The Pre-FOMC Drift and the Secular Decline in Long-Term Interest Rates

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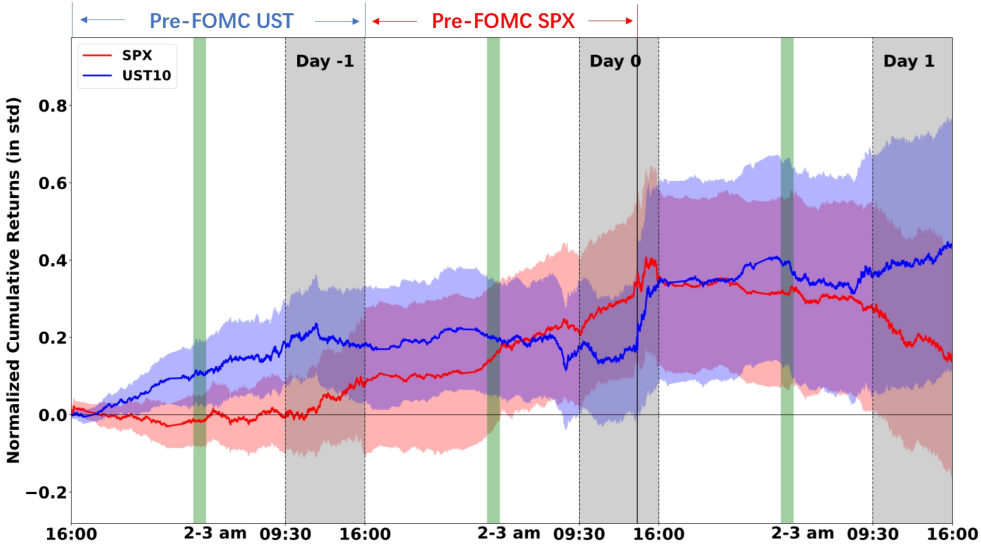
Motivations and Research Questions

- This paper examines the ex-ante pricing of U.S. Treasury bonds prior to FOMC announcements, different from existing studies focusing mostly on the ex-post reaction of interest rates to the announcements (e.g., Kuttner 2001, Gurkaynak et al. 2005, Nakamura and Steinsson 2018).
- Motivated by two studies at the intersection of the Fed and the financial markets:
  - Lucca and Moench (2015): Large and significant pre-FOMC announcement drift in U.S. equity. *No such effect in U.S. Treasury bonds.*
  - Hillenbrand (2024): Three-day windows (day -1, 0, and 1) around the FOMC announcements capture the entire secular decline in long-term interest rates.
- Our research questions:
  - Is there a pre-FOMC drift in U.S. Treasury bonds?
  - Its contribution to the secular decline in interest rates.
  - Its economic mechanism.

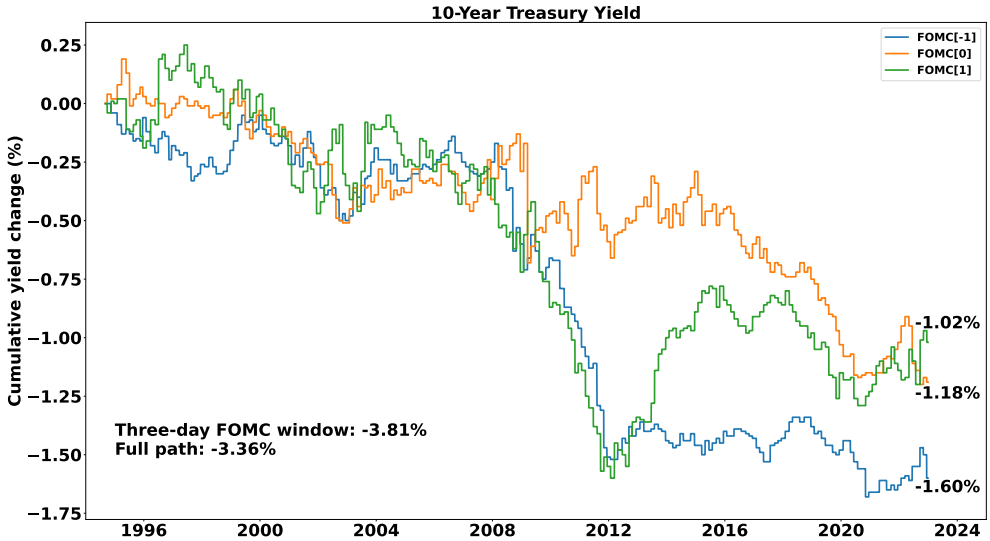
Main Contributions

- Contrary to the conclusion of Lucca and Moench (2015), we find positive and significant pre-FOMC returns on long-term bonds on the day before the FOMC.
- This pre-FOMC drift contributes importantly to the secular decline in interest rates:
  - The cumulative effect of the pre-FOMC reduction in yield amounts to -1.60%.
  - The day of FOMC: -1.19%, the day after: -1.02%, the entire path: -3.31%.
- Hillenbrand (2024) attributes the Fed's forward guidance as the most important driver of the long-run path of interest rates. Our pre-FOMC drift, realized prior to the FOMC announcements, indicates the presence of a second channel.
  - A risk-premium channel for the pre-FOMC pricing of long-term bonds.
  - Heightened pre-FOMC uncertainty can be traced to heightened attention on unemployment, using Fisher, Martineau, and Sheng (2022)'s MAI Index.
  - A common component of the pre-FOMC returns in bond and equity, driven by heightened uncertainty prior to FOMC announcements.

The Pre-FOMC Drift in 10-Year Treasury Bond



The Secular Decline in 10-Year Treasury Yield



Related Literature

- Pre-FOMC drift in equity and currency and explanations
  - Lucca and Moench (2015), Mueller, Tahbaz-Salehi, and Vedolin (2017).
  - Cieslak, Morse and Vissing-Jorgensen (2019), Hu, Pan, Wang and Zhu (2022), Ai, Bansal, and Han (2022).
- Time-varying bond risk premium and term premium
  - Fama and Bliss (1987), Campbell and Shiller (1991), Cochrane and Piazzesi (2005).
  - Kim and Wright (2005), Adrian, Crump and Moench (2013).
- Secular decline in long-term interest rates
  - Hillenbrand (2024), Bauer and Rudebusch (2020), Drechsler, Savov and Schnabl (2020).
- Measures of macro uncertainty
  - Jurado, Ludvigson, and Ng (2015) and Fisher, Martineau and Sheng (2022).

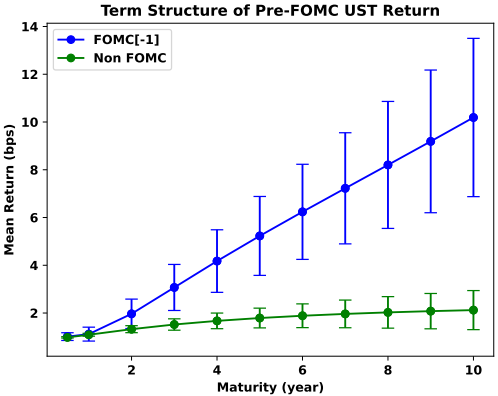
A Road Map

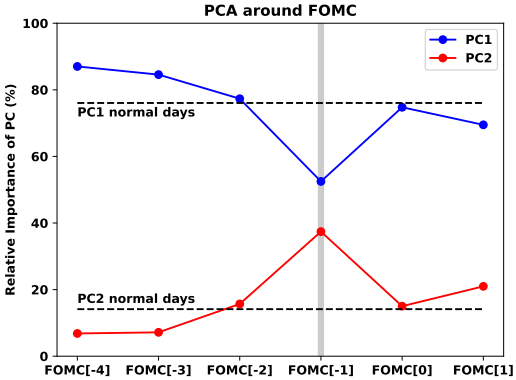
- Pre-FOMC drift in long-term bonds and a risk premium channel:
  - The pre-FOMC reduction in yield attributed almost entirely to term premium.
  - Disconnect between long- and short-term yields on the day before FOMC.
  - The pre-FOMC drift driven by risk premium, not decisions on the target rate.
- Determinants of pre-FOMC drift in UST and heightened macro uncertainty:
  - Macro Attention Index (Fisher, Martineau and Sheng (2022)).
  - Dissenting votes in FOMC.
  - Macro and Financial Uncertainty Indices (Jurado, Ludvigson, Ng (2015)).
- A common component of pre-FOMC drift in bond and equity:
  - Pre-FOMC changes in term premium can predict pre-FOMC drift in SPX.
  - Under heightened uncertainty, pre-FOMC drift in UST can predict that in SPX.

Part I: Pre-FOMC Drift in UST – A Risk-Premium Channel

	ΔCMT Yield (bps)			ΔTerm Premium (bps)		ΔForward Rate (bps)	
	UST10	UST2	FF4	TP10	TP2	FUST10	FUST2
FOMC[-1]	**-0.71**	-0.2	0.33	**-0.67**	-0.35	**-0.99**	-0.7
	[-2.18]	[-0.63]	[1.12]	[-2.10]	[-1.82]	[-2.51]	[-1.88]
FOMC[0]	-0.53	-0.59	-0.33	-0.15	0.18	0.01	-0.33
	[-1.18]	[-1.38]	[-1.12]	[-0.38]	[0.86]	[0.02]	[-0.61]
FOMC[1]	-0.45	-0.01	-0.2	-0.43	0.21	-0.78	0.24
	[-0.95]	[-0.03]	[-0.84]	[-0.86]	[0.82]	[-1.30]	[0.49]
All days	-0.04	-0.02	0.00	-0.04	-0.02	-0.06	-0.04
	[-0.58]	[-0.32]	[-0.00]	[-0.65]	[-0.54]	[-0.76]	[-0.50]

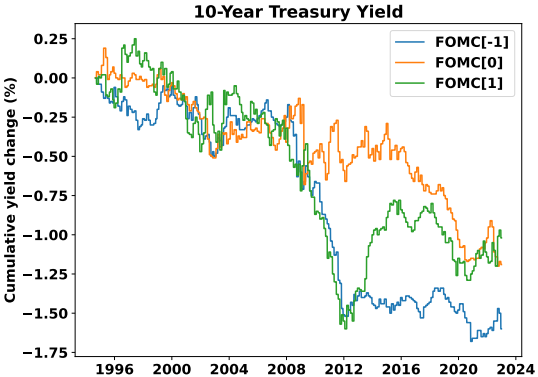
Part I: Pre-FOMC Drift in UST – Not About Target Rates

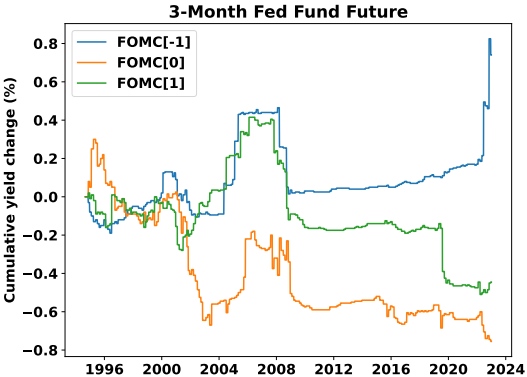




- Pre-FOMC returns strongest for 10-year bonds and insignificant for short-term bonds.
- Unique and severe disconnect between long- and short-term yields on FOMC [-1].

Part I: Pre-FOMC Drift in UST – Different from Short Rates





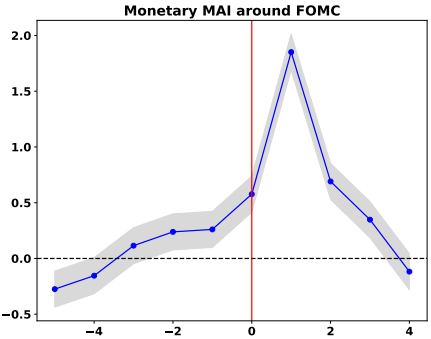
Part II: Heightened Uncertainty – Drivers of the Pre-FOMC Drift

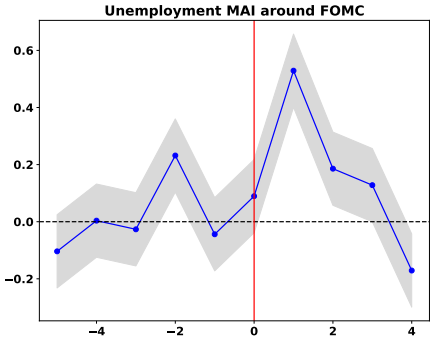
	Pre-FOMC Changes in 10-Year Yield (bps)						Pre-FOMC Returns in SPX (bps)					
VIX Index	-0.27						**24.85*** **					**17.15** **
	[-0.69]						[4.70]					[2.59]
MOVE Index		-0.48						**17.50*** **				
		[-1.56]						[3.08]				
MAI Urate			**-0.90*** **			**-0.76** **			1.57			
			[-2.83]			[-2.08]			[0.26]			
Ratio Dissent				**-0.74** **						-2.37		
				[-2.21]						[-0.47]		
Fin Uncertainty					**-0.74** **	-0.53					**23.15*** **	10.2
					[-2.30]	[-1.44]					[4.10]	[1.50]
Intercept	-0.71**	-0.71**	-0.71**	-0.71**	-0.71**	-0.71**	28.36***	28.36***	28.36***	28.36***	28.36***	28.36***
	[-2.12]	[-2.12]	[-2.22]	[-2.15]	[-2.16]	[-2.26]	[6.62]	[5.95]	[5.10]	[5.12]	[6.18]	[6.61]
R-sqrd (%)	0.3	0.95	3.43	2.29	2.28	4.53	14.99	7.43	0.06	0.14	13	16.08
N	226	226	226	226	226	226	226	226	226	226	226	226

- MAI Urate: Macro Attention Index on unemployment (Fisher, Martineau, and Sheng 2022).
- Fin Uncertainty: Financial Uncertainty Index (Jurado, Ludvigson, and Ng 2015).
- Ratio Dissent: number of FOMC dissenting votes divided by total votes.

Part II: Heightened Uncertainty – Macro Attention Indices (MAI)

- Macro Attention Indices are derived from news coverage (Fisher, Martineau, and Sheng 2022).
- Capture attention to varying macroeconomic risks, including unemployment and monetary policy.
- Monetary and Unemployment MAI's typically increase after the FOMC meeting



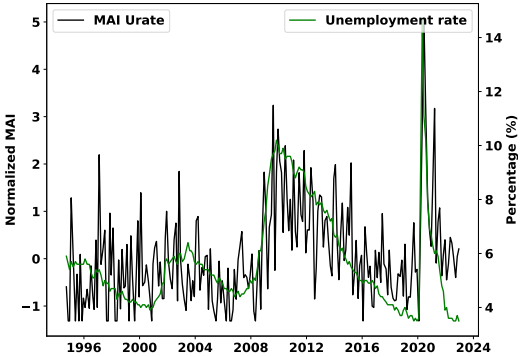


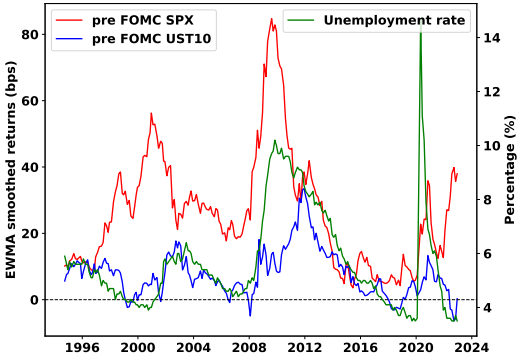
Part II: Heightened Uncertainty – Unemployment Rate and MAI Urate

Dependent Variable = MAI Urate Level					
Urate	0.22***	0.21***	0.22***	0.22***	0.22***
	[27.36]	[26.87]	[27.24]	[27.22]	[27.02]
FOMC[-3]***Urate**		**0.10*** **			
		[2.86]			
FOMC[-2]***Urate**			0.02		
			[0.70]		
FOMC[-1]***Urate**				-0.05	
				[-1.36]	
FOMC[0]***Urate**					0.03
					[1.00]
FOMC[-i]		-0.62***	0.04	0.17	-0.14
		[-3.30]	[0.24]	[0.86]	[-0.75]
Intercept	-1.12***	-1.10***	-1.12***	-1.13***	-1.12***
	[-24.46]	[-23.89]	[-24.39]	[-24.34]	[-24.18]
R-sqrd (%)	16.83	16.95	16.94	16.88	16.85
N	7079	7079	7079	7079	7079

- The unemployment MAI is closely linked to the actual contemporaneous unemployment rates.
- The connection is stronger 3 days before the FOMC announcements.

Part II: Heightened Uncertainty – Unemployment and Pre-FOMC Drift





- Stronger pre-FOMC drift in UST occurs under higher unemployment.
- Weaker connection between unemployment and pre-FOMC drift in SPX.

Part II: Heightened Uncertainty – MAI Urate and Pre-FOMC Drift

Panel A: MAI Urate Level at FOMC[-3]

	UST10[-1]	UST2[-1]	FUST10[-1]	FUST2[-1]	TP10[-1]	TP2[-1]
Intercept	0.04	0.04	0.21	-0.25	0.37	0.28
	[0.09]	[0.08]	[0.56]	[-0.40]	[1.26]	[1.37]
High MAI	-1.50**	-0.5	-2.41***	-0.9	-2.06***	-1.26***
	[-2.18]	[-0.68]	[-3.41]	[-1.11]	[-3.51]	[-3.50]
R-sqrd (%)	2.37	0.27	4.17	0.65	4.64	4.72
N	226	226	226	226	226	226

Panel B: ΔMAI Urate, FOMC[-3] minus FOMC[-5]

	UST10[-1]	UST2[-1]	FUST10[-1]	FUST2[-1]	TP10[-1]	TP2[-1]
Intercept	-0.65*	-0.18	-0.90**	-0.63*	-0.59*	-0.29
	[-1.96]	[-0.57]	[-2.18]	[-1.75]	[-1.82]	[-1.43]
ΔMAI Urate	-0.75**	-0.35	-1.17***	-0.85***	-0.92***	-0.77***
	[-2.47]	[-1.51]	[-3.24]	[-2.66]	[-3.22]	[-4.46]
R-sqrd (%)	2.39	0.54	4	2.34	3.72	7.11
N	226	226	226	226	226	226

Part II: Heightened Uncertainty – Short- and Long-Term Yields

Dependent: Changes in 10-Year Yield (Δ UST10)									
	Full Sample			High MAI			Low MAI		
Intercept	-0.02	-0.04	-0.01	-0.02	-0.04	-0.01	-0.04	-0.04	-0.04
	[-0.31]	[-0.66]	[-0.17]	[-0.30]	[-0.66]	[-0.14]	[-0.66]	[-0.66]	[-0.70]
FOMC[-1]	-0.69**		-0.80**	-1.44***		-1.55***	0.09		0.18
	[-2.07]		[-2.45]	[-3.10]		[-3.31]	[0.20]		[0.46]
FF4		0.68***	0.70***		0.68***	0.70***		0.68***	0.68***
		[15.24]	[15.20]		[15.24]	[15.45]		[15.24]	[15.01]
FF4*FOMC[-1]			-0.41**			-0.58***			0.01
			[-2.58]			[-5.57]			[0.03]
R-sqrd (%)	0.04	15.58	15.95	0.1	15.58	16.16	0	15.58	15.58
N	7079	7079	7079	7079	7079	7079	7079	7079	7079

- Reduced comovement between short- and long-term yields on FOMC[-1] under high MAI.
- Under heightened unemployment MAI, long-term bond pricing, driven by risk premium, disconnects from the short end.

Part II: Heightened Uncertainty – FOMC Dissent

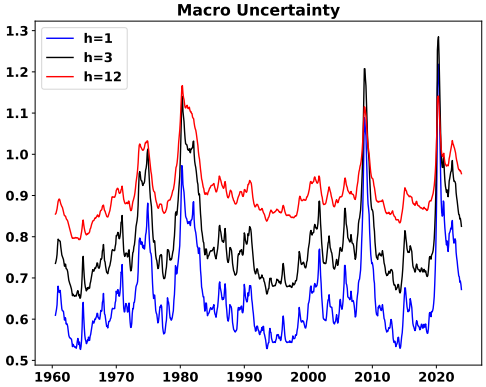
	FOMC Dissent					
	UST10[-1]	UST2[-1]	FUST10[-1]	FUST2[-1]	TP10[-1]	TP2[-1]
Intercept	-0.22	-0.06	-0.53	-0.27	-0.19	-0.08
	[-0.57]	[-0.15]	[-1.16]	[-0.59]	[-0.53]	[-0.33]
Dissent Ratio	-0.11**	-0.03	-0.1	-0.09***	-0.11	-0.06*
	[-2.21]	[-1.09]	[-1.22]	[-2.69]	[-1.48]	[-1.85]
R-sqrd (%)	2.29	0.21	1.36	1.32	2.23	1.95

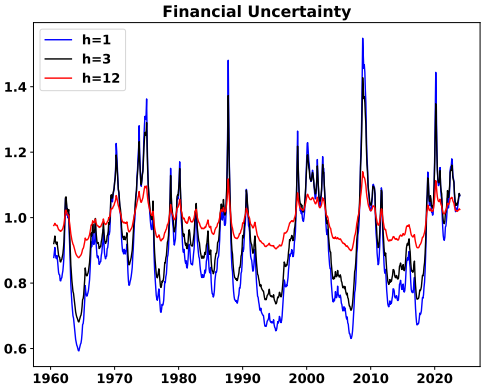
	MAI Urate and FOMC Dissent					
	UST10[-1]	UST2[-1]	FUST10[-1]	FUST2[-1]	TP10[-1]	TP2[-1]
Intercept	-0.21	-0.06	-0.52	-0.27	-0.17	-0.07
	[-0.57]	[-0.15]	[-1.17]	[-0.59]	[-0.50]	[-0.30]
MAI Urate	-0.92***	-0.04	-1.64***	-0.36	-1.34***	-0.70***
	[-2.93]	[-0.14]	[-4.00]	[-1.08]	[-3.94]	[-4.25]
Dissent Ratio	-0.10**	-0.03	-0.09	-0.09***	-0.1	-0.06*
	[-2.22]	[-1.10]	[-1.20]	[-2.66]	[-1.48]	[-1.89]
R-sqrd (%)	5.5	0.22	8.3	1.7	9.24	7.18

- Stronger pre-FOMC drift in UST under FOMC dissent.

Part II: Heightened Uncertainty – Macro and Financial Uncertainty

- The macro uncertainty index measures a common component in the time-varying volatilities of h-step-ahead forecast errors across a large number of macroeconomic series that include variables from three categories: real activity, price and financial (Jurado, Ludvigson, Ng 2015).
- The financial uncertainty is based solely on financial market data.





Part II: Heightened Uncertainty – Macro and Financial Uncertainty

Panel A: Macro Uncertainty

	UST10[-1]	UST2[-1]	FUST10[-1]	FUST2[-1]	TP10[-1]	TP2[-1]	Pre-FOMC SPX
Intercept	2.57	3.63*	3.86**	3.61	1.07	1.52*	-89.43***
	[1.59]	[1.66]	[2.14]	[1.45]	[0.59]	[1.73]	[-2.61]
Macro Uncertainty	-5.00**	-5.84	-7.40***	-6.57	-2.64	-2.85**	179.68***
	[-1.99]	[-1.62]	[-2.82]	[-1.61]	[-0.96]	[-2.06]	[3.26]
R-sqrd (%)	1.52	2.2	2.28	2.01	0.44	1.41	11.38
N	226	226	226	226	226	226	226

Panel B: Financial Uncertainty

	UST10[-1]	UST2[-1]	FUST10[-1]	FUST2[-1]	TP10[-1]	TP2[-1]	Pre-FOMC SPX
Intercept	2.91*	2.56	4.41**	2.76	2.07	1.46	-84.82***
	[1.97]	[1.45]	[2.53]	[1.35]	[1.37]	[1.58]	[-3.36]
Financial Uncertainty	-3.94**	-3.01	-5.89***	-3.77	-2.99*	-1.97*	123.38***
	[-2.30]	[-1.40]	[-2.98]	[-1.54]	[-1.69]	[-1.85]	[4.10]
R-sqrd (%)	2.29	1.42	3.5	1.61	1.37	1.63	13
N	226	226	226	226	226	226	226

- The uncertainty indexes are able to predict the pre-FOMC drift in both bond and equity.

Part III: Commonality of Pre-FOMC Drift in Bond and Equity

Dependent Variable = Pre-FOMC Returns in SPX (basis points)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	27.22***	28.27***	26.37***	28.10***	26.70***	27.35***	-30.09***	-30.77***
	[4.95]	[5.07]	[4.81]	[5.03]	[4.80]	[4.94]	[-2.94]	[-3.05]
ΔUST10[-1]	-1.61							
	[-1.62]							
ΔUST2[-1]		-0.46						
		[-0.42]						
ΔFUST10[-1]			-2.01**				-1.49**	
			[-2.36]				[-2.01]	
ΔFUST2[-1]				-0.37				
				[-0.48]				
ΔTP10[-1]					-2.50**			-2.09**
					[-2.32]			[-2.08]
ΔTP2[-1]						-2.89		
						[-1.53]		
VIX level							2.84***	2.88***
							[4.68]	[4.80]
R2	1.5	0.12	3.41	0.1	3.47	1.69	16.85	17.41
N	226	226	226	226	226	226	226	226

- Pre-FOMC changes in term premium and forward rate can predict pre-FOMC SPX returns.

Part III: Commonality of Pre-FOMC Drift in Bond and Equity

Dependent Variable = Pre-FOMC Returns in SPX (basis points)								
	High MAI				Low MAI			
Intercept	25.12**	29.05***	29.97***	-47.31***	27.07***	27.07***	26.64***	-17.73
	[2.43]	[2.80]	[2.93]	[-3.22]	[4.39]	[4.40]	[4.61]	[-0.89]
UST10[-1]	-3.11**			-3.01***	0.004			0.13
	[-2.30]			[-2.67]	[-0.003]			[0.12]
UST2[-1]		-1.33				-0.09		
		[-0.77]				[-0.09]		
FF4[-1]			-0.41				-3.1	
			[-0.54]				[-1.33]	
VIX level				3.33***				2.44*
				[4.26]				[1.98]
R-sqrd (%)	4.04	0.4	0.07	21.88	0	0.01	5.2	9.91
N	113	113	113	113	113	113	113	113

- Under heightened MAI, pre-FOMC drift in UST can predict pre-FOMC drift in SPX.
- VIX remains the most important predictor for pre-FOMC drift in SPX.

Part III: Commonality of Pre-FOMC Drift in Bond and Equity

Dependent Variable = Pre-FOMC Returns in SPX (basis points)								
	Dissent				Agree			
Intercept	17.13**	21.63**	23.41**	-33.25	31.46***	31.58***	31.79***	-26.67**
	[2.14]	[2.44]	[2.57]	[-1.27]	[4.81]	[4.81]	[4.83]	[-2.13]
UST10[-1]	-5.00**			-4.02**	-0.04			-0.12
	[-2.50]			[-2.60]	[-0.03]			[-0.11]
UST2[-1]		-5.09**				0.68		
		[-2.29]				[0.83]		
FF4[-1]			-2.89				-0.67	
			[-0.66]				[-0.78]	
VIX level				2.66*				2.84***
				[1.71]				[4.15]
R-sqrd (%)	11.8	6.98	2.97	19.46	0	0.34	0.25	16.66
N	85	85	85	85	141	141	141	141

- Pre-FOMC drift in UST is more informative about pre-FOMC drift in SPX under FOMC dissent.

Conclusions

- We document the existence of a significant pre-FOMC drift in the Treasury market
  - Driven by risk premium, not decisions on the target rate.
- Heightened uncertainty as the main driver of the pre-FOMC drift in UST
  - Stronger pre-FOMC drift under heightened unemployment MAI, FOMC dissent, and heightened macro and financial uncertainty.
  - Under heightened unemployment MAI, long-term bond pricing, driven by risk premium, disconnects from the short end.
- A common mechanism of uncertainty driving pre-FOMC drift in bond and equity
  - The macro and financial uncertainty can explain the pre-FOMC drift in both markets.
  - Pre-FOMC changes in term premium can predict pre-FOMC returns in SPX.
  - Under heightened MAI, pre-FOMC drift in UST can predict that in SPX.