

AI-driven option listings by Nasdaq tackle thin trading in options markets

Over 80% of option listings in 2022 had minimal volume (≤ 1)

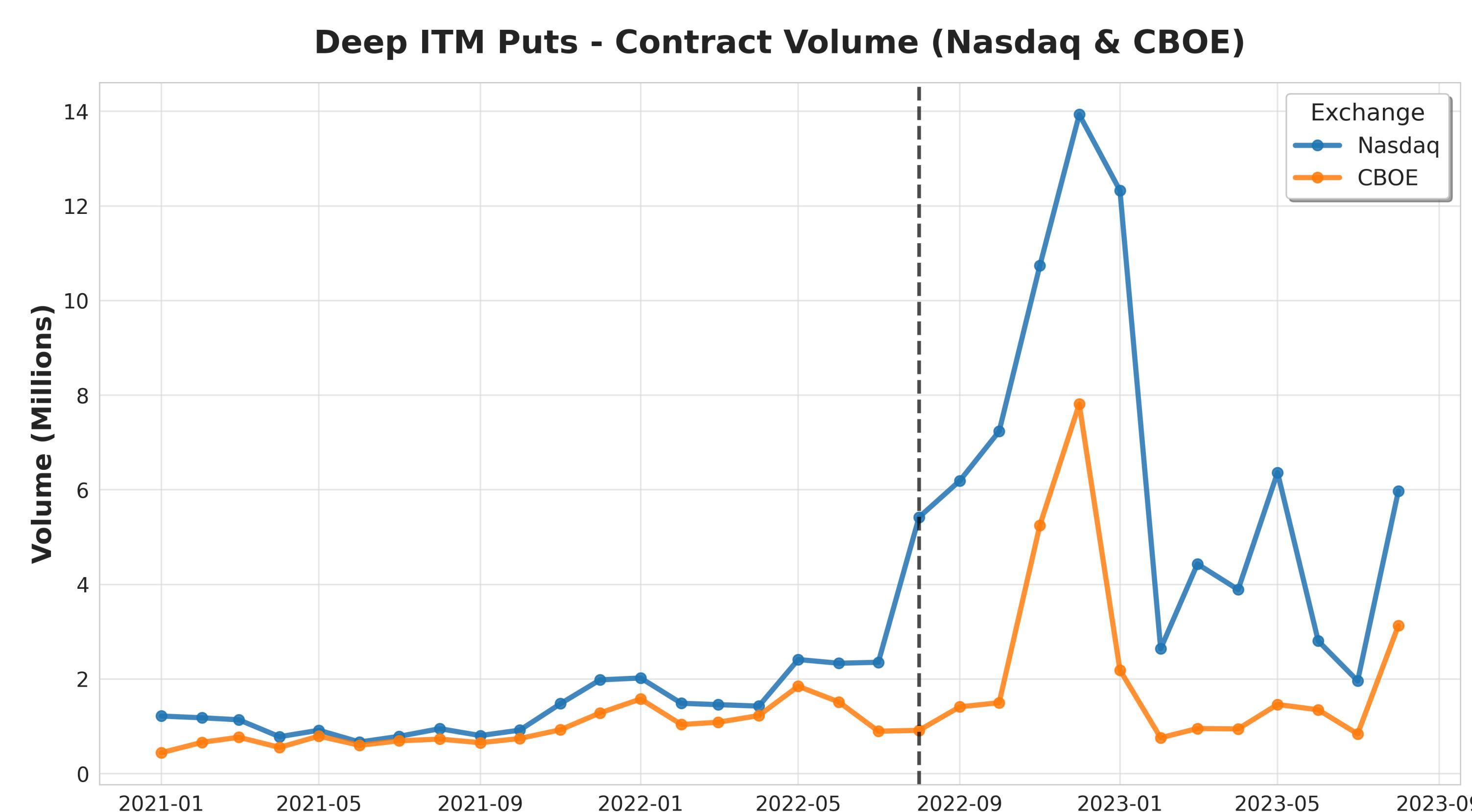
Challenge: Options are listed well ahead, facing **uncertain demand** → **inefficient listings and inventory risk**.

Using difference-in-differences, I show that the AI-based option listings increase volume by listing options that align better with demand.

Nasdaq began using AI to choose option strikes in 2022/08

AI Solution: Predict demand and adjust listings dynamically → listings based on demand.

Increase in Option Volume



Deep ITM Put Volume (Nasdaq vs CBOE)

Nasdaq: Deep ITM put volume increase, providing shorting exposure to individual stocks in the market downturn in 2022.

Conventional Strike Listings

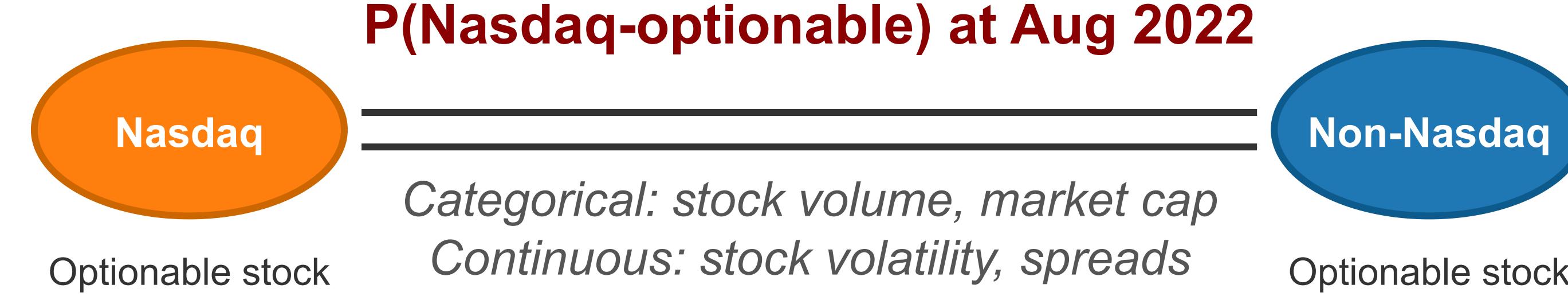
CBOE, NYSE, BOX, MIAX: Strike tiers adjust quarterly based on stock price and volume (example: AAPL options 07/15/2022).



Matching Underlying Stocks

Underlying stocks	N stocks	Mkt Cap (\$B)	Vol (000s)	Spread (%)	Volatility (%)
<i>Pre-AI (Jan 2021–Jul 2022)</i>					
Multi-listed	Treated	2,891	15.20	2,072	0.26
	Control	221	1.09	409	0.53
Single-listed	Treated	40	1.35	146	0.39
	Control	69	1.19	232	0.53

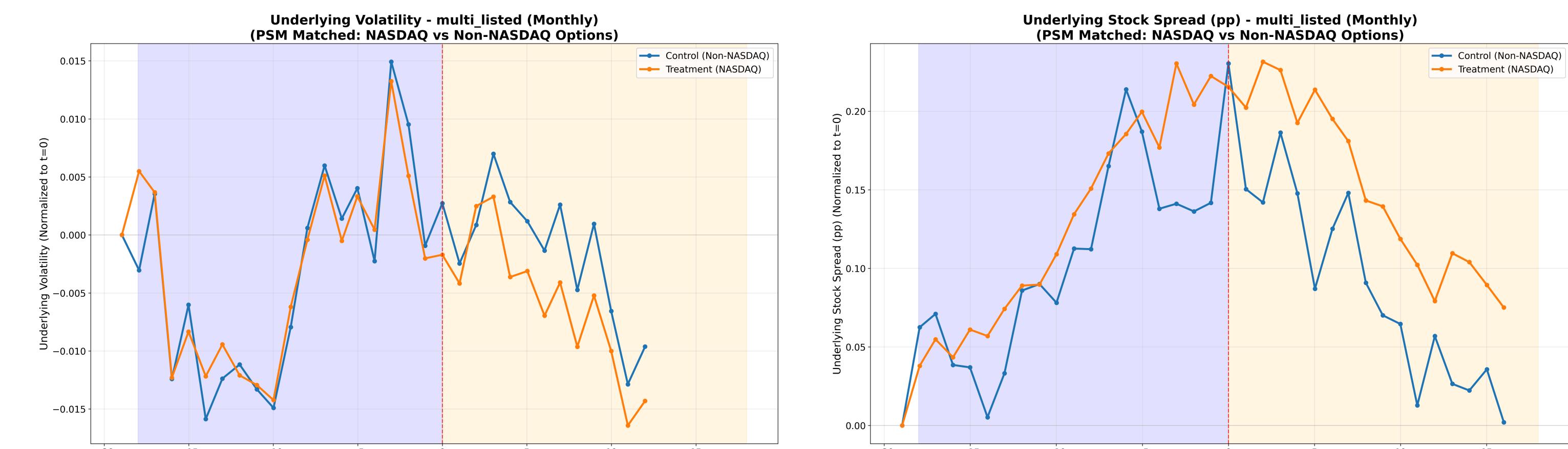
P(Nasdaq-optionable) at Aug 2022



Parallel Trends:

Underlying stock volatility

Underlying stock spreads



Causal Impact of AI Option Listings:

	log(option volume)	option spreads
Multi-listed stocks (matched pairs: 215)	0.140*** (0.041)	-0.019 (0.024)
Single-listed stocks (matched pairs: 32)	0.027 (0.147)	-0.003 (0.062)

Option volume increases by 14% for multi-listed stocks (over 90% of optionable stocks).