

Discussion of “Nocturnal Trading” by Eaton, Shkilko, and Werner

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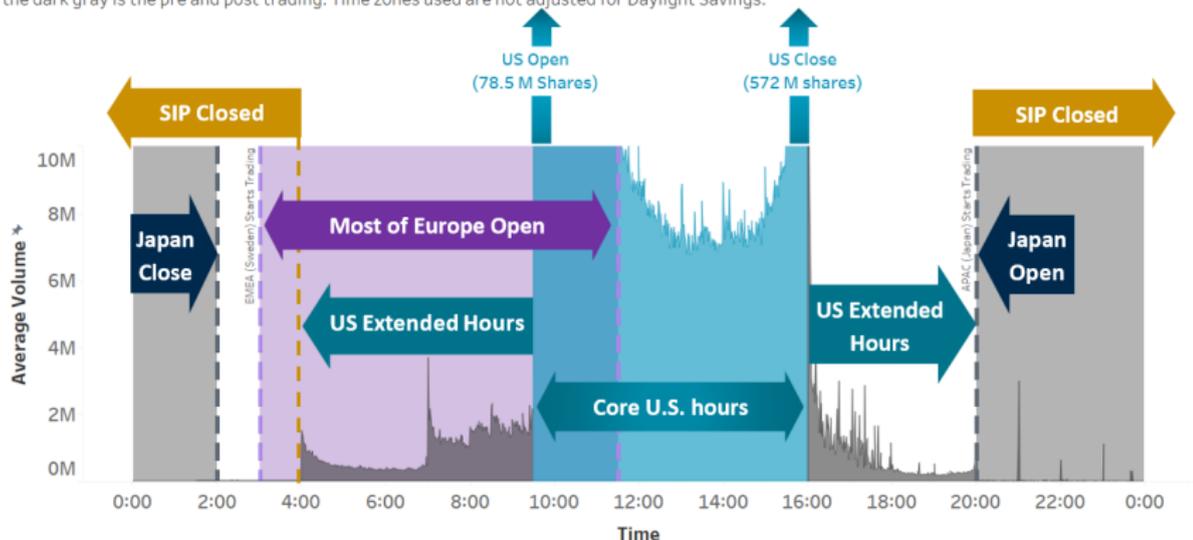
24-hour trading

- Extended trading hours have been available for many years, with limited interest
 - 2-4% of daily volume
 - Low liquidity, difficult to access for average retail investor
- In recent years, strong push towards 24-hour trading
 - Some retail brokers now offer 24-hour trading for specific securities through (off exchange) alternative trading systems (ATS)
 - Exchanges (Nasdaq, NYSE, 24 Exchange) likely to follow in the second half of 2026
 - Question is when, not if

Current trading hours landscape

Average Volume by Minute for January 2025

Timestamp used is the participant-record time of the execution. Blue area represents continuous trading in the US (9:30 AM EST - 4:00 PM EST), while the dark gray is the pre and post trading. Time zones used are not adjusted for Daylight Savings.



Source: Nasdaq Economic Research, SIP

Source: Phil Mackintosh, July 31, 2025,

<https://www.nasdaq.com/articles/looking-all-day-data-24-hour-trading>

Why do we care?

- Is easier access / extending trading hours a good thing?
 - "... can help you take action in response to breaking news and get a jump start on potential market opportunities when regular markets are closed."¹
 - Preference for trading during local time zone
 - Closures can increase price informativeness (Hong and Wang, 2004), coordinate liquidity (Blonien and Ober, 2026)
- In practice, retail interest drives the current push
 - "After numerous conversations with different types of institutional investors, I have yet to find one that is asking for 24-hour trading"
 - Easier access to active trading beneficial for retail?!
 - Better than marketable limit orders executed at the open?

Useful to get some early evidence about nocturnal trading costs and participation (this paper)

¹<https://robinhood.com/us/en/support/articles/24hour-market/>

This paper

- Study nocturnal trading January-May 2024
 - Data source: Blue Ocean ATS (BOATS), launched in 2021 with 8:00 PM to 4:00 AM ET session targeted to Asian and European investors
 - “Virtually all BOATS volume originates from retail traders”
- The paper reports interesting results on
 - trading activity: heavily concentrated
 - trading costs: quoted/effective spreads twice as wide as regular hours; comparable to pre-open
 - price discovery: sizable price discovery for some securities

Big picture thoughts

- Impressive first analysis of nocturnal trading
 - Very detailed and thorough paper
- Mostly an analysis of BOATS' trading, but nocturnal trading may look very different with entry of exchanges and others
 - ATS can set their own rules (e.g., BOATS/IBKR, price band)
 - Trade reporting facilities (TRF) and securities information processors likely to move from 16-hour to 24-hours, which would fundamentally change the information environment
 - Expectation of "best execution" will probably change
 - Retail clientele is likely to change (U.S. investors do not seem to use BOATS much, why?)
 - Retail supplies a large share of nocturnal liquidity so far (negative realized spreads!)
- Which results do we expect to stay? Interpret the results as a benchmark to monitor the market's evolution?

“Trading costs remain relatively low”

- Most stocks have zero nocturnal volume
 - Quoted spreads and depth on these stocks?
 - Why are some stocks not traded? No liquidity?
 - This matters for the interpretation of the “low” trading costs
- Spreads based on TRF prices (Table IA.3) are much higher than during regular hours
 - How to explain the disconnect with BOATS results (data?)?
- Fragile liquidity?
 - BOATS “unilaterally canceled pending trades on Aug. 5, 2024, amid a wave of sell orders. Roughly 630 billion won (\$437.6 million) in transactions were canceled, affecting approximately 90,000 investor accounts”²
 - Korean brokerages then suspended access (Korea accounted for 65% of BOATS’ flow), resumed 11/2025

²<https://blueocean-tech.io/2025/11/04/blue-ocean-korea-trading-resumes/>

Suggestions on participation and trading costs

- How much of nocturnal volume is new volume vs traders shifting their trades from other periods of the day?
 - If expand sample, use Korean brokerage suspension
 - How much is “nocturnal round-trip” trading?
- You can measure the cost of trading nocturnally vs waiting until the open, for a buy order:

$$\underbrace{p_{\text{open}} - m_{\text{open}}}_{\text{EffectiveSpread(open)}} = \underbrace{p_{\text{noc}} - m_{\text{open}}}_{\text{RealizedSpread vs open}} + \underbrace{p_{\text{open}} - p_{\text{noc}}}_{\text{Price change}}$$

“Economically significant price discovery”

- I would be cautious about the price discovery results
- Does nocturnal trading truly account for $\approx 20\%$ of 24-hour price discovery?
- “Price discovery” is concentrated in ETFs
 - But Asian markets are open and S&P 500 futures trade around the clock
 - Hence, *portfolio-level* price discovery may not be surprising
 - Weighted price contribution also picks up public news
 - Is there new information produced or would it have been incorporated in the price anyway?
- As expected, little price discovery in individual U.S. stocks
- Can the authors make a comparison to pre BOATS trading? Use the last price at 8pm and first trade at 4am in the absence of nocturnal trading (pre BOATs)

A quick look at the data

- 8pm-midnight not reported in DTAQ
 - Authors use purchased BOATS trade and quote data
- Midnight-4am reported in DTAQ (but no quotes)
- A look at how midnight-4am trading looks like in January 2026 in S&P 100 components

Volume: S&P 100 components Jan 2026

	Average share volume					
	noc	bmo	open	rto	close	amc
All	0.06%	0.98%	1.48%	80.79%	15.48%	1.21%
Top 10	0.27%	2.49%	1.23%	85.45%	8.84%	1.72%
% zero	1.28%	0	0	0	0	0

- Midnight-4am volume remains very small as a fraction of total volume among these stocks
- Highest nocturnal share volume:
 - 1,561,663 INTC on 1/23
 - INTC released earnings at 4:01pm ET on 1/22

In summary

- Timely paper on an important topic
- Useful results, but the market is changing fast
- My 2 cents:
 - need more data to study evolution or frame the paper as a first “benchmark”
 - elaborate on trading costs and price discovery results
- Good luck!