Managerial Miscalibration

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OBJECTIVE

EXPECTATIONS OF EXECUTIVES

- ▶ Understand how top executives form expectations and whether they are overconfident
- ▶ Focus on miscalibration, a form of overconfidence
- ▶ Explore the distribution of expected outcomes
- ▶ All executives predict the same objects: S&P 500 returns in 1 and 10 years
- ▶ Measure executives' miscalibration directly through their predictions
- ▶ Compare to miscalibration about S&P 500 to miscalibration about firms' projects
- ▶ Study firm policies with respect to executives' miscalibration

MAIN RESULTS

- ▶ 10-year panel with 13,300 CFOs' expected S&P500 returns and **80%** confidence intervals
- ▶ 1-year and 10-year forecasts

- ▶ Severe miscalibration: CFOs' probability distributions are too narrow
- ▶ Realized returns are within confidence intervals only **36%** of the time
- ▶ Confidence intervals expand downwards during times of high market uncertainty

- ▶ Executives' stock market miscalibration is correlated with miscalibration about own firm prospects
- ▶ Firms with miscalibrated executives pursue aggressive investment and debt policies
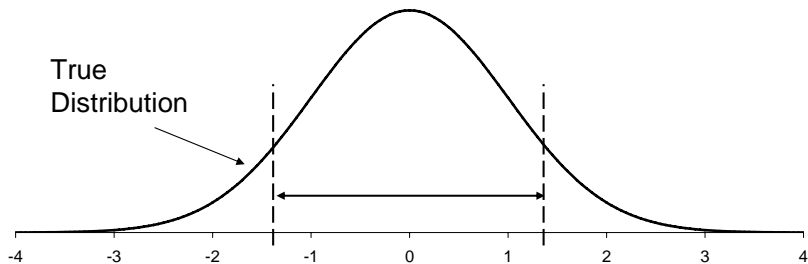
DATA

SURVEYED EXECUTIVES

- ▶ 40 quarterly surveys (2001Q2-2011Q1)
- ▶ Population: CFOs and top financial executives
- ▶ Response rate: 5-8%
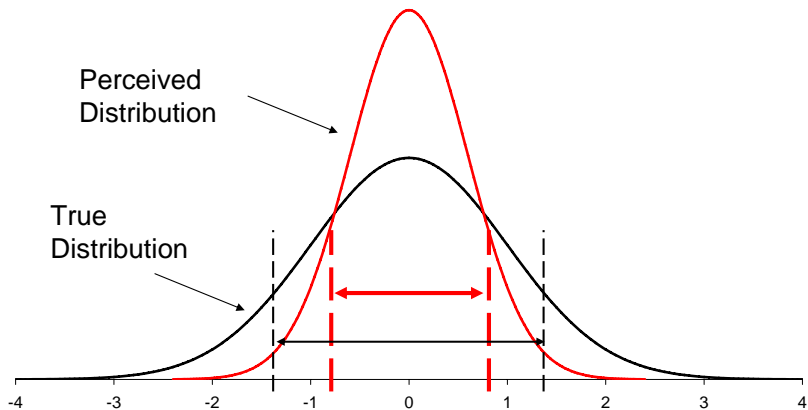- ▶ 13,346 responses ($\sim$330 responses/quarter)

FIRMS

- ▶ 32% of responses from self-identified public firms
- ▶ 3,335 matched to CRSP (1,061 unique firms)
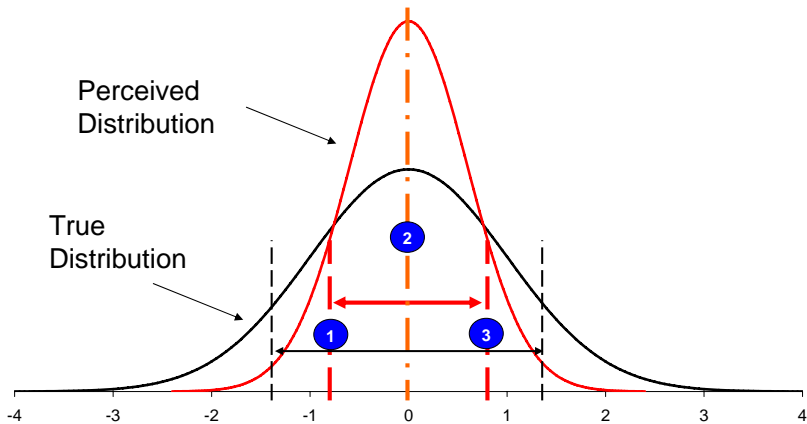- ▶ Large firms: 61% belong to Q5 Compustat sales; 20% belong to Q4

METHOD OF MEASURING MISCALIBRATION

True Distribution

Perceived
Distribution

True
Distribution

-4 -3 -2 -1 0 1 2 3 4

SURVEY TO ELICIT PERCEIVED DISTRIBUTION OF RETURNS

10. On November 10, 2006 the annual yield on 10-yr treasury bonds was 4.6%. Please complete the following:

a. Over the <u>next 10 years</u>, I expect the <u>average annual</u> S&P 500 return will be:

Worst Case: There is a 1-in-10 chance the actual average return will be less than:	**Best Guess**: I expect the return to be:	Best Case: There is a 1-in-10 chance the actual average return will be greater than:
	%	

b. During the <u>next year</u>, I expect the S&P 500 return will be:

| Worst Case: There is a 1-in-10 chance the actual return will be less than:	**Best Guess**: I expect the return to be:	Best Case: There is a 1-in-10 chance the actual return will be greater than:
	%	

▶ Imputed volatility based on Keefer and Bodily (1983):
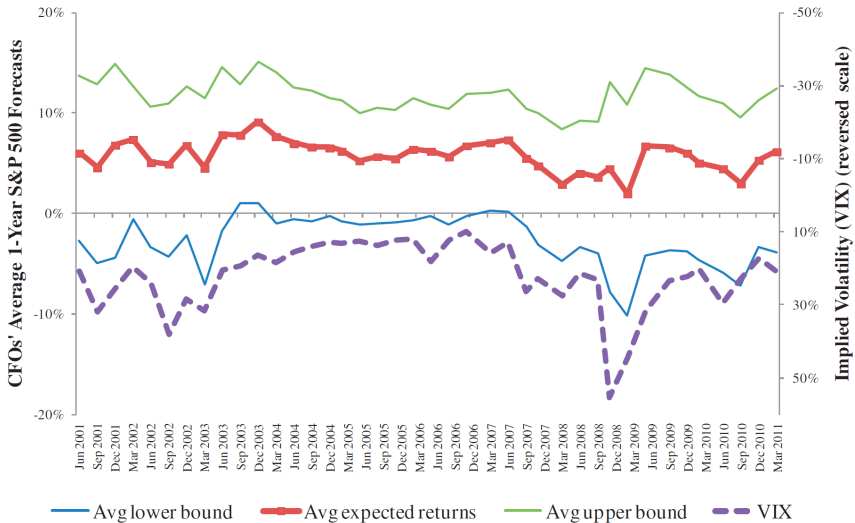
$$\sigma = \frac{P_{90} - P_{10}}{2.65}$$

▶ While historical data shows that 80% confidence interval should be 42.2% wide, CFOs provide confidence intervals with an average width of 14.5% only.

Historical Return Dist.
CFO Belief Dist.

Returns (%)
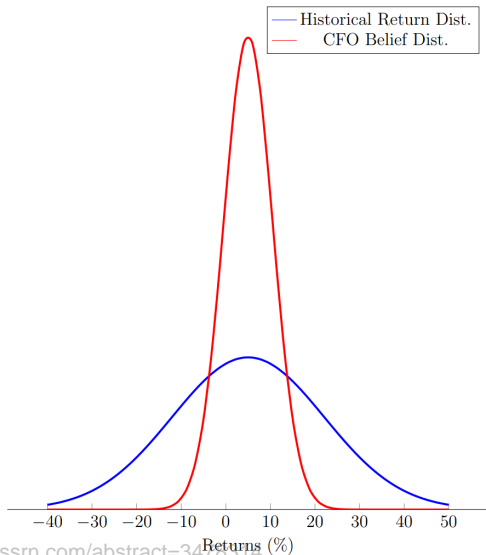
% HITTING CONFIDENCE INTERVAL
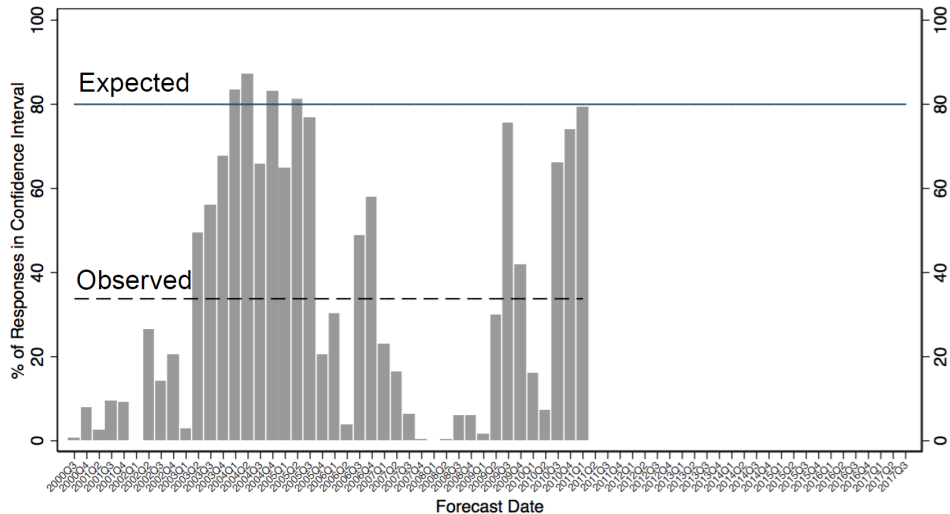
SENSITIVITY OF LOWER CONFIDENCE BOUND

MISCALIBRATION AND FIRM POLICIES

Dependent variable:	Investment intensity (%)		Leverage (%)	
	(1)	(2)	(3)	(4)
Miscalibration ST	0.235		1.324***	
	(0.257)		(0.358)	
Optimism ST	0.336		-0.027	
	(0.384)		(0.454)	
Miscalibration LT		0.600**		0.538
		(0.242)		(0.450)
Optimism LT		0.837*		0.227
		(0.418)		(0.632)
Firm characteristics	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Survey Date FE	Yes	Yes	Yes	Yes
Observations	2,547	2,511	2,601	2,565
Adj R^2	0.114	0.116	0.316	0.310

OUT-OF-SAMPLE VALIDATION

▶ Boutros, Ben-David, Graham, Harvey, Payne, 2019, The Persistence of Miscalibration, Working Paper

▶ Extends analysis to 2017
▶ Realized returns hit confidence intervals only 24% of the time

▶ Study examines learning rate of CFOs making multiple predictions
▶ CFOs adjust their confidence intervals after realized return "misses" their prior confidence interval
▶ Adjustment, however, is small and CFOs remain highly miscalibrated even after many iterations
▶ Feedback, therefore, appears to have limited effect in this context

SLOW AND DECELERATING LEARNING RATE

▶ Figure shows the average adjustment following a "miss" in previous forecast. Dashed horizontal line shows average change in confidence interval across forecasters who missed.

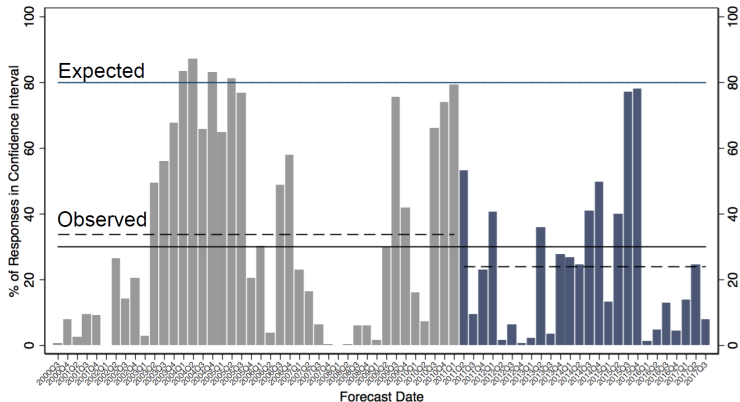▶ By the 9th quarter of learning, no further learning appears to occur
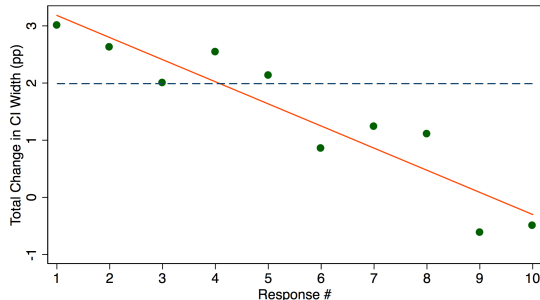
Source: Boutros, Ben-David, Graham, Harvey, Payne, 2019, The Persistence of Miscalibration, Working Paper

▶ Since 2011, realized returns hit 80% confidence intervals only **24%** of the time