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

Jun Pan

Shanghai Advanced Institute of Finance (SAIF)
Shanghai Jiao Tong University

**CUHK-RAPS-RCFS Conference**
December 10, 2025

Joint work with Qing Peng from SAIF

Motivations and Research Questions

- This paper examines the pricing of Treasury bonds before FOMC announcements, while studies in economics focus mostly on post-FOMC reactions (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, but not in U.S. Treasury bonds.
  - Hillenbrand (2025): The three-day window (day -1, 0, and 1) around the FOMC announcements captures 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. (Unlike the equity market, the economic drivers of the Treasury market can be more precisely examined.)
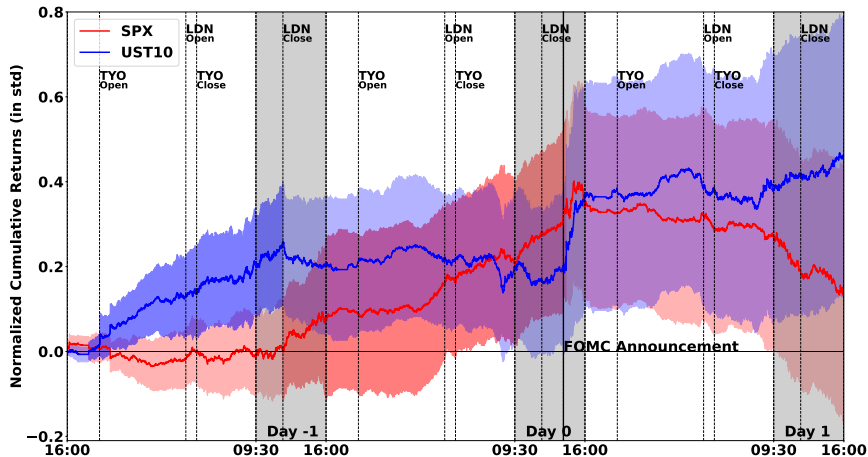
Main Contributions: The Pre-FOMC Drift in 10-Year Treasury Bond

- Contrary to Lucca and Moench (2015), we find significant pre-FOMC drift in UST, occurring one day before the pre-FOMC drift in SPX.
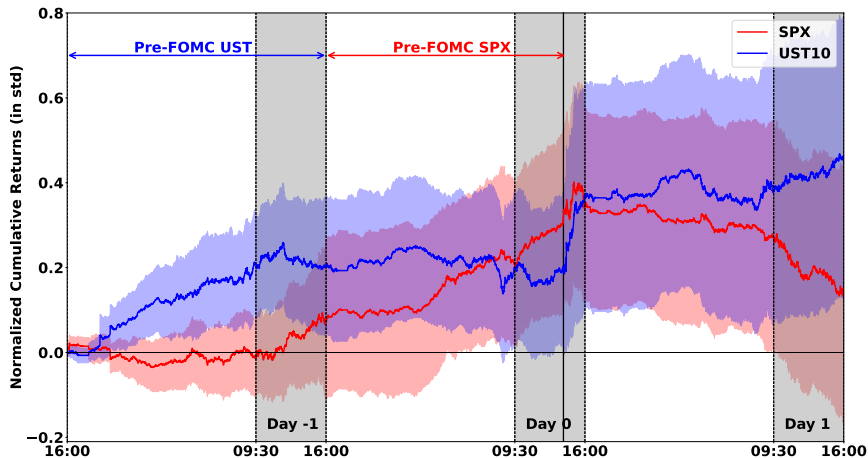
Main Contributions: The Pre-FOMC Drift in 10-Year Treasury Bond

- Contrary to Lucca and Moench (2015), we find significant pre-FOMC drift in UST, occurring one day before the pre-FOMC drift in SPX.
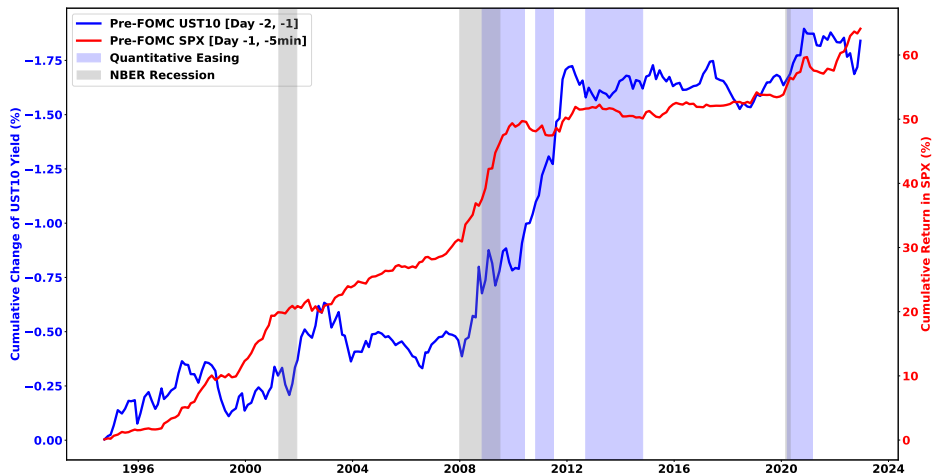
Main Contributions: Common Mechanism for Pre-FOMC Stock and Bond

- Over the long run, a striking similarity between the pre-FOMC drift in stock and bond.

Main Contributions: The Secular Decline in 10-Year Treasury Yield

- Contributes importantly to the secular decline in interest rates documented by Hillenbrand (2025).
- Since September 1994, the 10-year yield drops cumulatively by -3.42%, of which the contribution from FOMC[-1] is -1.84%, compared with -1.23% from FOMC[0], and -0.97% from FOMC[+1].

Related Literature
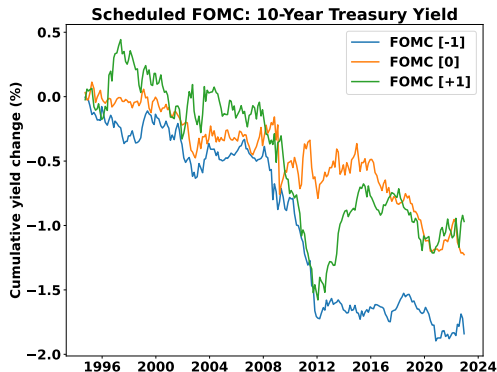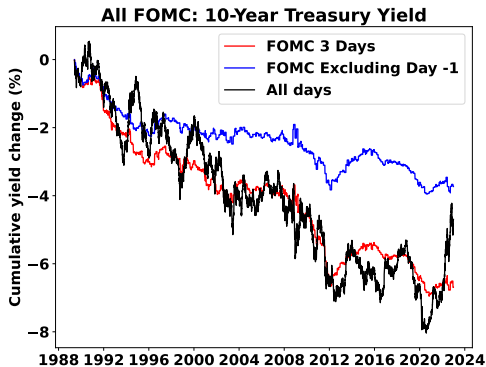
- The pre-FOMC drift in equity and currency markets
  - Lucca and Moench (2015), Mueller, Tahbaz-Salehi, and Vedolin (2017).
  - Cieslak, Morse and Vissing-Jorgensen (2019), Hu, Pan, Wang and Zhu (2022), Ai, Bansal, and Han (2022).
- Time-varying bond risk premium and term premium
  - Fama and Bliss (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 (2025), Bauer and Rudebusch (2020), Drechsler, Savov and Schnabl (2020).
- Monetary policy shocks
  - Kuttner (2001), Gürkaynak, Sack and Swanson (2005), Nakamura and Steinsson (2018), and Bauer and Swanson (2022).

A Road Map

I. The Pre-FOMC Drift in UST

  (a) The term structure of policy-driven short rates and market-driven long rates.

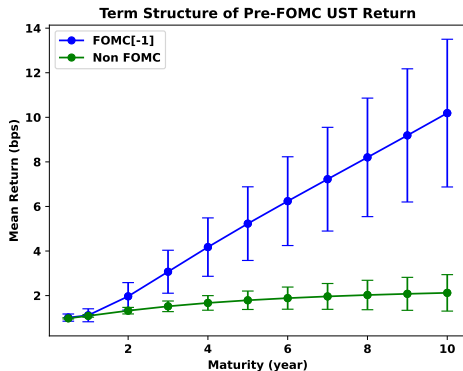 (b) Model-based decomposition: yield = term premium + expected future rates.

II. The Risk Premium Channel

  (a) Mechanism: Accumulation of heightened uncertainty and its subsequent resolution.

  (b) Heightened unemployment uncertainty as the key driver of pre-FOMC UST.

- The pre-FOMC drift in UST increases with bond maturity and is insignificant for short-term bonds. (FF4 is the 3-month ahead Fed fund future yield).

Term Structure of Pre-FOMC UST Return

	Δ Zero Coupon Yield (bps)			
	UST10	UST5	UST2	FF4
FOMC[-1]	**-0.81**	**-0.72**	-0.37	0.08
	[-2.42]	**[-2.18]**	[-1.20]	[0.29]
FOMC[0]	-0.54	-0.6	-0.41	-0.43
	[-1.20]	[-1.25]	[-0.98]	[-1.22]
FOMC[1]	-0.43	-0.18	-0.09	-0.15
	[-0.86]	[-0.40]	[-0.24]	[-0.49]
All days	-0.05	-0.04	-0.02	-0.01
	[-0.71]	[-0.57]	[-0.32]	[-0.20]

$$\Delta \text{UST10}_t = a + \mathbf{b}_1\, \mathbb{1}_{t=\text{FOMC[-1]}} + \mathbf{b}_2\, \Delta \text{FF4}_t + \mathbf{b}_3\, \Delta \text{FF4}_t \times \mathbb{1}_{t=\text{FOMC[-1]}} + \epsilon_t$$

Const	-0.02	-0.05	-0.01
	[-0.33]	[-0.71]	[-0.20]
$\mathbb{1}_{\text{FOMC[-1]}}$	-0.79**		-0.90***
	[-2.32]		[-2.69]
ΔFF4		0.63***	0.65***
		[14.22]	[14.10]
$\Delta \text{FF4} \times \mathbb{1}_{\text{FOMC[-1]}}$			-0.36**
			[-2.45]
R-sqrd (%)	0.06	12.65	12.96
N Obs	7,079	7,079	7,079

- The usual comovement between the long and short rates is significantly reduced on FOMC[-1], indicating a driver to the long rate not shared by the short rate.
- Risk premium is an important component of the long rate, but not the short rate.

Part I(a): The Pre-FOMC UST – Not Predictive of the Announcement

	Fed Decision	FOMC Announcement Window [-10min,+20min]				
		Eurodollar 1Q	TNOTE 2Y	TNOTE 5Y	TNOTE 10Y	S&P500
const	2.00	-0.44*	-0.41	-0.24	-0.14	-2.97
	[0.79]	[-1.86]	[-1.37]	[-0.80]	[-0.54]	[-0.91]
$\triangle$UST10[-1]	0.14	-0.01	0.05	0.05	0.01	0.37
	[0.57]	[-0.19]	[0.77]	[0.67]	[0.14]	[0.49]
R-sqrd (%)	0.12	0.02	0.3	0.23	0.01	0.13
N	226	226	226	226	226	226

Part I(b): Decomposing UST Yield into TP and EH

- Following Adrian, Crump, and Moench (2013)

    Yield = EH (expectation of short-term rates) + TP (term premium)

Term Premium Decomposition for 2Y

Term Premium Decomposition for 10Y
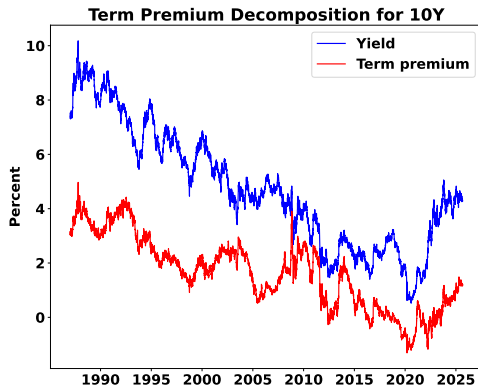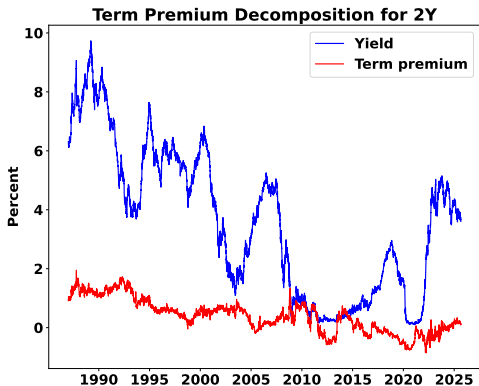
Part I(b): The Pre-FOMC UST – Driven by Term Premium

- The average daily change in 10-year yield is significant on FOMC[-1], and sizeable but insignificant for FOMC[0] and FOMC[1].
- Moreover, it is the term premium component that drives the pre-FOMC drift on FOMC[-1], indicating a risk-premium channel.

	UST10=TP10+EH10			UST2=TP2+EH2		
	ΔUST10	ΔTP10	ΔEH10	ΔUST2	ΔTP2	ΔEH2
FOMC[-1]	**-0.81**	**-0.65**	-0.16	-0.37	-0.34	-0.03
	[-2.42]	**[-2.05]**	[-0.70]	[-1.20]	[-1.76]	[-0.10]
FOMC[0]	-0.54	-0.15	-0.4	-0.41	0.18	-0.6
	[-1.20]	[-0.39]	[-1.23]	[-0.98]	[0.86]	[-1.54]
FOMC[1]	-0.43	-0.43	-0.004	-0.09	0.21	-0.31
	[-0.86]	[-0.87]	[-0.01]	[-0.24]	[0.82]	[-0.87]
All days	-0.05	-0.04	-0.01	-0.02	-0.02	-0.001
	[-0.71]	[-0.65]	[-0.23]	[-0.32]	[-0.54]	[-0.02]

Part I(b): A Unique Dominance of Term Premium on FOMC[-1]

- The dominance of TP on FOMC[-1] is more apparent when viewed from a long-term perspective. By contrast, cumulating over all days, both TP and EH are important in driving the 10-year yields.
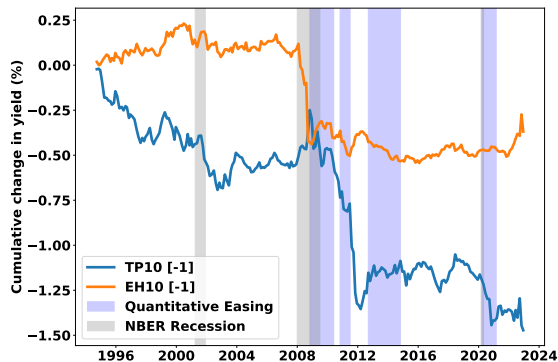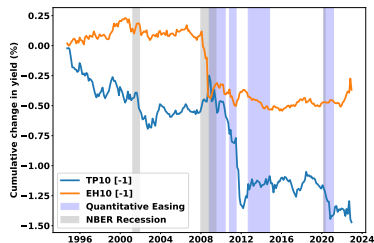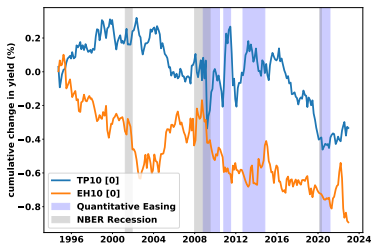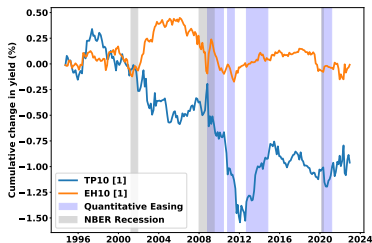

FOMC[-1]
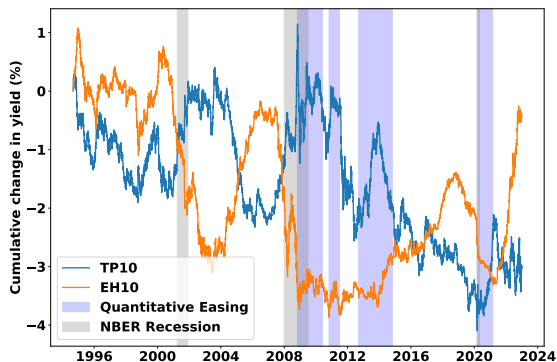
All Days

Part I(b): Decomposing Hillenbrand (2025) into TP and EH

FOMC[-1]   FOMC[0]   FOMC[+1]

- The dominance of EH on FOMC[0] supports the "long-run Fed guidance" channel.
- The dominance of TP on FOMC[-1], however, indicates a risk-premium channel.
- Also intriguing is the similarity between FOMC[-1] and FOMC[+1].

Part II(a): The Risk Premium Channel – A Two-Risk Model

- Under Hu, Pan, Wang, and Zhu (2022), the market impact of the announcement

$$D = \bar{D} + \sigma\epsilon,$$

  where ϵ is the news shock, to be released at the FOMC announcement (date 0).

- Central to the model is the presence of the impact uncertainty σ
  - Its variability $V(\sigma^2) = \lambda^2$ can be dialed up and down via λ.
  - The same ϵ can have substantially different market impact depending on σ.
  - Accumulation (date -2): heightened uncertainty in anticipation of FOMC ($\lambda \uparrow$).
  - Pre-announcement (date -1): Resolution of σ takes place, before the announcement.

- The equilibrium price under a CARA investor with risk aversion α,

$$P_{-2} = \bar{D} - \alpha\, E\left(\sigma^2\right) - \boxed{\frac{\frac{1}{2}\alpha^3\lambda^2}{1-\frac{1}{2}\alpha^2\lambda}} \quad \text{and} \quad P_{-1} = \bar{D} - \alpha\,\sigma^2.$$

- The pre-announcement drift results from the accumulation of heightened uncertainty ($P_{-2} \downarrow$) and its subsequent resolution prior to the announcement ($P_{-1} \uparrow$).

Part II(a): The Risk Premium Channel – Testable Implications

	Accumulation (Date -2)		Pre-Announcement (Date -1)		Announcement (Date 0)
			σ Resolves		ϵ Resolves
Impact Uncertainty					
Bond	MOVE$^{\perp}$ ↑		MOVE$^{\perp}$ ↓		
Equity		VIX ↑		VIX ↓	
Pricing					
Bond	UST10 ↓		UST10 ↑		
Equity		SPX ↓		SPX ↑	

Part II(a): Heightened Uncertainty and its Subsequent Resolution

	Impact Uncertainty			Pricing	
	ΔVIX	ΔMOVE	ΔMOVE$^{\perp}$	ΔUST10	ΔTP10
FOMC[-5]	-0.08	0.32	0.48	0.35	0.17
	[-0.63]	[1.24]	[1.45]	[0.93]	[0.53]
FOMC[-4]	-0.16**	1.13***	1.46***	0.13	0.00
	[-2.08]	[3.96]	[4.50]	[0.33]	[0.00]
FOMC[-3]	0.08	0.16	-0.01	-0.02	-0.23
	[0.75]	[0.65]	[-0.05]	[-0.05]	[-0.73]
FOMC[-2]	0.26***	0.15	-0.39	0.47	0.26
	[2.69]	[0.54]	[-1.29]	[1.14]	[0.78]
FOMC[-1]	0.07	-0.39	-0.52*	-0.79**	-0.65**
	[0.52]	[-1.39]	[-1.88]	[-2.30]	[-2.01]
FOMC[0]	-0.54***	-2.31***	-1.20***	-0.52	-0.15
	[-4.31]	[-7.38]	[-3.57]	[-1.14]	[-0.38]
const	0.01	0.06	0.05	-0.02	0.00
	[0.39]	[1.11]	[0.75]	[-0.26]	[0.04]
N	7,072	7,072	7,072	7,072	7,072
R-sqrd (%)	0.49	1.4	0.74	0.13	0.1

MOVE: bond option implied volatility; MOVE$^{\perp}$: orthogonal to VIX.

Pre-FOMC Drift in UST
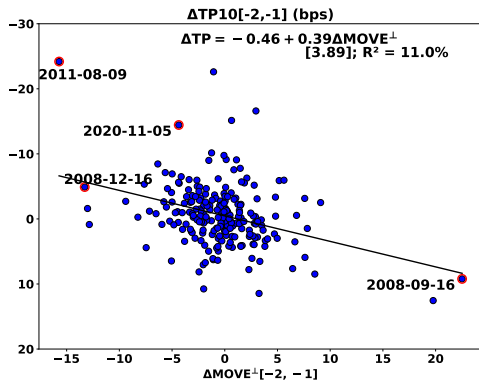
Pre-FOMC Drift in SPX
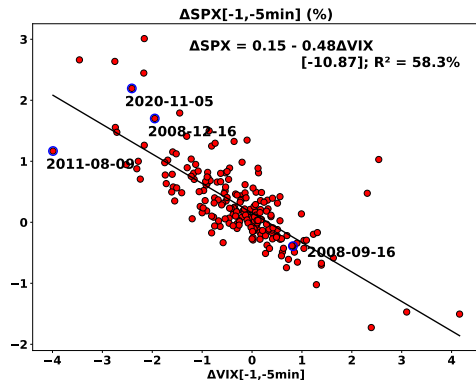
- True in both the bond and equity markets: higher degrees of uncertainty resolution are associated with larger pre-FOMC drift.

Part II(b): Heightened Unemployment Uncertainty

- Unemployment is an important driver of the monetary policy – the high unemployment rate after 2008 was a major contributor to the three rounds of QEs.
- We find significantly larger pre-FOMC drift in UST amidst higher unemployment rate.
- To find high-frequency evidence, use the Macro Attention Indices (MAI) on unemployment (Fisher, Martineau, and Sheng (2022)) to proxy for the heightened macro uncertainty.
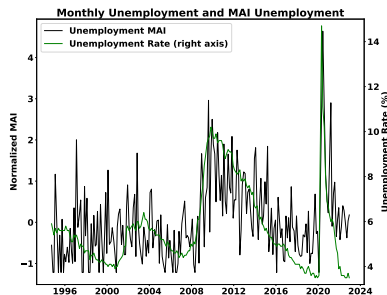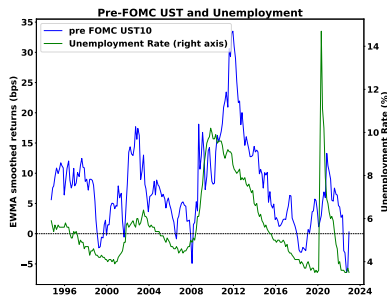
$\Delta\text{Yield}_{-1} = a + b\,\text{UMAI}_{-3} + \epsilon_{-1}$				$\Delta\text{Yield}_{-1} = \alpha + b\,(\text{UMAI}_{-3} - \text{UMAI}_{-5}) + \epsilon_{-1}$			
	UST10[-1]	TP10[-1]	EH10[-1]		UST10[-1]	TP10[-1]	EH10[-1]
const	-0.78**	-0.60**	-0.18	const	-0.09	0.42	-0.5
	[-2.41]	[-2.01]	[-0.73]		[-0.08]	[0.35]	[-1.43]
UMAI[-3]	-1.01***	-1.33***	0.32	**ΔUMAI[-5,-3]**	-0.85***	-0.93***	0.08
	[-2.90]	[-3.58]	[1.22]		[-2.70]	[-3.30]	[0.50]
VIX[-3]	0.00	-0.01	0.01	VIX[-3]	-0.03	-0.05	0.02
	[-0.08]	[-0.20]	[0.30]		[-0.59]	[-0.76]	[0.73]
R2	3.69	7.39	0.93	R2	3.16	4.54	0.21
N	226	226	226	N	226	226	226

- The Unemployment MAI (UMAI), both the level and change, is predictive of the pre-FOMC UST.
- Decomposing the 10-year yield into TP and EH, the predictability is through term premium.
- VIX, the strongest predictor for pre-FOMC SPX, has no predictability for pre-FOMC UST.

Part II(b): Heightened Unemployment MAI – Short and Long Rates

Dependent Variable: Daily Changes in 10-Year Yield									
	Full Sample			High UMAI			Low UMAI		
Const	-0.02	-0.05	-0.01	-0.02	-0.05	-0.01	-0.05	-0.05	-0.05
	[-0.33]	[-0.71]	[-0.20]	[-0.33]	[-0.71]	[-0.18]	[-0.70]	[-0.71]	[-0.73]
$\mathbb{1}_{\text{FOMC}[-1]}$	-0.79**		-0.90***	-1.60***		-1.74***	0.04		0.11
	[-2.32]		[-2.69]	[-3.18]		[-3.45]	[0.09]		[0.29]
FF4		0.63***	0.65***		0.63***	0.65***		0.63***	0.63***
		[14.22]	[14.10]		[14.22]	[14.33]		[14.22]	[13.99]
FF4*$\mathbb{1}_{\text{FOMC}[-1]}$			-0.36**			-0.48***			-0.05
			[-2.45]			[-3.73]			[-0.22]
R-sqrd (%)	0.06	12.65	12.96	0.12	12.65	13.1	0	12.65	12.65
N	7079	7079	7079	7079	7079	7079	7079	7079	7079

- The reduced comovement between short and long rate on FOMC[-1] occurs under heightened Unemployment MAI.
- By contrast, FOMC[-1] under low Unemployment MAI is similar to that of a normal day – insignificant pre-FOMC UST and normal comovement between short and long rates.

Part II(b): Drivers of Pre-FOMC SPX

Dependent: Pre-FOMC Returns in SPX (basis points)								
	Full Sample			**High MAI**			**Low MAI**		
Const	-31.64***	-30.74***	-30.91***	-47.80***	-45.53***	-41.70***	-17.64	-17.72	-17.79
	[-2.99]	[-3.04]	[-2.85]	[-3.27]	[-3.25]	[-2.66]	[-0.88]	[-0.88]	[-0.90]
△UST10[-1]	-1.48*			-2.87***			-0.03		
	[-1.87]			[-2.64]			[-0.02]		
△TP10[-1]		-2.10**			-3.10***			-0.32	
		[-2.05]			[-2.82]			[-0.30]	
△EH10[-1]			0.83			2.03			0.21
			[0.52]			[0.79]			[0.13]
VIX[-3] level	2.93***	2.88***	2.96***	3.34***	3.21***	3.27***	2.44*	2.45*	2.45**
	[4.76]	[4.79]	[4.70]	[4.29]	[4.21]	[3.93]	[1.97]	[1.97]	[2.02]
R-sqrd (%)	16.33	17.39	15.19	22.12	23.27	18.63	9.9	9.94	9.92
N	226	226	226	113	113	113	113	113	113

- The equity market uncertainty, as captured by the VIX index, is by far the strongest driver of the pre-FOMC drift in SPX.
- Against this backdrop, the pre-FOMC UST, particularly the TP component, can also predict the pre-FOMC SPX, and the predictability is present only under heightened Unemployment MAI.

Conclusions

- We fill an important gap in the pre-FOMC literature by documenting the presence of a significant pre-FOMC drift in the Treasury market.
- Our pre-FOMC result adds to the important observation by Hillenbrand (2025) on the secular decline in long-term interest rates and the three-day FOMC window.
  - FOMC[-1]: dominated by TP, indicating a risk-premium channel.
  - FOMC[0]: dominated by EH, consistent with "long-run Fed guidance."
  - FOMC[1]: an intriguing connection between FOMC[-1].
- We offer a common mechanism to explain the pre-FOMC drift in bond and equity.
  - The accumulation of heightened uncertainty and its subsequent resolution.
  - A striking similarity between the two pre-FOMC drift over the long run.
  - Under heightened MAI, pre-FOMC drift in UST can predict that in SPX.