarter after survey (%)

Stated action	Mean	p25	p50	p75	SD	N
Increase	2.1	-0.6	-0.0	1.1	16.1	285
No Change	0.3	-0.7	0.0	0.6	9.9	248
Decrease	-0.6	-1.1	-0.0	0.1	19.3	82
Increase - Decrease	2.7	0.5	0.0	1.0	3.2	

Notes: This is calculated as the value weighted average of the deviations in asset class share from a counterfactual in which no active changes are made to holdings, across portfolios managed by each respondent. The observations are at the respondent-asset class-date level, and condition on respondents who also provided return expectations.

Regression tests: % active change (t to $t+1$)

Dependent variable: % change in asset class share (t to $t+1$)

	(1)	(2)	(3)	(4)
$\mathbb{E}[r^{1Y}]$	0.07			
	(0.04)			
$\mathbb{E}[r^{10Y}]$			-0.03	
			(0.33)	
$\mathbb{R}[r^{1Y}]$		-0.01		-0.53
		(0.15)		(0.66)
α^{1Y}		0.09*		
		(0.05)		
α^{10Y}				0.78*
				(0.41)
Asset class fixed effects	Y	Y	Y	Y
Respondent fixed effects	Y	Y	Y	Y
Observations	625	586	686	611
R-squared	0.56	0.55	0.38	0.40

Notes: Changes in shares are value-weighted averages of the active change in share, across portfolios managed by the same respondent. Regression observations are weighted by AUM. Standard errors clustered at the respondent level.

Stated plans are a strong instrument for short-run subjective alpha

Table: First stage regression

Dependent variable	$\mathbb{E}[r^{1Y}]$	$\mathbb{E}[r^{10Y}]$	$\mathbb{R}[r^{1Y}]$	α^{1Y}	α^{10Y}
	(1)	(2)	(3)	(4)	(5)
Increase dummy	1.74***	0.02	-0.48**	2.22***	0.50**
	(0.46)	(0.24)	(0.23)	(0.47)	(0.24)
Decrease dummy	-1.79***	-0.28	0.58	-2.37***	-0.86**
	(0.68)	(0.37)	(0.39)	(0.73)	(0.39)
Asset class fixed effect	Y	Y	Y	Y	Y
Respondent×date fixed effect	Y	Y	Y	Y	Y
Observations	631	631	631	631	631
R-squared	0.51	0.82	0.81	0.63	0.55
F-stat	13.2	0.4	4.9	21.7	7.4

High implied sensitivity of trading to beliefs

Table: OLS and 2SLS

Dependent variable: % overall change in asset class share (t to $t+1$)	OLS (1)	(2)	α^{1Y} instrumented using stated plans (3)	(4)
α^{1Y}	0.250*	0.260*	0.808*	0.942*
	(0.131)	(0.138)	(0.425)	(0.509)
$\mathbb{R}[r^{1Y}]$		0.070		0.480
		(0.275)		(0.408)
Asset class fixed effect	Y	Y	Y	Y
Respondent×date fixed effect	Y	Y	Y	Y
Observations	577	577	577	577
R-squared	0.30	0.30		
First stage F-stat			25.1	19.1

Notes: Changes in shares are value-weighted averages of the overall change in share, across portfolios managed by the same respondent. Columns (3) and (4) use both plans to increase and plans to decrease as instruments.

Past returns and expectations

Dependent variable:	Expected 1Y return		Expected 10Y return		Discount rate	
	(1)	(2)	(3)	(4)	(5)	(6)
Past return	0.194	0.132	-0.174	-0.189	-0.355*	-0.328
	(0.251)	(0.231)	(0.137)	(0.137)	(0.206)	(0.208)
Asset class fixed effects	Y	Y	Y	Y	Y	Y
Time fixed effects		Y		Y		Y
Observations	620	620	695	695	635	635
R-squared	0.05	0.13	0.61	0.61	0.40	0.41

Notes: Return is over the 12 months prior to the survey at the asset class level, winsorized at the top and bottom 0.5 percent, and then standardized to have mean 0 and standard deviation 1 within each asset class and date.

Summary statistics

	Mean	p25	p50	p75	S.D.	N
Asset class level:						
$\mathbb{E}[r^{1Y}]_{ijt}$	5.3	3	5	8	5.7	943
$\mathbb{E}[r^{10Y}]_{ijt}$	8.5	5	8	10	4.6	1042
$\mathbb{R}[r^{1Y}]$	7.7	5	7	10	5.1	953
$\mathbb{E}[r_{ij}\|Recession]$	-10.4	-20	-10	0	17.6	966
Economy level:						
$\mathbb{E}[\text{GDP}^{1Y}]_{ijt}$	1.4	0	2	3	2.2	154
$\mathbb{E}[\text{GDP}^{10Y}]_{ijt}$	3.0	2	3	3	1.4	157
$\mathbb{E}[\text{Inflation}^{1Y}]_{ijt}$	4.5	4	4	5	1.8	161
$\mathbb{E}[\text{Inflation}^{10Y}]_{ijt}$	2.9	2	3	3	1.3	162
$P(recession)^{1Y}_{it}$	58.4	50	60	70	20.1	170

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