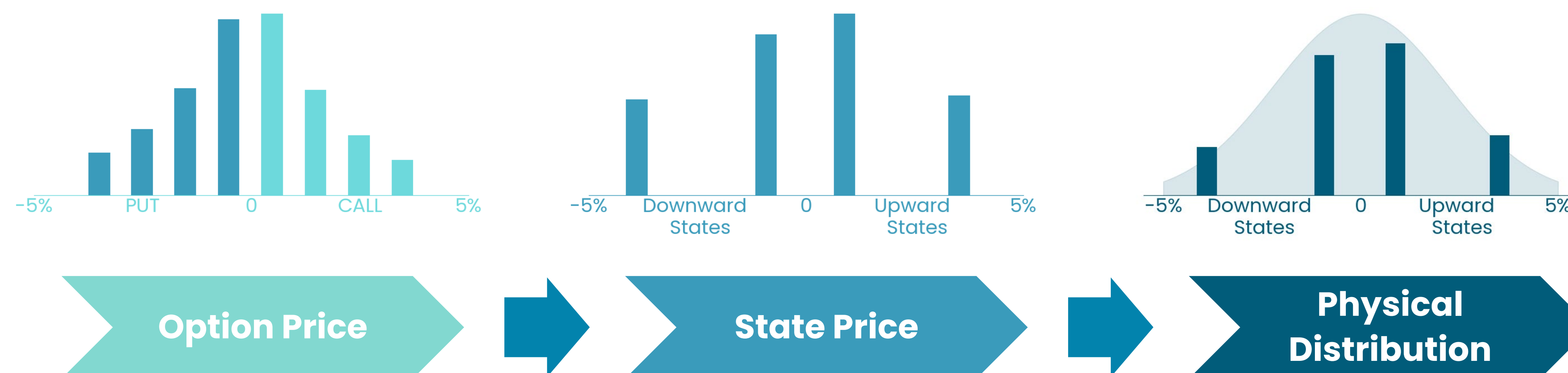
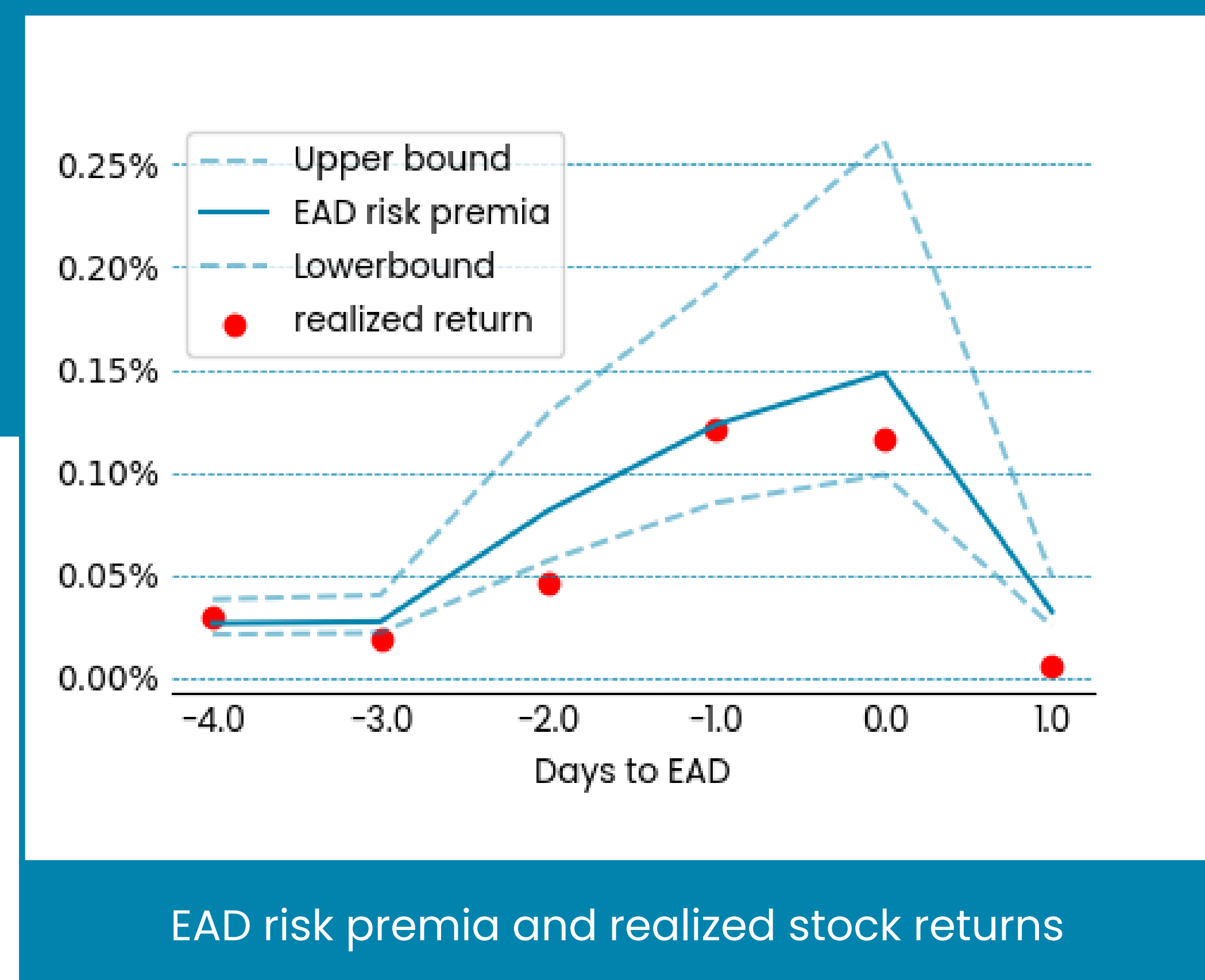


Earnings Announcements: Ex-ante Risk Premia

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- The first estimate of the ex-ante risk premia on earnings announcements (EAD) based on the options prices.
- The risk premia are time-varying and have predictive power on earnings announcement returns.
- Three important economic implications



Methodology

- **Model:** A Two-state jump model assuming upward drift and downward drift after EADs.^[1]
- **Recovery:** A equilibrium model with recursive utility to recover physical distribution.^[2]
- **Option Selection:** Estimate with short-term options (maturity 3 to 5 days), capturing exclusively the risk associated with EADs.
- **Liquidity Issue:** Upper and lower bound of risk premia estimated with bid and ask prices, respectively.

Estimation

- **Sample:** S&P 500 firms from 2010 to 2021.
- **Parameter:** Real-time calibrated parameters without look-ahead bias.
- **Accuracy:** Ex-post realized return is consistent with ex-ante risk premia in pattern and lies within the two bounds.
- **Predictability:** Long-short tercile portfolio earns a daily return of 0.31%, t-stat of 2.00.
- **High-frequency:** The accuracy is further validated by the tick data of three firms: NVDA, CSCO, and MSFT

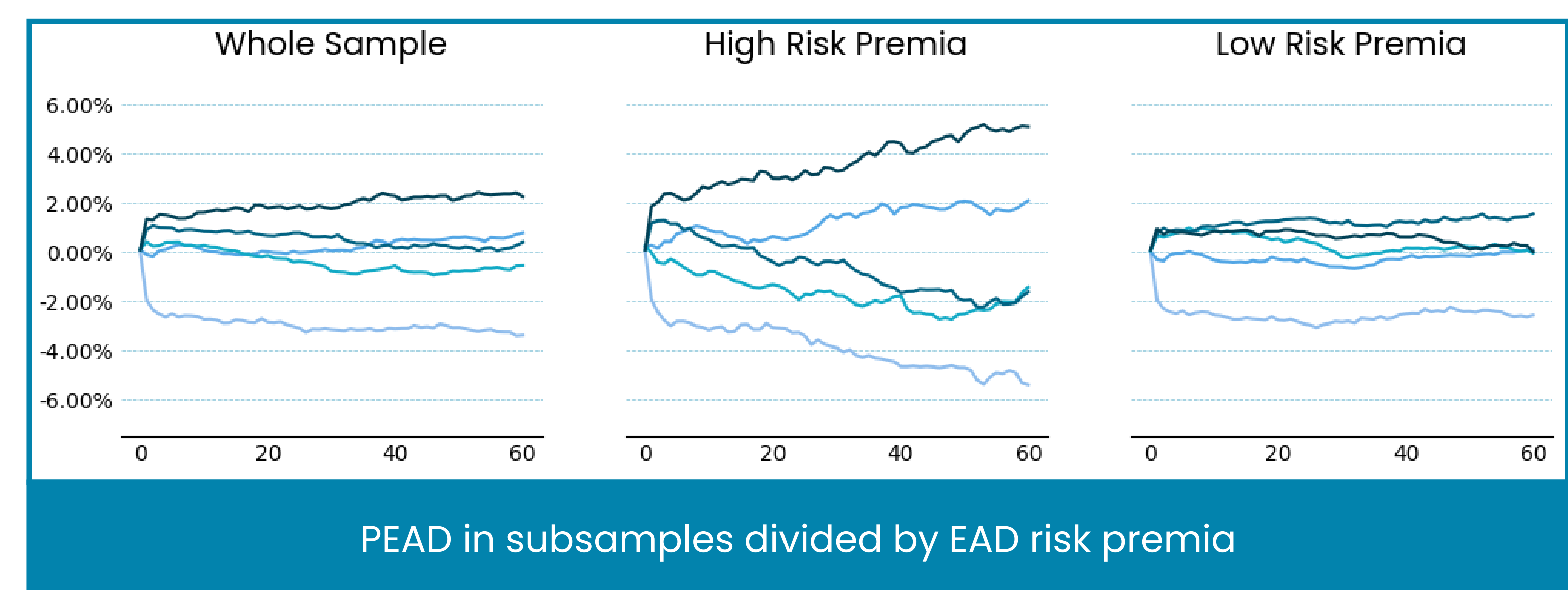
Application 1: Market Reaction to Earnings Announcements

- $CAR_{i,t} = \alpha + \beta_1 SUE_{i,t} + \beta_2 SUE_{i,t} \times RP_{i,t} + \beta_3 RP_{i,t} + \epsilon_{i,t}$
- **Immediate reaction: CAR[1, 3]**
- **Delayed reaction: CAR[4, 60]**

	CAR[1, 3]	CAR[1, 3]	CAR[4, 60]	CAR[4, 60]
Intercept	0.00	-0.00	-0.01*	-0.00
SUE	1.49***	4.34***	1.72***	-1.563
SUE × RP		-1201.45***		1383.11**
RP		1.39*		-1.66
Control & fixed effect	Y	Y	Y	Y
No. obs	2198	2198	2198	

- Earnings with higher risk premia have:
 - Weaker immediate market reaction
 - Stronger delayed market reaction
- **Investors are unwilling to take immediate trading decisions with higher uncertainty**

Application 2: Post-announcement drift



- **The well-documented positive PEAD is present only when the risk premia is high**

Application 3: Selling Straddle Options

- **Selling Straddle** generally loses money net of transaction costs.
- **Jump Risk Premia** embedded in straddle options can be identified by ex-ante risk premia around EADs.
- **A profitable trading strategy** can be realized by selling straddles only when EAD risk premia is high for that firm quarter.

	Mean	t-stat
Selling straddles: High RP	0.23%	3.62
Selling straddles: Low RP	-0.18%	-3.01
High - Low	0.41%	
t-stat		11.53



Link to Paper

References

- [1] H. Liu, X. Tang, and G. Zhou, Recovering the risk premium. *Journal of Financial Economics*.
 [2] H. Ai and Bansal, Risk preferences and the macroeconomic announcement premium. *Econometrica*.

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