THE OHIO STATE UNIVERSITY
FISHER COLLEGE OF BUSINESS

From Numbers to Words: Breaking Down Institutional Beliefs

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Discussant: **Andrei S. Gonçalves**

2026 EFA

Outline

Capital Market Assumptions (CMAs)

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		Compound Return 2026 (%)	Arithmetic Return 2026 (%)	Annualized Volatility (%)	U.S. Inflatic	U.S. Cash	U.S. Intermediate Treasuries	U.S. Long Treasuries	TIPS	U.S. Aggregate Bonds	U.S. Securitized	U.S. Short Duration Government/Credi	U.S. Long Duration Government/Credit	U.S. Inv Grade Corporate Bonds	U.S. Long Corporate Bonds	U.S. High Yield Bonds	U.S. Leveraged Loans	World Government Bonds hedged	World Government Bonds	World ex-U.S. Government Bonds hedged	World ex-U.S. Government Bonds	Emerging Markets Sovereign Debt	Emerging Markets Local Currency Debt	Emerging Markets Corporate Bonds
Fixed income	U.S. Inflation	2.50	2.52	1.77	1.00																			
	U.S. Cash	3.10	3.10	0.67	-0.03	1.00																		
	U.S. Intermediate Treasuries	4.00	4.06	3.48	-0.27	0.20	1.00																	
	U.S. Long Treasuries	4.90	5.69	13.02	-0.22	0.05	0.84	1.00																
	TIPS	4.30	4.47	5.88	-0.03	0.02	0.63	0.61	1.00															
	U.S. Aggregate Bonds	4.80	4.91	4.76	-0.24	0.10	0.85	0.85	0.76	1.00														
	U.S. Securitized	5.20	5.28	4.19	-0.22	0.10	0.79	0.75	0.70	0.94	1.00													
	U.S. Short Duration Government/Credit	4.00	4.01	1.63	-0.29	0.32	0.85	0.61	0.63	0.82	0.77	1.00												
	U.S. Long Duration Government/Credit	5.20	5.81	11.45	-0.22	0.04	0.75	0.91	0.70	0.94	0.82	0.67	1.00											
	U.S. Inv Grade Corporate Bonds	5.20	5.46	7.39	-0.19	0.02	0.55	0.62	0.73	0.87	0.77	0.67	0.86	1.00										
	U.S. Long Corporate Bonds	5.40	6.10	12.28	-0.19	0.01	0.54	0.69	0.68	0.87	0.75	0.61	0.92	0.97	1.00									
	U.S. High Yield Bonds	6.10	6.46	8.74	-0.01	-0.03	0.03	0.04	0.51	0.41	0.41	0.31	0.36	0.67	0.61	1.00								
	U.S. Leveraged Loans	6.60	6.88	7.70	0.15	-0.04	-0.34	-0.26	0.18	0.05	0.06	-0.04	0.05	0.36	0.32	0.76	1.00							
	World Government Bonds hedged	4.30	4.38	4.02	-0.29	0.12	0.87	0.87	0.64	0.88	0.80	0.74	0.85	0.68	0.70	0.17	-0.17	1.00						
	World Government Bonds	4.30	4.55	7.27	-0.18	0.13	0.77	0.68	0.69	0.82	0.74	0.76	0.76	0.71	0.70	0.35	-0.03	0.75	1.00					
	World ex-U.S. Government Bonds hedged	4.20	4.27	3.95	-0.30	0.12	0.74	0.74	0.59	0.79	0.71	0.65	0.77	0.66	0.67	0.24	-0.07	0.96	0.68	1.00				
	World ex-U.S. Government Bonds	4.30	4.69	9.06	-0.17	0.12	0.68	0.58	0.66	0.76	0.69	0.71	0.69	0.70	0.68	0.42	0.04	0.67	0.98	0.63	1.00			
	Emerging Markets Sovereign Debt	6.30	6.66	8.83	-0.16	0.03	0.34	0.38	0.63	0.67	0.61	0.51	0.64	0.83	0.79	0.76	0.46	0.47	0.62	0.49	0.65	1.00		
	Emerging Markets Local Currency Debt	6.70	7.38	12.12	-0.06	0.11	0.26	0.22	0.47	0.50	0.44	0.44	0.46	0.63	0.60	0.62	0.35	0.30	0.63	0.31	0.69	0.81	1.00	

Capital Market Assumptions (CMAs)

		Compound Return 2026 (%)	Arithmetic Return 2026 (%)	Annualized Volatility (%)	U.S. Inflatic	U.S. Cash	U.S. Intermediate Treasuries	U.S. Long Treasuries	TIPS	U.S. Aggregate Bonds	U.S. Securitized	U.S. Short Duration Government/Credi	U.S. Long Duration Government/Credit	U.S. Inv Grade Corporate Bonds	U.S. Long Corporate Bonds	U.S. High Yield Bonds	U.S. Leveraged Loans	World Government Bonds hedged	World Government Bonds	World ex-U.S. Government Bonds hedged	World ex-U.S. Government Bonds	Emerging Markets Sovereign Debt	Emerging Markets Local Currency Debt	Emerging Markets Corporate Bonds
Fixed income	U.S. Inflation	2.50	2.52	1.77	1.00																			
	U.S. Cash	3.10	3.10	0.67	-0.03	1.00																		
	U.S. Intermediate Treasuries	4.00	4.06	3.48	-0.27	0.20	1.00																	
	U.S. Long Treasuries	4.90	5.69	13.02	-0.22	0.05	0.84	1.00																
	TIPS	4.30	4.47	5.88	-0.03	0.02	0.63	0.61	1.00															
	U.S. Aggregate Bonds	4.80	4.91	4.76	-0.24	0.10	0.85	0.85	0.76	1.00														
	U.S. Securitized	5.20	5.28	4.19	-0.22	0.10	0.79	0.75	0.70	0.94	1.00													
	U.S. Short Duration Government/Credit	4.00	4.01	1.63	-0.29	0.32	0.85	0.61	0.63	0.82	0.77	1.00												
	U.S. Long Duration Government/Credit	5.20	5.81	11.45	-0.22	0.04	0.75	0.91	0.70	0.94	0.82	0.67	1.00											
	U.S. Inv Grade Corporate Bonds	5.20	5.46	7.39	-0.19	0.02	0.55	0.62	0.73	0.87	0.77	0.67	0.86	1.00										
	U.S. Long Corporate Bonds	5.40	6.10	12.28	-0.19	0.01	0.54	0.69	0.68	0.87	0.75	0.61	0.92	0.97	1.00									
	U.S. High Yield Bonds	6.10	6.46	8.74	-0.01	-0.03	0.03	0.04	0.51	0.41	0.41	0.31	0.36	0.67	0.61	1.00								
	U.S. Leveraged Loans	6.60	6.88	7.70	0.15	-0.04	-0.34	-0.26	0.18	0.05	0.06	-0.04	0.05	0.36	0.32	0.76	1.00							
	World Government Bonds hedged	4.30	4.38	4.02	-0.29	0.12	0.87	0.87	0.64	0.88	0.80	0.74	0.85	0.68	0.70	0.17	-0.17	1.00						
	World Government Bonds	4.30	4.55	7.27	-0.18	0.13	0.77	0.68	0.69	0.82	0.74	0.76	0.76	0.71	0.70	0.35	-0.03	0.75	1.00					
	World ex-U.S. Government Bonds hedged	4.20	4.27	3.95	-0.30	0.12	0.74	0.74	0.59	0.79	0.71	0.65	0.77	0.66	0.67	0.24	-0.07	0.96	0.68	1.00				
	World ex-U.S. Government Bonds	4.30	4.69	9.06	-0.17	0.12	0.68	0.58	0.66	0.76	0.69	0.71	0.69	0.70	0.68	0.42	0.04	0.67	0.98	0.63	1.00			
	Emerging Markets Sovereign Debt	6.30	6.66	8.83	-0.16	0.03	0.34	0.38	0.63	0.67	0.61	0.51	0.64	0.83	0.79	0.76	0.46	0.47	0.62	0.49	0.65	1.00		
	Emerging Markets Local Currency Debt	6.70	7.38	12.12	-0.06	0.11	0.26	0.22	0.47	0.50	0.44	0.44	0.46	0.63	0.60	0.62	0.35	0.30	0.63	0.31	0.69	0.81	1.00	

Capital Market Assumptions (CMAs)

		Annualized Volatility (%)	Arithmetic Return 2026 (%)	Compound Return 2026 (%)	U.S. Inflatic	U.S. Cash	U.S. Intermediate Treasuries	U.S. Long Treasuries	TIPS	U.S. Aggregate Bonds	U.S. Securitized	U.S. Short Duration Government/Credi	U.S. Long Duration Government/Credit	U.S. Inv Grade Corporate Bonds	U.S. Long Corporate Bonds	U.S. High Yield Bonds	U.S. Leveraged Loans	World Government Bonds hedged	World Government Bonds	World ex-U.S. Government Bonds hedged	World ex-U.S. Government Bonds	Emerging Markets Sovereign Debt	Emerging Markets Local Currency Debt	Emerging Markets Corporate Bonds
Fixed income	U.S. Inflation	2.50	2.52	1.77	1.00																			
	U.S. Cash	3.10	3.10	0.67	-0.03	1.00																		
	U.S. Intermediate Treasuries	4.00	4.06	3.48	-0.27	0.20	1.00																	
	U.S. Long Treasuries	4.90	5.69	13.02	-0.22	0.05	0.84	1.00																
	TIPS	4.30	4.47	5.88	-0.03	0.02	0.63	0.61	1.00															
	U.S. Aggregate Bonds	4.80	4.91	4.76	-0.24	0.10	0.85	0.85	0.76	1.00														
	U.S. Securitized	5.20	5.28	4.19	-0.22	0.10	0.79	0.75	0.70	0.94	1.00													
	U.S. Short Duration Government/Credit	4.00	4.01	1.63	-0.29	0.32	0.85	0.61	0.63	0.82	0.77	1.00												
	U.S. Long Duration Government/Credit	5.20	5.81	11.45	-0.22	0.04	0.75	0.91	0.70	0.94	0.82	0.67	1.00											
	U.S. Inv Grade Corporate Bonds	5.20	5.46	7.39	-0.19	0.02	0.55	0.62	0.73	0.87	0.77	0.67	0.86	1.00										
	U.S. Long Corporate Bonds	5.40	6.10	12.28	-0.19	0.01	0.54	0.69	0.68	0.87	0.75	0.61	0.92	0.97	1.00									
	U.S. High Yield Bonds	6.10	6.46	8.74	-0.01	-0.03	0.03	0.04	0.51	0.41	0.41	0.31	0.36	0.67	0.61	1.00								
	U.S. Leveraged Loans	6.60	6.88	7.70	0.15	-0.04	-0.34	-0.26	0.18	0.05	0.06	-0.04	0.05	0.36	0.32	0.76	1.00							
	World Government Bonds hedged	4.30	4.38	4.02	-0.29	0.12	0.87	0.87	0.64	0.88	0.80	0.74	0.85	0.68	0.70	0.17	-0.17	1.00						
	World Government Bonds	4.30	4.55	7.27	-0.18	0.13	0.77	0.68	0.69	0.82	0.74	0.76	0.76	0.71	0.70	0.35	-0.03	0.75	1.00					
	World ex-U.S. Government Bonds hedged	4.20	4.27	3.95	-0.30	0.12	0.74	0.74	0.59	0.79	0.71	0.65	0.77	0.66	0.67	0.24	-0.07	0.96	0.68	1.00				
	World ex-U.S. Government Bonds	4.30	4.69	9.06	-0.17	0.12	0.68	0.58	0.66	0.76	0.69	0.71	0.69	0.70	0.68	0.42	0.04	0.67	0.98	0.63	1.00			
	Emerging Markets Sovereign Debt	6.30	6.66	8.83	-0.16	0.03	0.34	0.38	0.63	0.67	0.61	0.51	0.64	0.83	0.79	0.76	0.46	0.47	0.62	0.49	0.65	1.00		
	Emerging Markets Local Currency Debt	6.70	7.38	12.12	-0.06	0.11	0.26	0.22	0.47	0.50	0.44	0.44	0.46	0.63	0.60	0.62	0.35	0.30	0.63	0.31	0.69	0.81	1.00	

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Fixed income	U.S. Inflation	2.50	2.52	1.77	1.00																			
	U.S. Cash	3.10	3.10	0.67	-0.03	1.00																		
	U.S. Intermediate Treasuries	4.00	4.06	3.48	-0.27	0.20	1.00																	
	U.S. Long Treasuries	4.90	5.69	13.02	-0.22	0.05	0.84	1.00																
	TIPS	4.30	4.47	5.88	-0.03	0.02	0.63	0.61	1.00															
	U.S. Aggregate Bonds	4.80	4.91	4.76	-0.24	0.10	0.85	0.85	0.76	1.00														
	U.S. Securitized	5.20	5.28	4.19	-0.22	0.10	0.79	0.75	0.70	0.94	1.00													
	U.S. Short Duration Government/Credit	4.00	4.01	1.63	-0.29	0.32	0.85	0.61	0.63	0.82	0.77	1.00												
	U.S. Long Duration Government/Credit	5.20	5.81	11.45	-0.22	0.04	0.75	0.91	0.70	0.94	0.82	0.67	1.00											
	U.S. Inv Grade Corporate Bonds	5.20	5.46	7.39	-0.19	0.02	0.55	0.62	0.73	0.87	0.77	0.67	0.86	1.00										
	U.S. Long Corporate Bonds	5.40	6.10	12.28	-0.19	0.01	0.54	0.69	0.68	0.87	0.75	0.61	0.92	0.97	1.00									
	U.S. High Yield Bonds	6.10	6.46	8.74	-0.01	-0.03	0.03	0.04	0.51	0.41	0.41	0.31	0.36	0.67	0.61	1.00								
	U.S. Leveraged Loans	6.60	6.88	7.70	0.15	-0.04	-0.34	-0.26	0.18	0.05	0.06	-0.04	0.05	0.36	0.32	0.76	1.00							
	World Government Bonds hedged	4.30	4.38	4.02	-0.29	0.12	0.87	0.87	0.64	0.88	0.80	0.74	0.85	0.68	0.70	0.17	-0.17	1.00						
	World Government Bonds	4.30	4.55	7.27	-0.18	0.13	0.77	0.68	0.69	0.82	0.74	0.76	0.76	0.71	0.70	0.35	-0.03	0.75	1.00					
	World ex-U.S. Government Bonds hedged	4.20	4.27	3.95	-0.30	0.12	0.74	0.74	0.59	0.79	0.71	0.65	0.77	0.66	0.67	0.24	-0.07	0.96	0.68	1.00				
	World ex-U.S. Government Bonds	4.30	4.69	9.06	-0.17	0.12	0.68	0.58	0.66	0.76	0.69	0.71	0.69	0.70	0.68	0.42	0.04	0.67	0.98	0.63	1.00			
	Emerging Markets Sovereign Debt	6.30	6.66	8.83	-0.16	0.03	0.34	0.38	0.63	0.67	0.61	0.51	0.64	0.83	0.79	0.76	0.46	0.47	0.62	0.49	0.65	1.00		
	Emerging Markets Local Currency Debt	6.70	7.38	12.12	0.06	0.11	0.26	0.22	0.47	0.50	0.44	0.44	0.46	0.63	0.60	0.62	0.35	0.30	0.63	0.31	0.69	0.81	1.00	

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	World ex-U.S. Government Bonds	4.30	4.69	9.06	-0.17	0.12	0.68	0.58	0.66	0.76	0.69	0.71	0.69	0.70	0.68	0.42	0.04	0.67	0.98	0.63	1.00			
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Literature: Properties of CMAs and Link to Allocations

- CMAs have "sensible" $\mathbb{E}[r]$ properties and are linked to allocations

  (e.g., Dahlquist, Ibert (2024, 2026); Couts, Gonçalves, Loudis (2023); Couts, Gonçalves, Liu, Loudis (2024))

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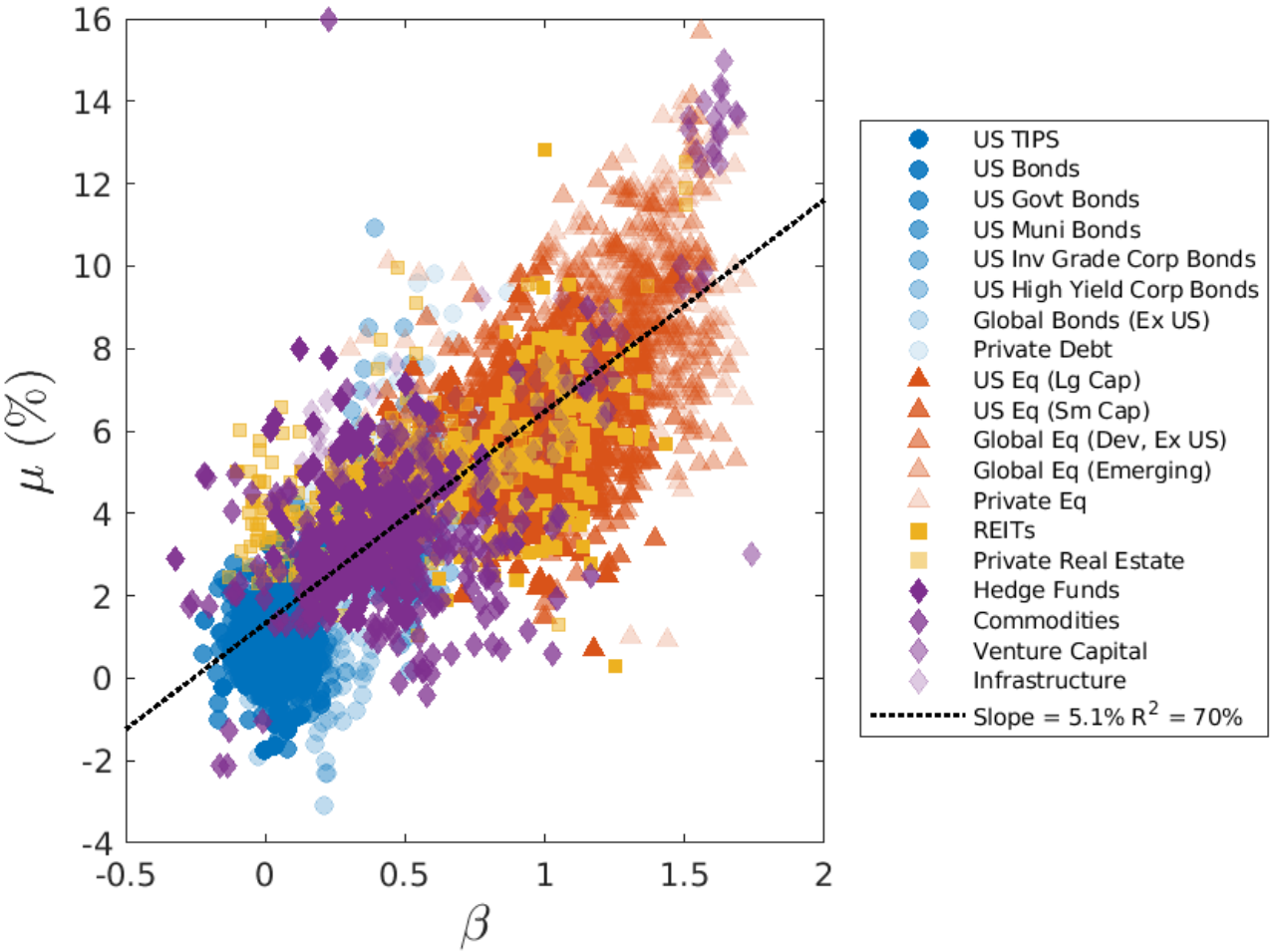

Source: Couts, Gonçalves, Loudis (2023)

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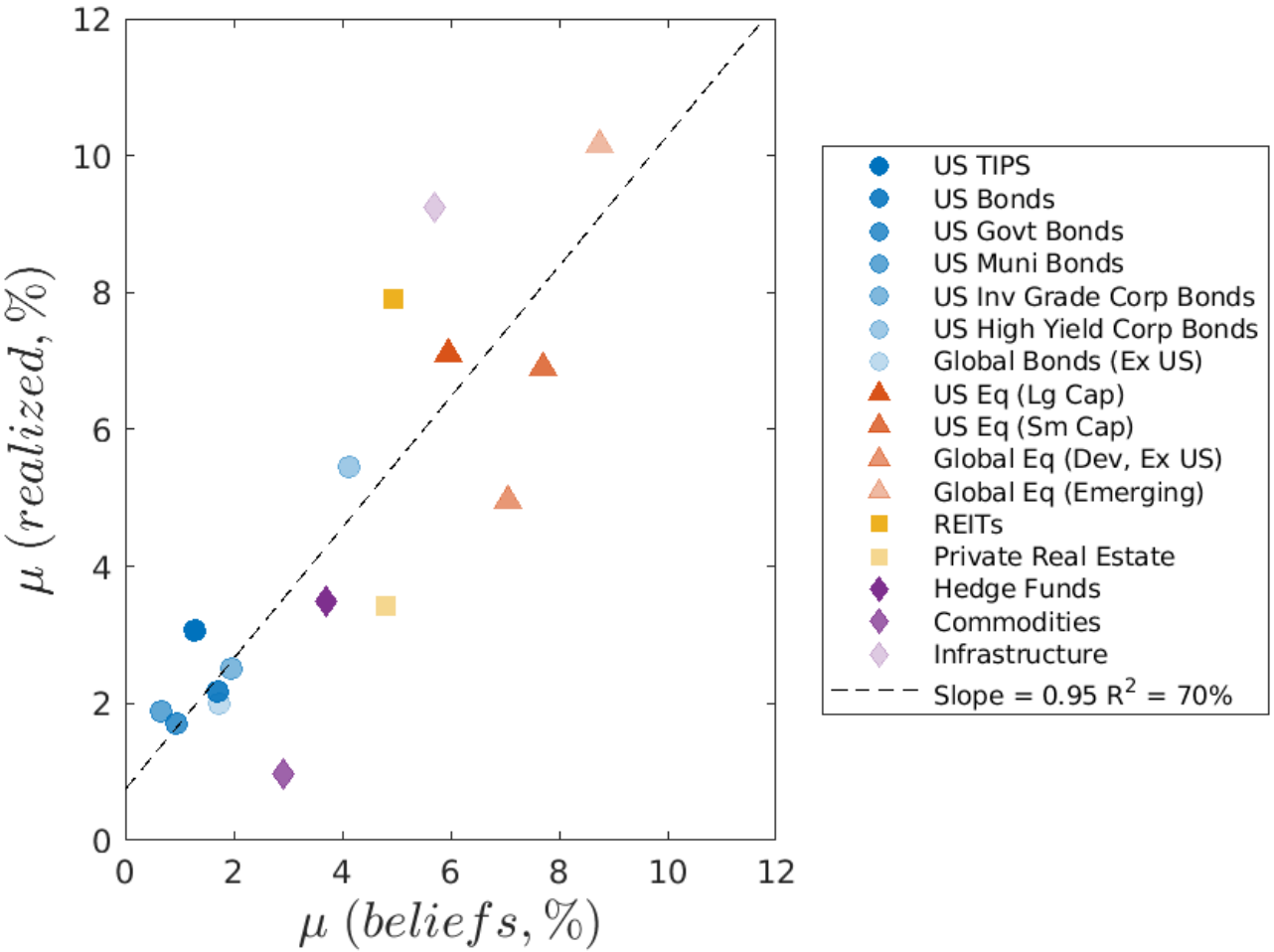

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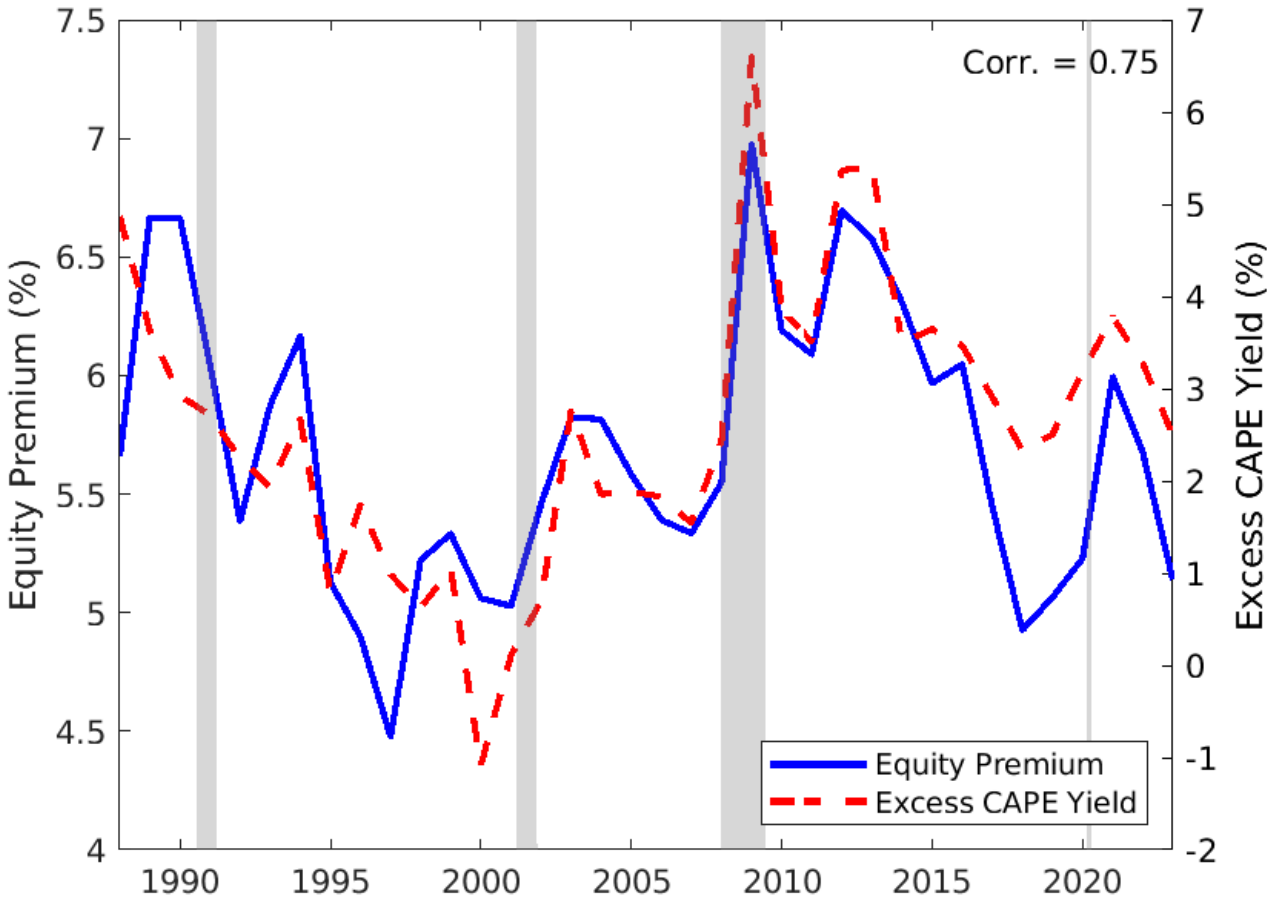

Source: Couts, Gonçalves, Loudis (2023)

Literature: Properties of CMAs and Link to Allocations

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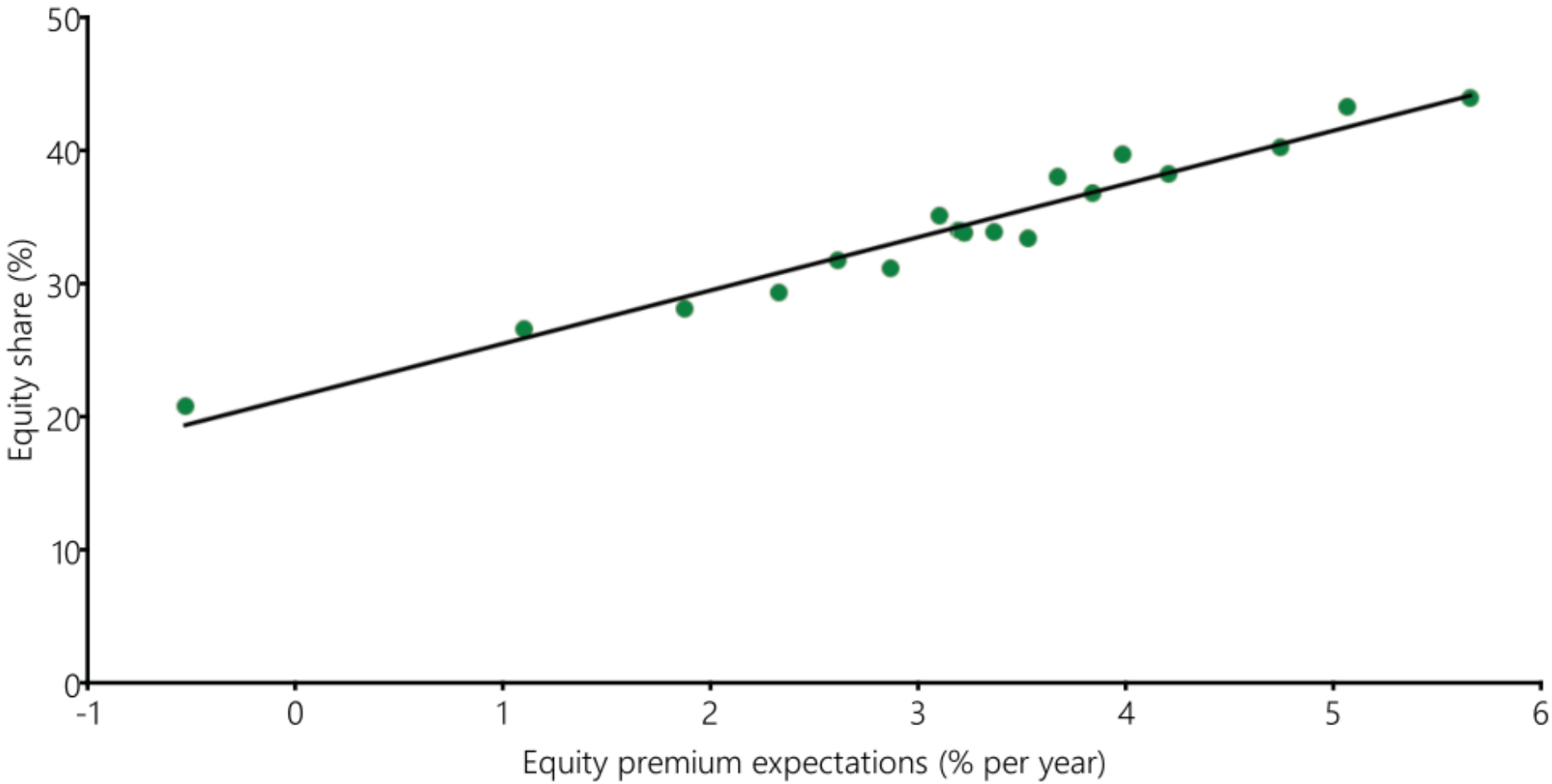

Source: Dahlquist, Ibert (2024) (see also Andonov, Couts, Gonçalves, Loudis, Rossi (2026))

This Paper: CMAs have Information Beyond Forecasts

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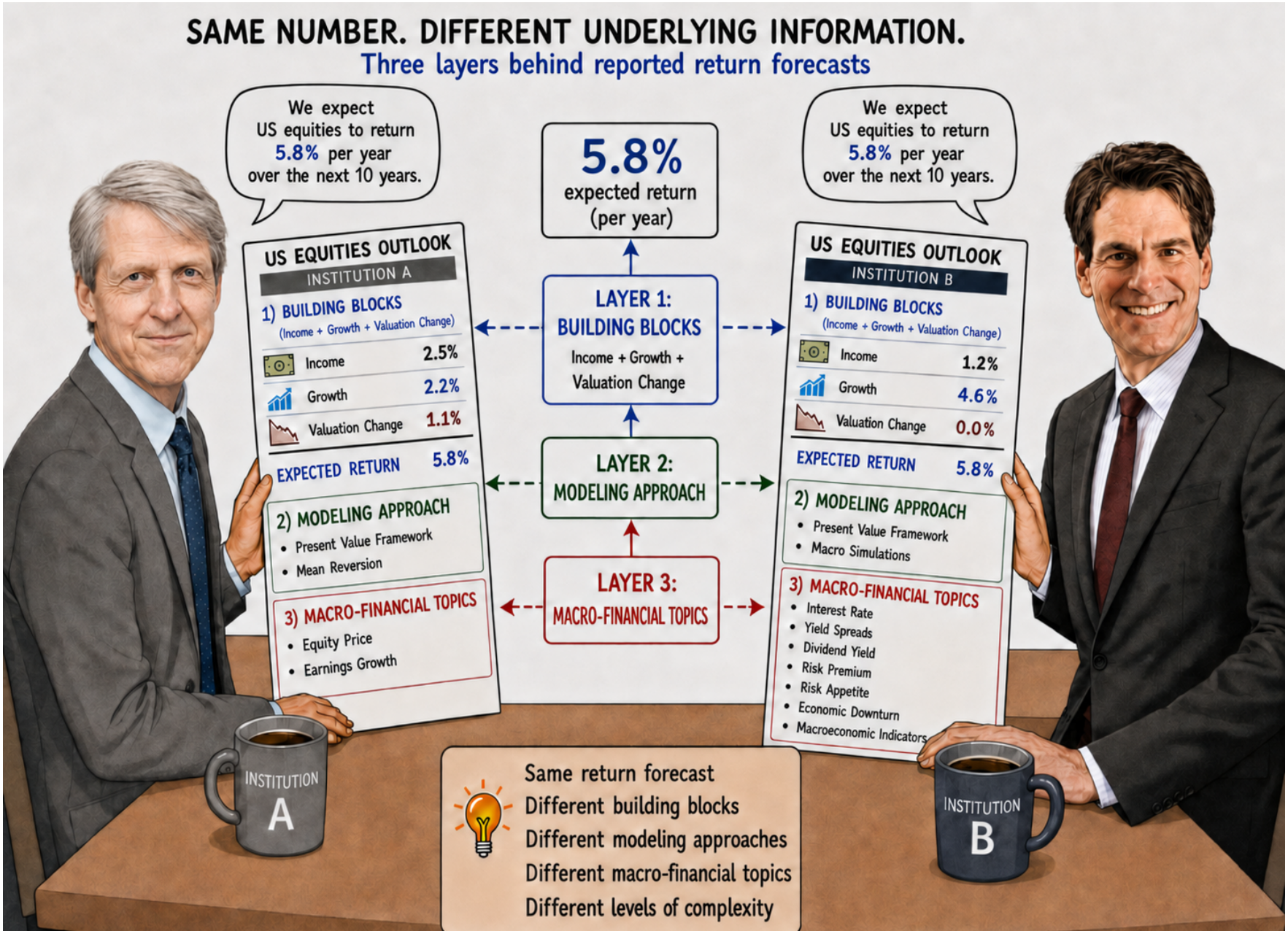

Outline

The Main Limitations

1) The Results on Cyclicality & Forecast Errors

- The sample period is too short to infer about on these properties

2) The Anchoring Result

- If I was building CMAs, I would anchor on consensus (to get it right)

3) The Centrality of Topics

- Topics that require more discussion may look more "central"

4) The Backward Looking Second Moments

- CMA second moments contain important forward looking information

(Limitation 1) The Results on Cyclicality & Forecast Errors

- Because these are long-term expectations, they are persistent
- So, 2008-2026 period is short to study cyclicality
- Specially given that the data concentrate in the 2016-2025 period

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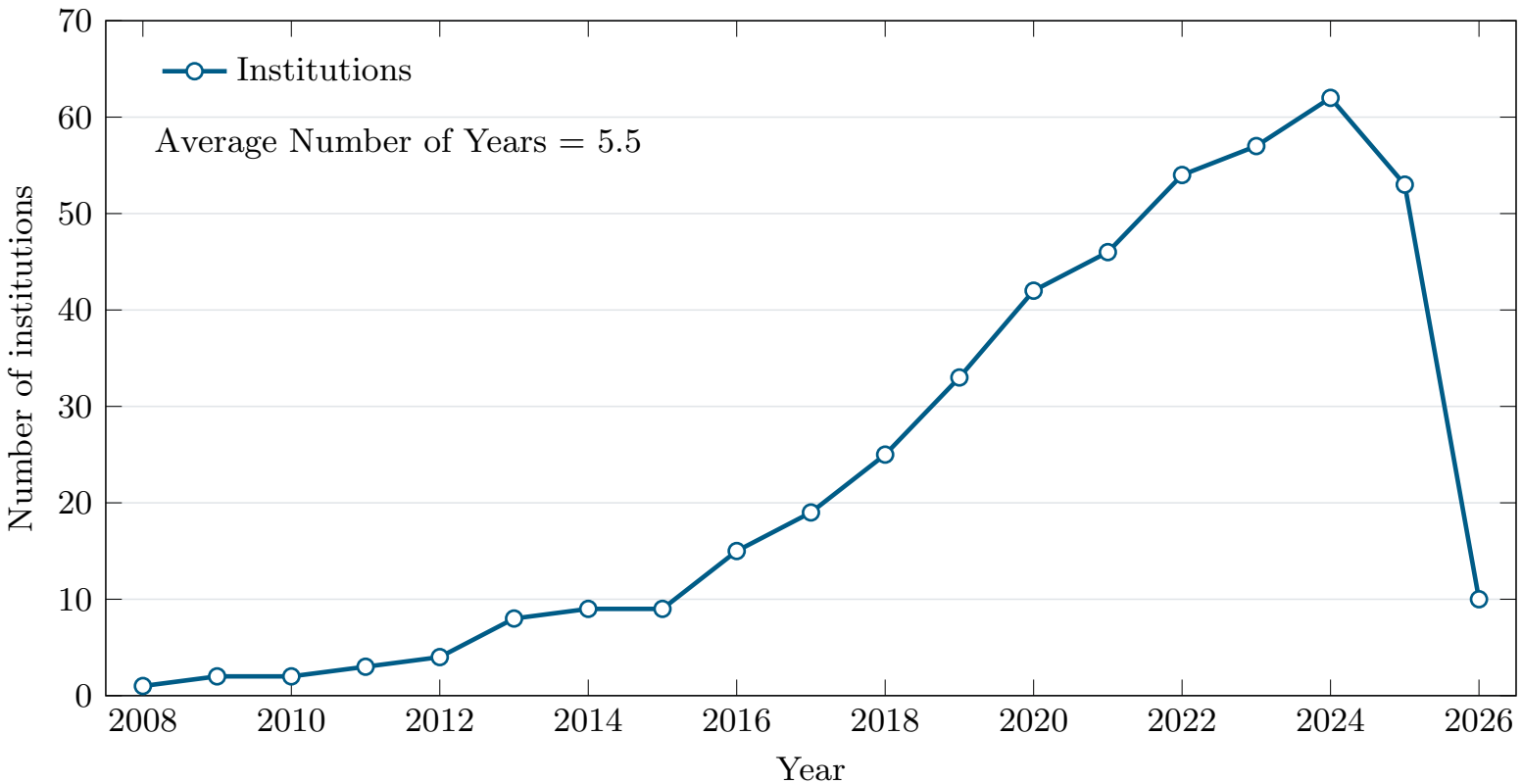

Source: Table A5 of Bastianello (2026)

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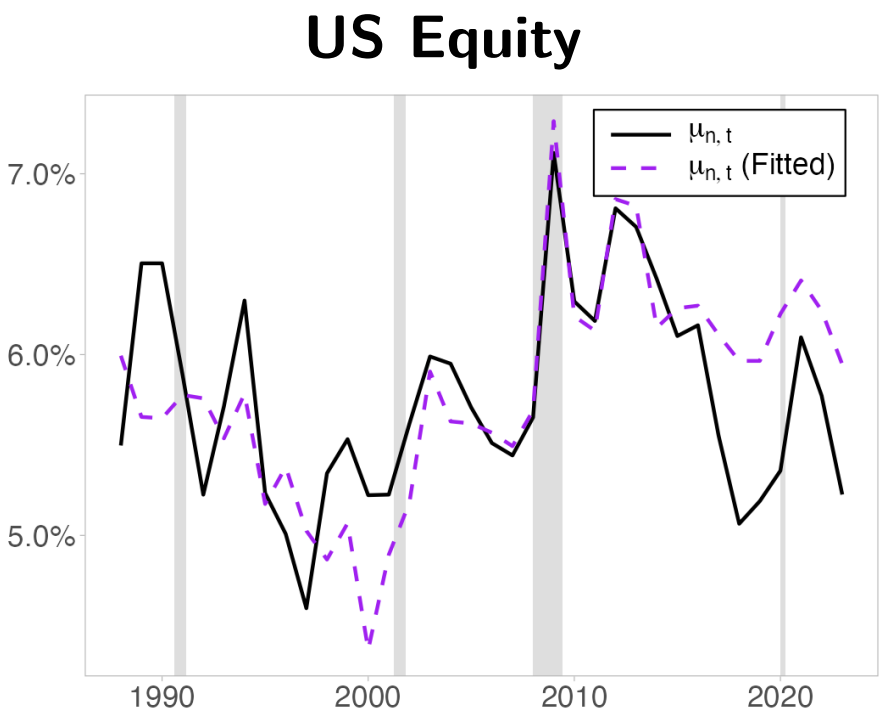

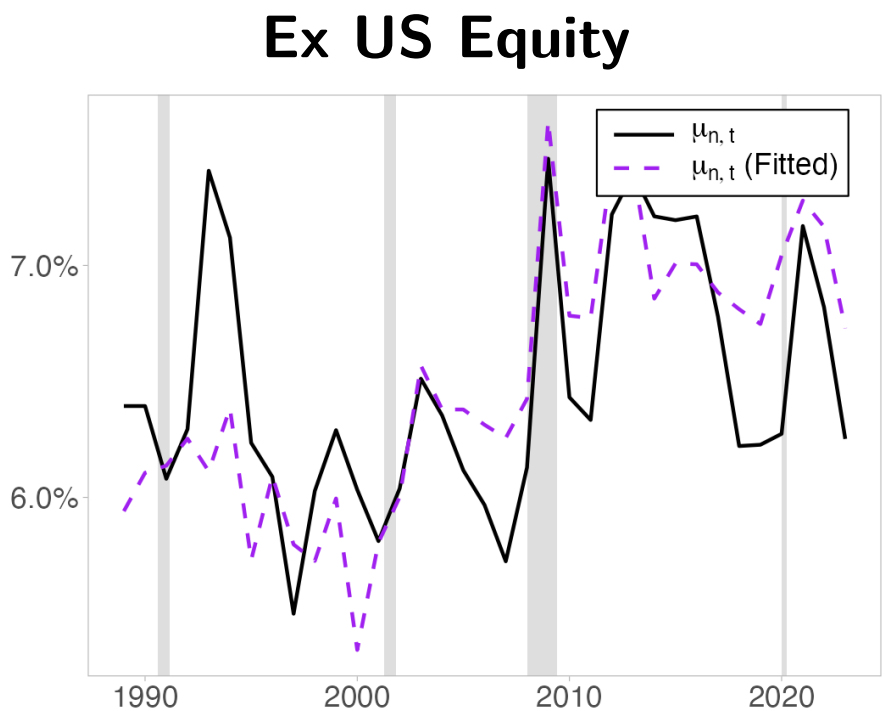

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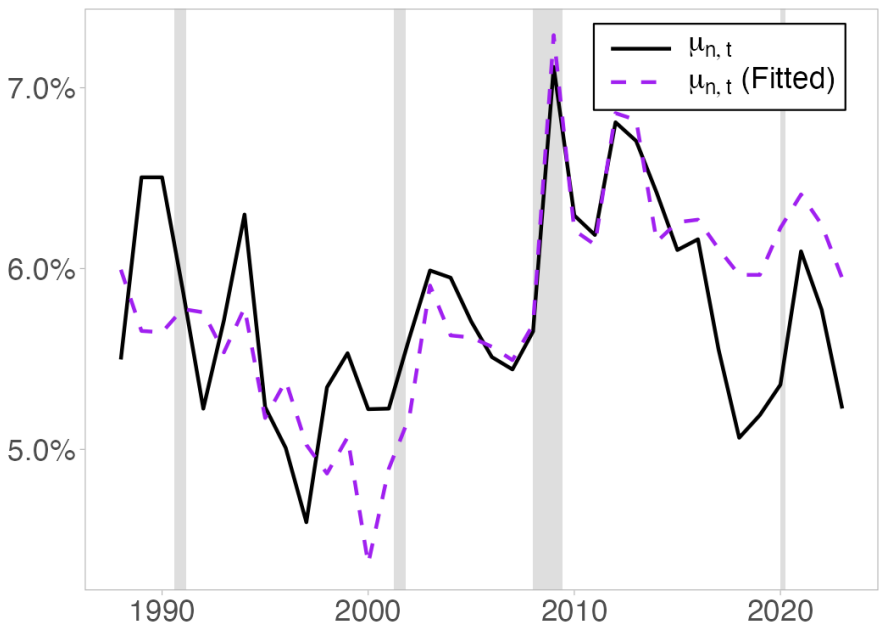
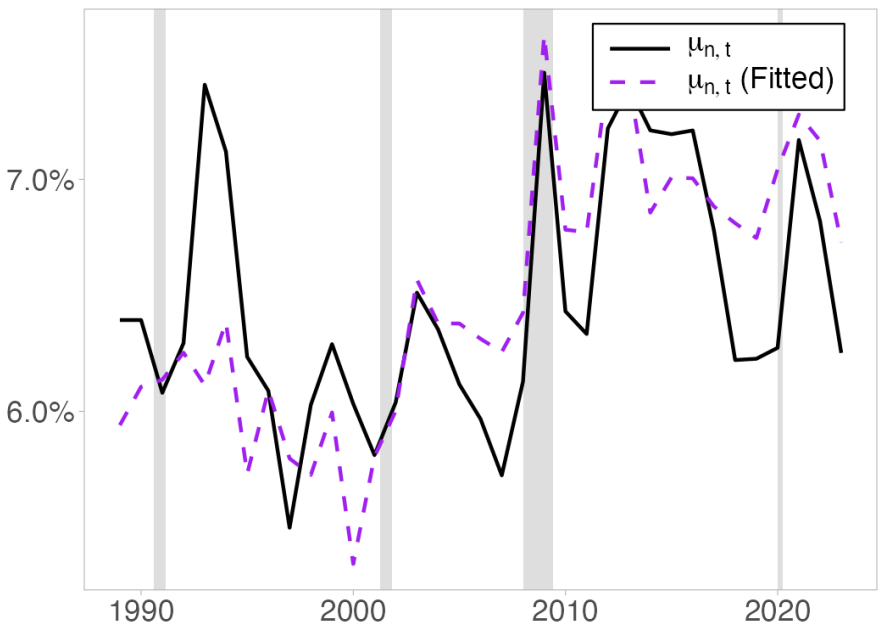
US Equity



Ex US Equity



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(Limitation 2) The Anchoring Result

$$\Delta F_{i,t} = \alpha_i + \beta \cdot (F_{i,t-1} - \overline{F}_{t-1}) + \delta \cdot \Delta \overline{F}_t + \epsilon_{i,t}$$

- $\beta < 0$ has two possible interpretations:
- You argue for (1): "their forecasts should tend to lie on the same side of the machine-learning benchmark as the recent consensus."
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$$r_{n,t \to t+h} = \text{Fixed Effects} + \text{Slope} \cdot \overline{\mu}_{n,t}^{(h)} + \epsilon_{n,t}$$

Source: Couts, Gonçalves, Loudis (2023)

- I like the anchoring evidence and don't mind interpretive ambiguity (but you need to be clear about the two potential interpretations)

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Variation =	**Across Asset Classes**	
Return Horizon =	**1-Year**	**3-Year**
Slope	0.79**	0.84***
(*se*)	(0.32)	(0.17)
R^2_{OOS}	10.6%	14.9%

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Variation =	**Across Asset Classes**		**Over Time**	
Return Horizon =	**1-Year**	**3-Year**	**1-Year**	**3-Year**
Slope	0.79**	0.84***	1.74***	1.11*
(*se*)	(0.32)	(0.17)	(0.58)	(0.60)
R^2_{OOS}	10.6%	14.9%	11.0%	11.9%

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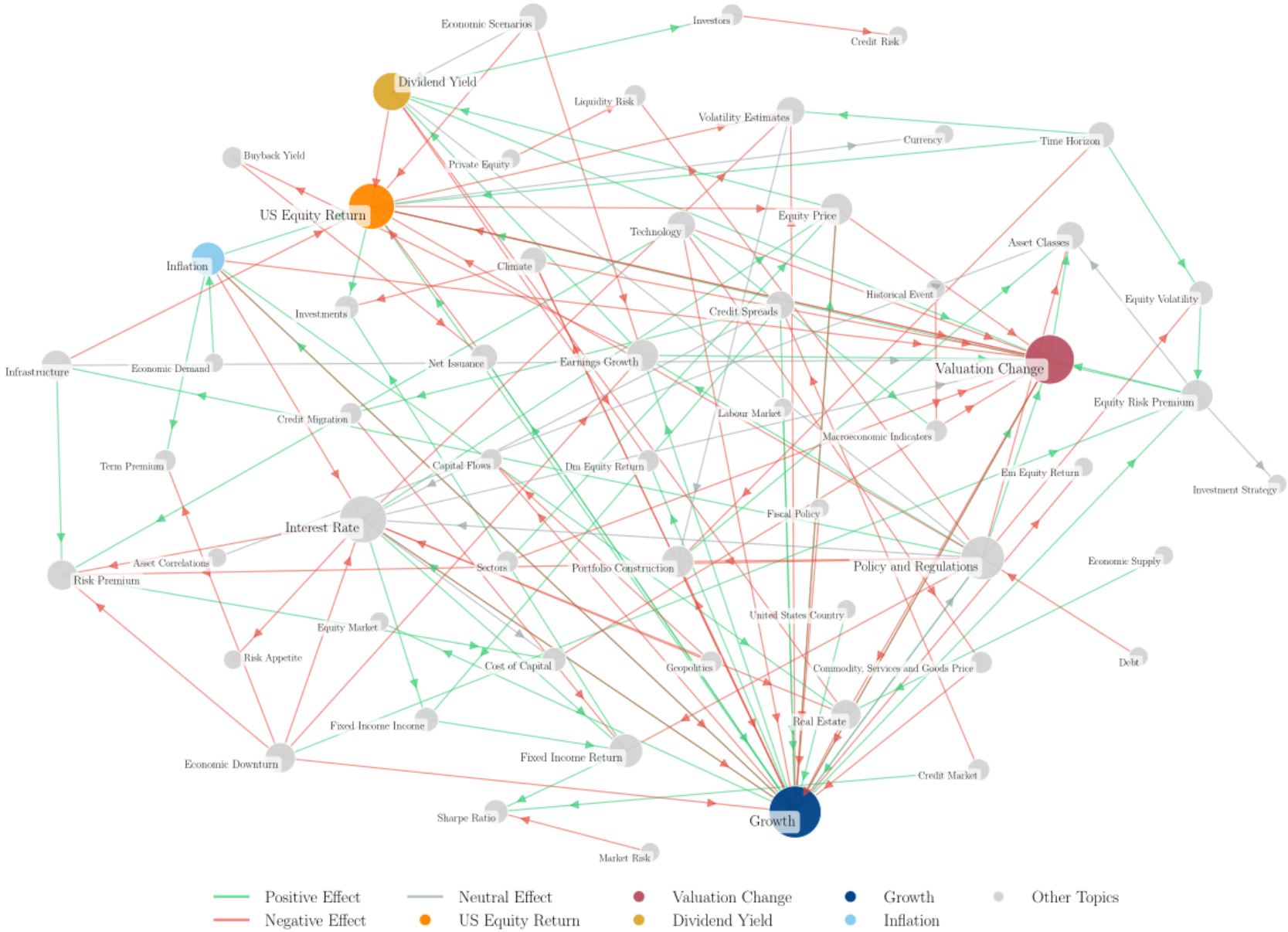

(Limitation 4) The Backward Looking Second Moments

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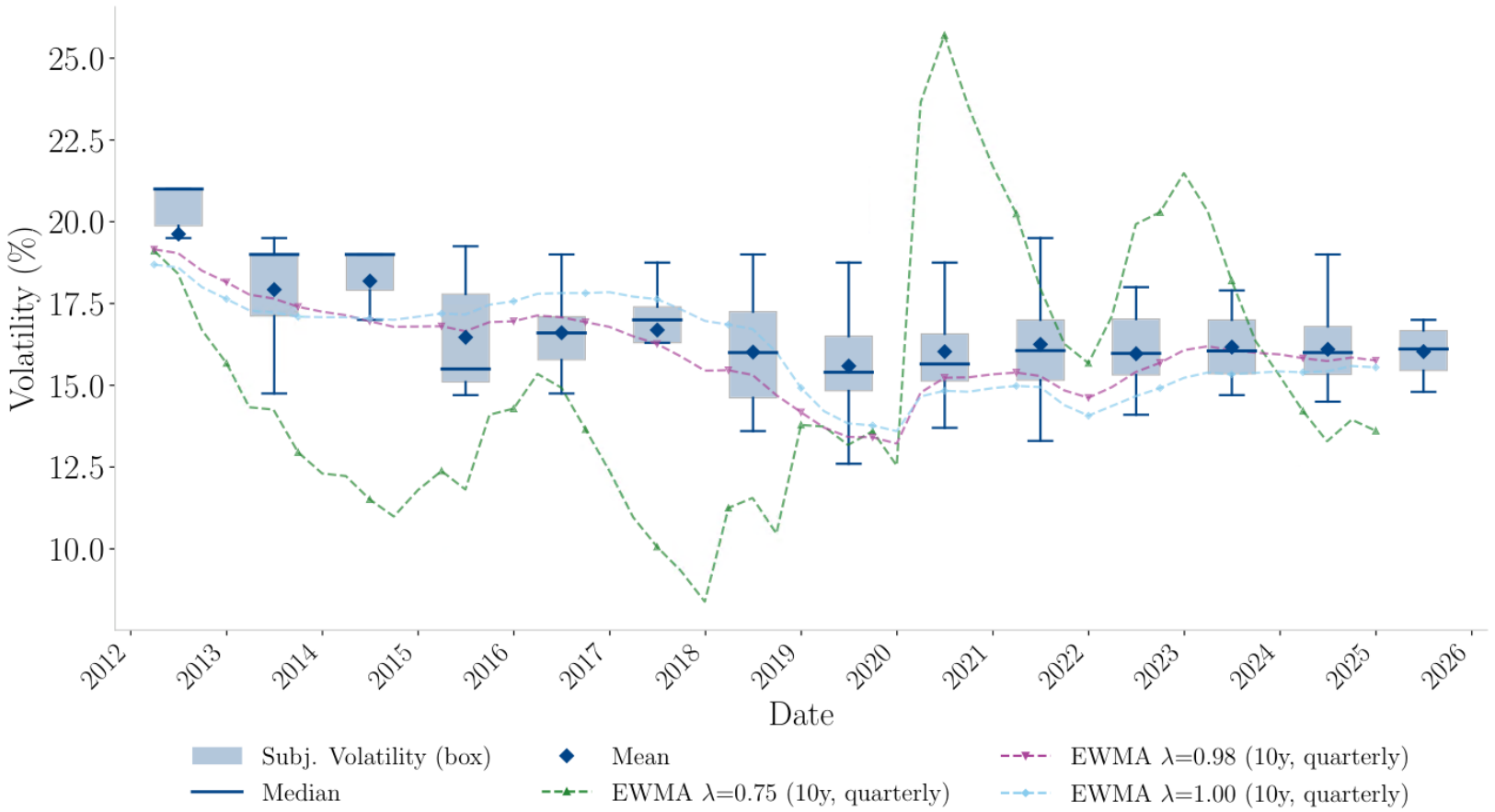

Source: Bastianello (2026)

(Limitation 4) The Backward Looking Second Moments

PANEL A - Variation Across Asset Classes

	σ^2			β		
	$\kappa = 0.5$	$\kappa = 0.7$	$\kappa = 0.9$	$\kappa = 0.5$	$\kappa = 0.7$	$\kappa = 0.9$
Past Return Moment	0.76***	0.91***	1.10***	0.71***	0.73***	0.75***
	(0.17)	(0.16)	(0.11)	(0.07)	(0.07)	(0.07)
R^2	61.6%	73.3%	86.4%	80.4%	82.9%	86.1%

PANEL B - Variation Over Time

	σ^2			β		
	$\kappa = 0.5$	$\kappa = 0.7$	$\kappa = 0.9$	$\kappa = 0.5$	$\kappa = 0.7$	$\kappa = 0.9$
Past Return Moment	0.12***	0.22***	0.63***	0.32***	0.44***	0.65***
	(0.03)	(0.04	(0.08)	(0.08)	(0.09)	(0.10)
R^2	12.5%	22.8%	41.2%	15.1%	24.0%	37.4%

Source: Couts, Gonçalves, Loudis (2023)

(Limitation 4) The Backward Looking Second Moments

PANEL C - Variation Over Time for US Equities (Large Cap)

	σ^2			β		
	$\kappa = 0.5$	$\kappa = 0.7$	$\kappa = 0.9$	$\kappa = 0.5$	$\kappa = 0.7$	$\kappa = 0.9$
Past Return Moment	0.22*	0.41*	1.31**	0.50***	0.56***	0.57***
	(0.12)	(0.21)	(0.58)	(0.09)	(0.09)	(0.10)
R^2	24.6%	36.1%	45.9%	34.7%	33.0%	25.6%
Excess CAPE Yield	0.22***	0.22***	0.22***	5.88***	5.88***	5.88***
	(0.08)	(0.08)	(0.08)	(1.97)	(1.97)	(1.97)
R^2	36.7%	36.7%	36.7%	31.6%	31.6%	31.6%
Past Return Moment	0.14*	0.30*	1.00**	0.41***	0.45***	0.43***
	(0.08)	(0.16)	(0.47)	(0.07)	(0.06)	(0.11)
Excess CAPE Yield	0.18***	0.16***	0.14***	4.61***	4.68***	4.83***
	(0.06)	(0.06)	(0.05)	(1.37)	(1.46)	(1.70)
R^2	45.8%	53.0%	59.3%	52.8%	51.8%	45.4%

Source: Couts, Gonçalves, Loudis (2023)

(Limitation 4) The Backward Looking Second Moments

$$\widehat{Risk}_{n,t\to t+3} = \text{Fixed Effects} + \text{Slope} \cdot \overline{Risk}_{n,t} + \epsilon_{n,t}$$

Source: Couts, Gonçalves, Loudis (2023)

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- But their forward looking adjustments are quite important
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Variation =	**Across Asset Classes**		
Risk Measure =	σ^2	β	
Slope	1.04**	1.12***	
(*se*)	(0.23)	(0.04)	
R^2_{OOS}	20.2%	32.6%	

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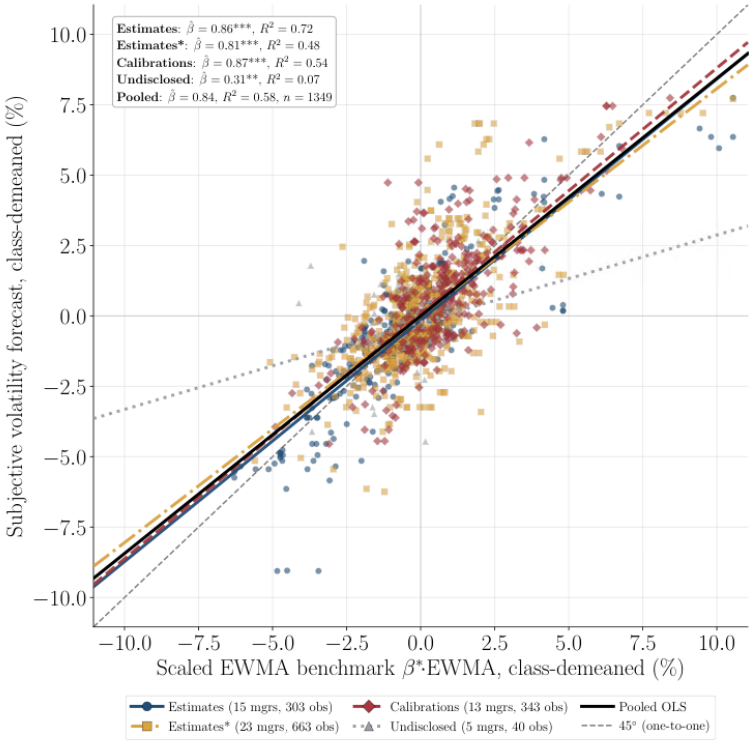
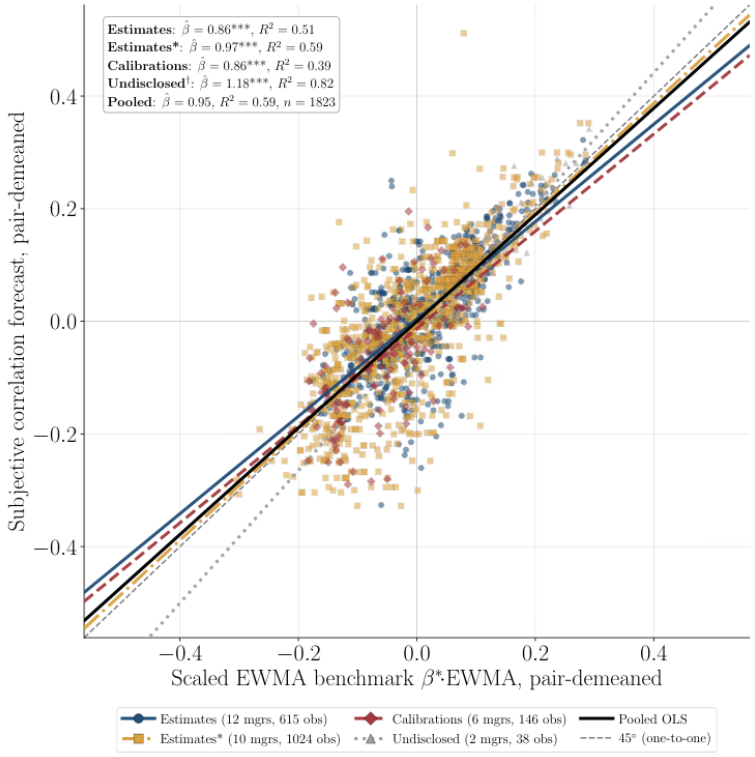
- And they improve the forecasting quality of CMAs

(Limitation 4) The Backward Looking Second Moments

(a) Volatility Forecasts.



(b) Correlation Forecasts.



Source: Bastianello (2026)

- This disagreement evidence is interesting and novel
- But the institution-level EWMA fitting leads to 249 parameters
- Avoid overfitting: estimate using first half of institution-level sample

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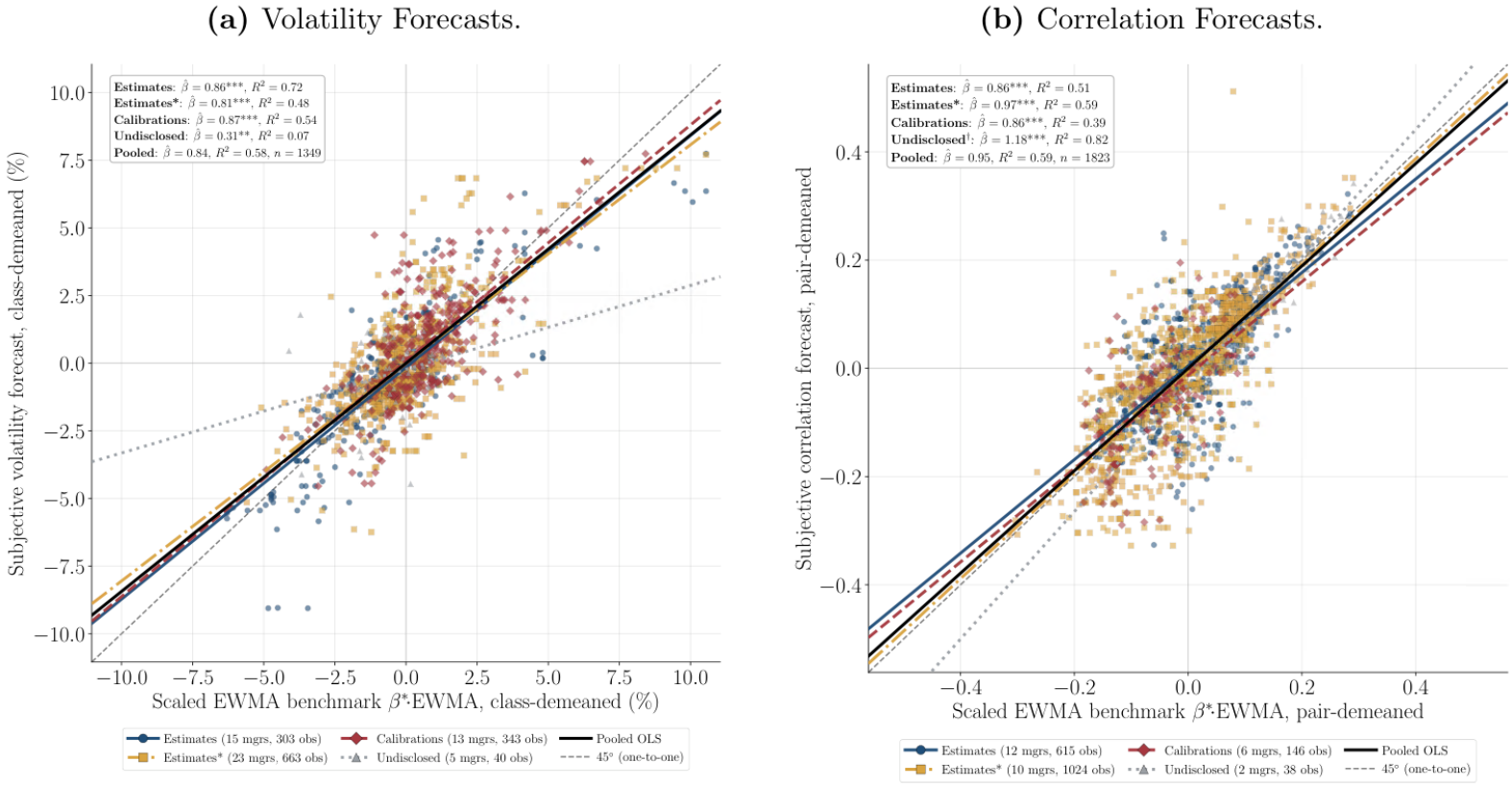

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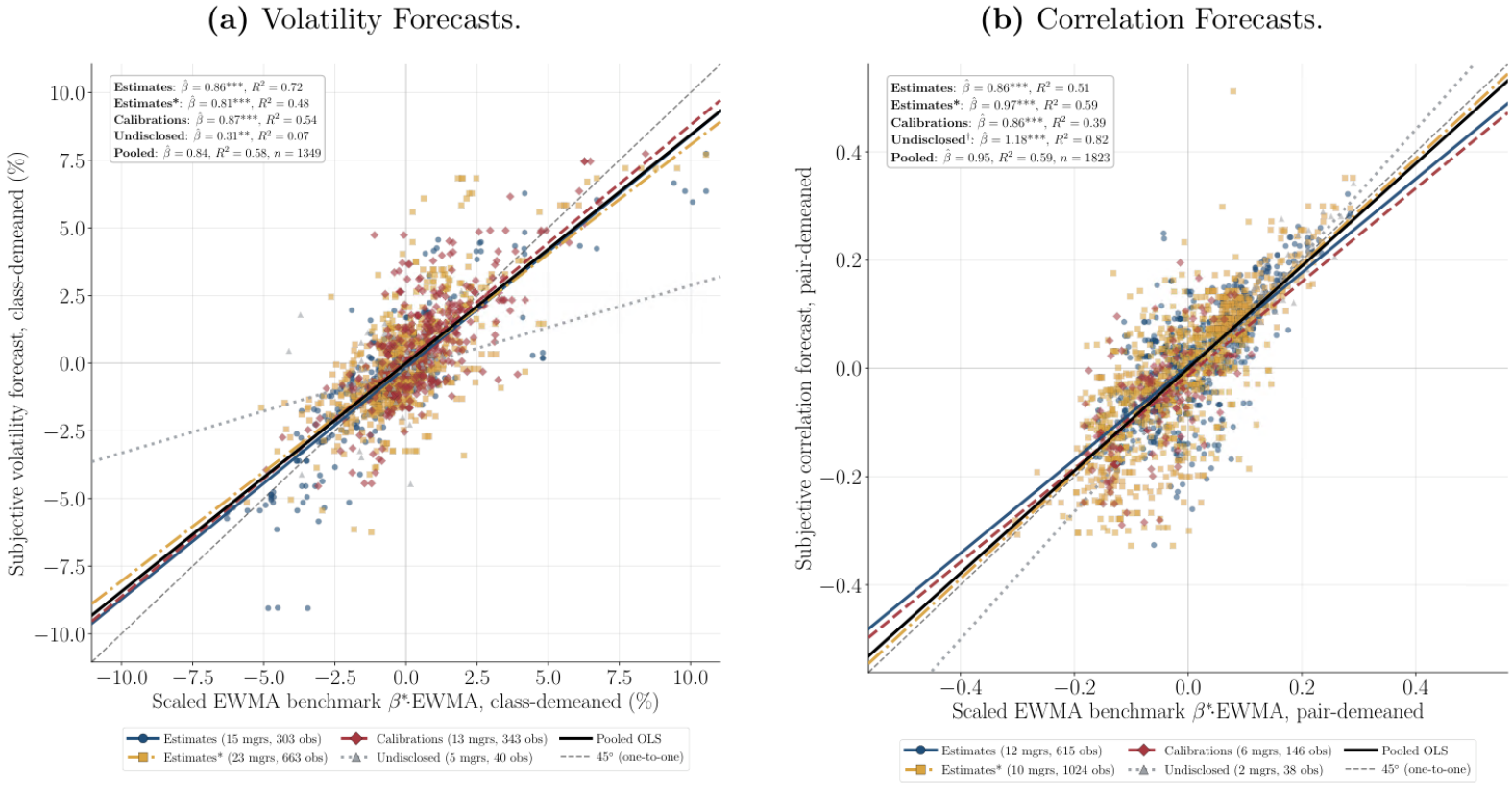

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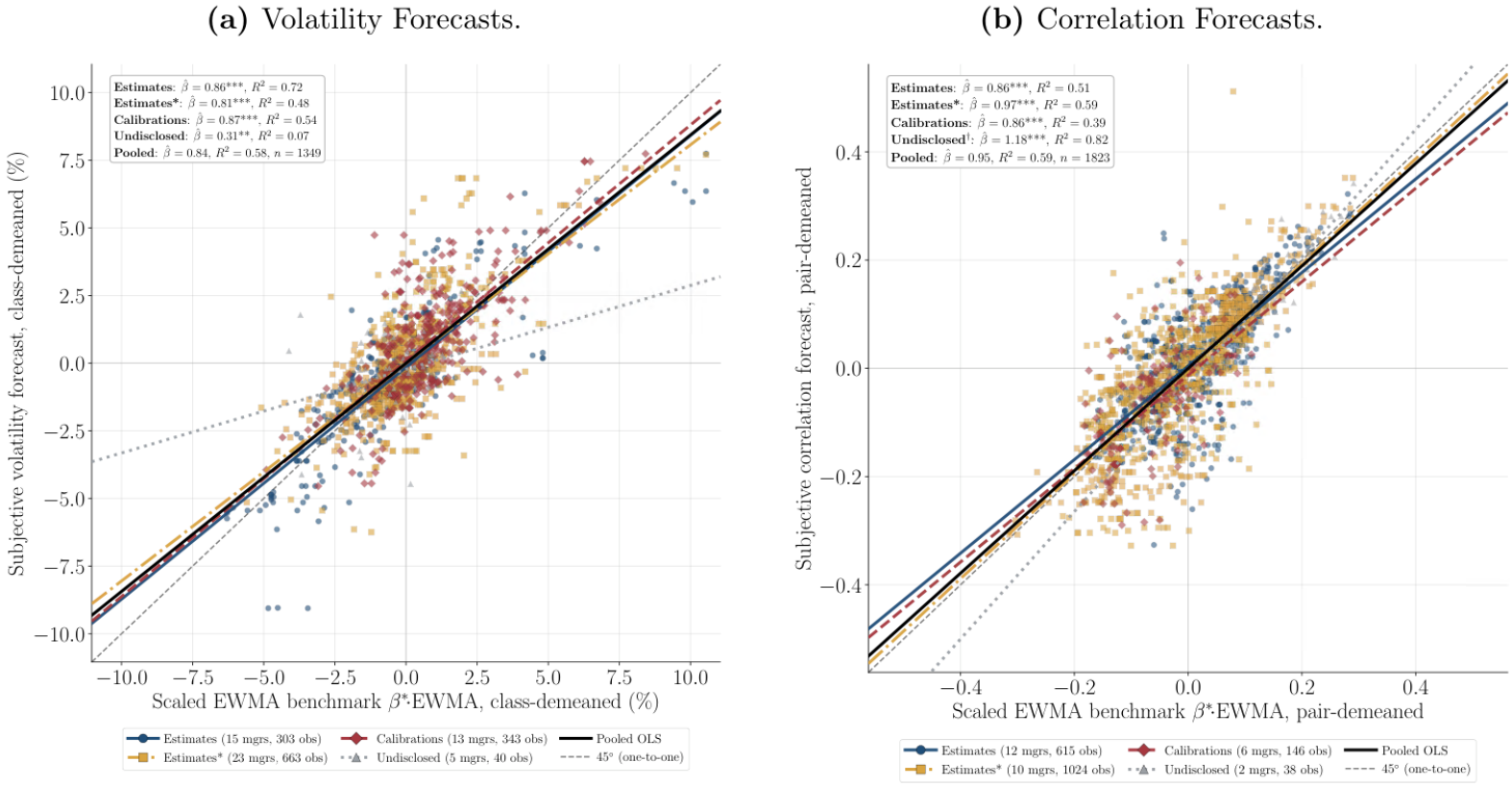

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Some Generic Comments

1. In anchoring regressions: do we want α_i or α_t or $\alpha_i + \alpha_t$?
   we can even have $\alpha_{i,t}$ if combining asset classes or blocks

2. I would replace Type II ANOVA with Shapley Decomposition
   (Shapley properly considers all combinations)

3. Objective beliefs should always be estimated out-of-sample
   (sometimes they are, sometimes I am not sure)

4. Section 3.2 really needs to be simplified
   (Tables 9 to 14 have related messages, probably some way to simplify)

5. The discussion of measurement error in Section 4 is wrong
   (the institution-level estimation implies the error correlates with the y variable)

Outline

Final Remarks

- This paper is a *tour de force* on understanding CMAs
- They contain a lot more information than their return forecasts
- The way I see it, there are three layers of information:
- Each of these layers is very informative about belief formation
- My comments:

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  (3) Macro-Financial Topics
- Each of these layers is very informative about belief formation
- My comments:
  - Need to better synthesize and organize the findings
  - Need to better recognize some of the key limitations