Does High Retail Investor Attention Mean High Trading Activity?

A Market Research about Taiwan's Retail Investors' Behaviour

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Outline

Introduction - Research Motivation

Motivation: If high investor attention truly translate into high trading volume, this alignment can offer actionable insights. *It's like forseeing the surge of demand*.

Scenario: A marketing team noticing a surge in ETF-related searches might anticipate higher trading next week—allowing them to launch timely promotions or offer discounted trading fees to attract and retain active investors.

Introduction - Research Purpose

Research Purpose: SinoPac Securities aims to understand whether retail investor attention—captured via Google search activity—can serve as a signal for upcoming trading volume, in order to inform promotional timing and trading-fee strategy. *(descriptive/causal)*

Introduction - Research Logic

- **Step 1: Confirm Behavioral Linkage**
  - Does retail investor attention (via Google Trends) co-move with trading volume?
  - This forms the empirical basis of our study—if there's no co-movement, predictive modeling is unfounded.
- **Step 2: Investigate Predictive Utility**
  - If co-movement is supported (RQ1), we explore:
    - ★ Can past attention and volume data predict next week's trading volume? (RQ2)
    - ★ Can upcoming events (e.g., Fed meetings, Jensen Huang's visit) help anticipate future volume changes? (RQ3)
  - This addresses practical use cases—marketing timing, platform alerting, risk flagging.

Introduction - Research Questions

Research Questions:

- RQ1: Do investor attention patterns co-move with trading volume?
- RQ2: Can past attention and trading volume data be used to predict next week's trading activity?
- RQ3: Do scheduled macroeconomic or firm-level events (e.g., Fed announcements or executive visits) systematically impact investor attention and trading?

Introduction - Hypothesis for Research Question 1

Research Question 1: Does investor attention (from Google Trends) align with trading volume?

Hypotheses:

- **H1.1:** Attention indexes and trading volume are positively correlated.
- **H1.2:** Spikes in attention precede spikes in trading volume by one week.

Introduction - Hypothesis for Research Question 2

Research Question 2: Can lagged Google Trends data predict whether trading volume will be high next week?

Hypotheses:

- **H2.1:** Lagged attention indexes derived from Google Trends can be used as predictive features in forecasting next week's aggregate trading volume with statistically significant accuracy.
- **H2.2:** Prediction models that incorporate attention data will outperform models that rely solely on past trading volume in terms of forecasting next week's trading activity.

Introduction - Hypothesis for Research Question 3

Research Question 3: Do macro-level shocks (e.g., Fed decisions) or firm-level shocks affect retail attention and market activity in Taiwan's ETF sector?

Hypotheses:

- **H3.1:** The Macro Attention Index significantly increases during Fed announcement weeks.
- **H3.2:** Attention toward technology-related tickers increases during Jensen Week.
- **H3.3:** Trading volume in selected tickers rises significantly during event weeks compared to prior weeks.

Outline

Data

Data Sources:

- Google Trends (weekly, Jan–Dec 2024)
- Daily trading volumes for 19 Taiwan stocks/ETFs

Attention Indexes (z-score normalized): ETF, Stock, Dividend, Beginner, Macro, Tech

Variables: Indexes, normalized volumes, event dummies (Fed, Jensen)

Data - Attention Indexes and Matched Tickers

Table 1: Attention Indexes and Matched Tickers

Index	Keywords	Matched Tickers
ETF	ETF 投資, 0050, 高股息 ETF, 00878, ETF 定期定額	0050.TW, 006208.TW, 00878.TW, 00713.TW
Stock	投資股票, 台股投資, 2330, 台積, 當沖	2330.TW, 2303.TW, 2412.TW, 3008.TW
Dividend	高股息, 殖利率, 存股, 金融股, 配息	2881.TW, 2882.TW, 0056.TW, 1101.TW
Beginner	股票是什麼, 怎麼投資, 證券開戶, 股市新手, 股票入門	9917.TW, 2603.TW, 2884.TW
Macro	升息, 通膨, 美國股市, FED, 經濟衰退	1301.TW, 2308.TW
Tech	半導體, 台積電, AI 投資, 高科技股, IC 設計	3034.TW, 2454.TW

Data - Event Dummy Variables

Event Dummy 1 - Fed Weeks:

- Defined as a ± 3-day window surrounding U.S. Federal Reserve interest rate announcements.
- Weekly Google Trends and trading volume data are tagged as `FedWeek = 1` if the Fed announcement date falls within the week or within ± 3 calendar days.

Event Dummy 2 - Jensen Week:

- Defined as a 6-week window centered around NVIDIA CEO Jensen Huang's visit to Taiwan in 2024.
- All calendar weeks within that window are tagged as `JensenWeek = 1`.

Data - Fed Weeks and Corresponding Dates

Table 2: Mapping Fed Announcement Dates to FedWeek

Fed Announcement Date	FedWeek Labeled
2024-01-31 (Wed.)	2024-01-28
2024-03-20 (Wed.)	2024-03-17
2024-05-01 (Wed.)	2024-04-28
2024-06-12 (Wed.)	2024-06-09
2024-07-31 (Wed.)	2024-07-28
2024-09-18 (Wed.)	2024-09-15
2024-11-06 (Wed.)	2024-11-03
2024-12-18 (Wed.)	2024-12-15

Outline

Empirical Results - RQ1: Visual Co-Movement Patterns

Method 1: Time series plots of attention vs. volume.

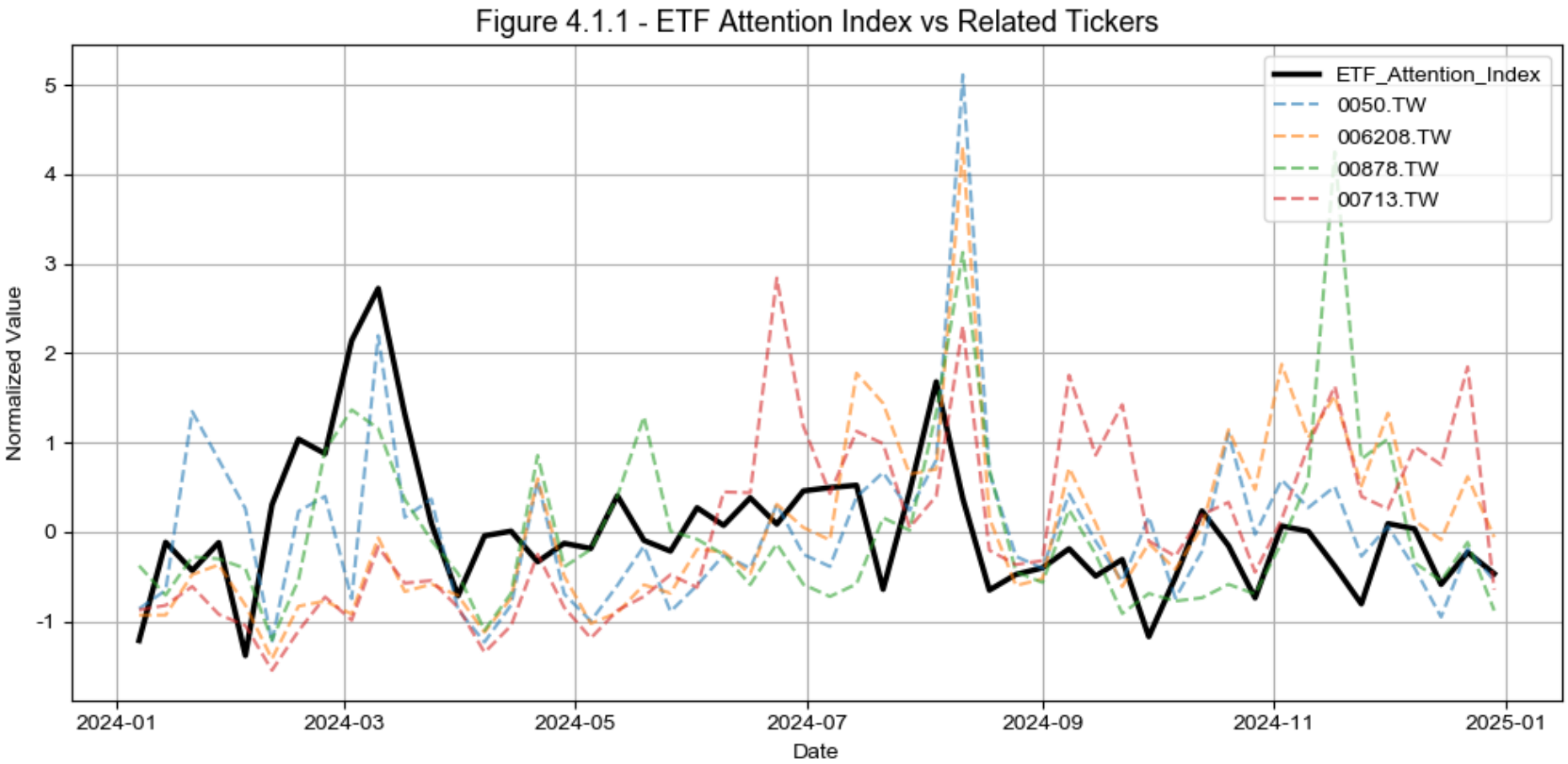
Key Observations:

- ETF: Attention spikes precede volume surges (e.g., 0050.TW)
- Stock: Q2–Q3 rise aligns with 2330.TW volume
- Tech: Peaks match AI-news cycles, synchronized volume

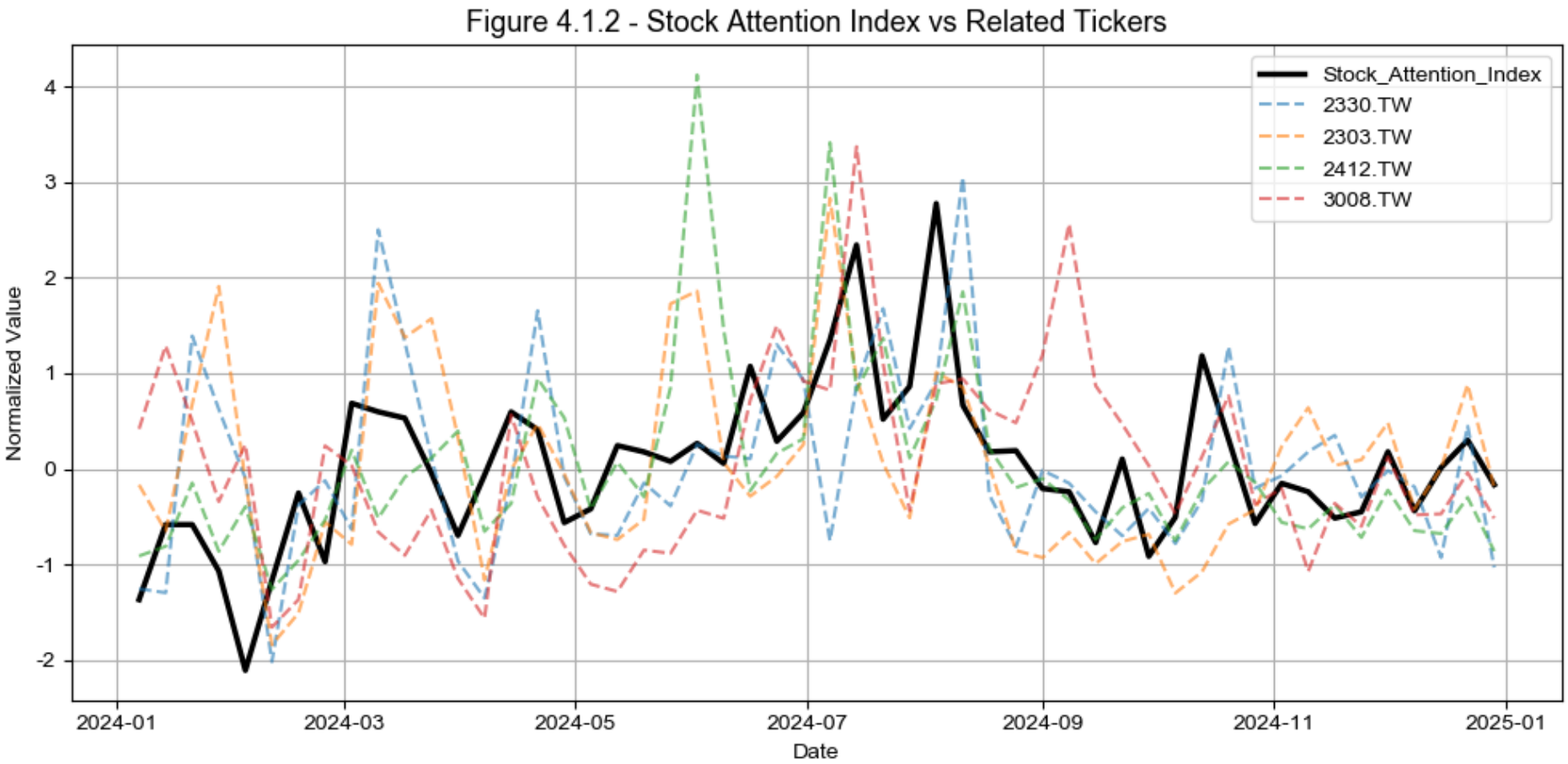
Support for Hypotheses:

- H1.2 is supported: Attention spikes tend to precede volume surges (e.g., ETF: 0050.TW).
- Reinforces the case for testing predictive models in RQ2.

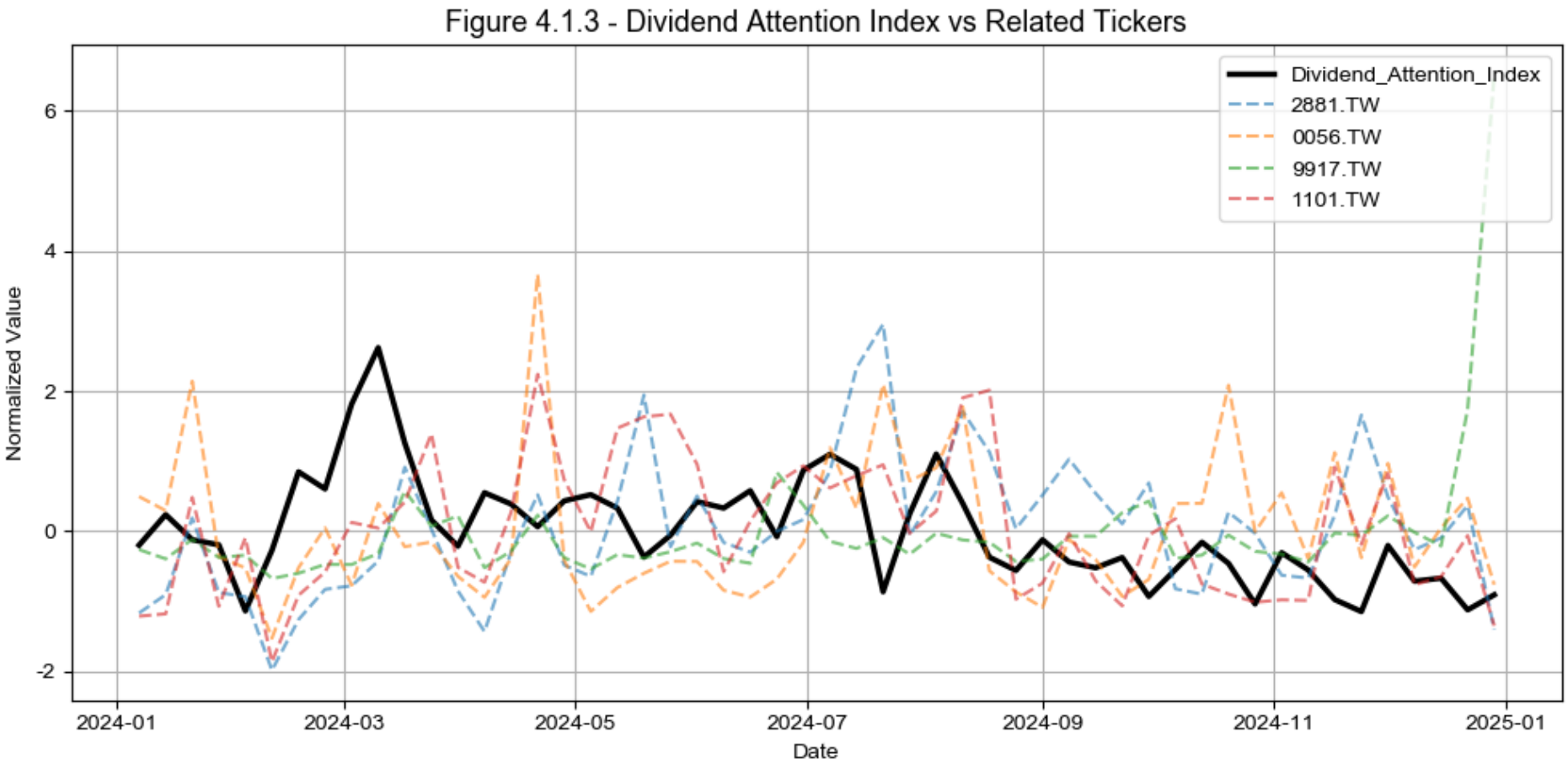
Empirical Results - Figure 4.1.1 ETF Attention Index



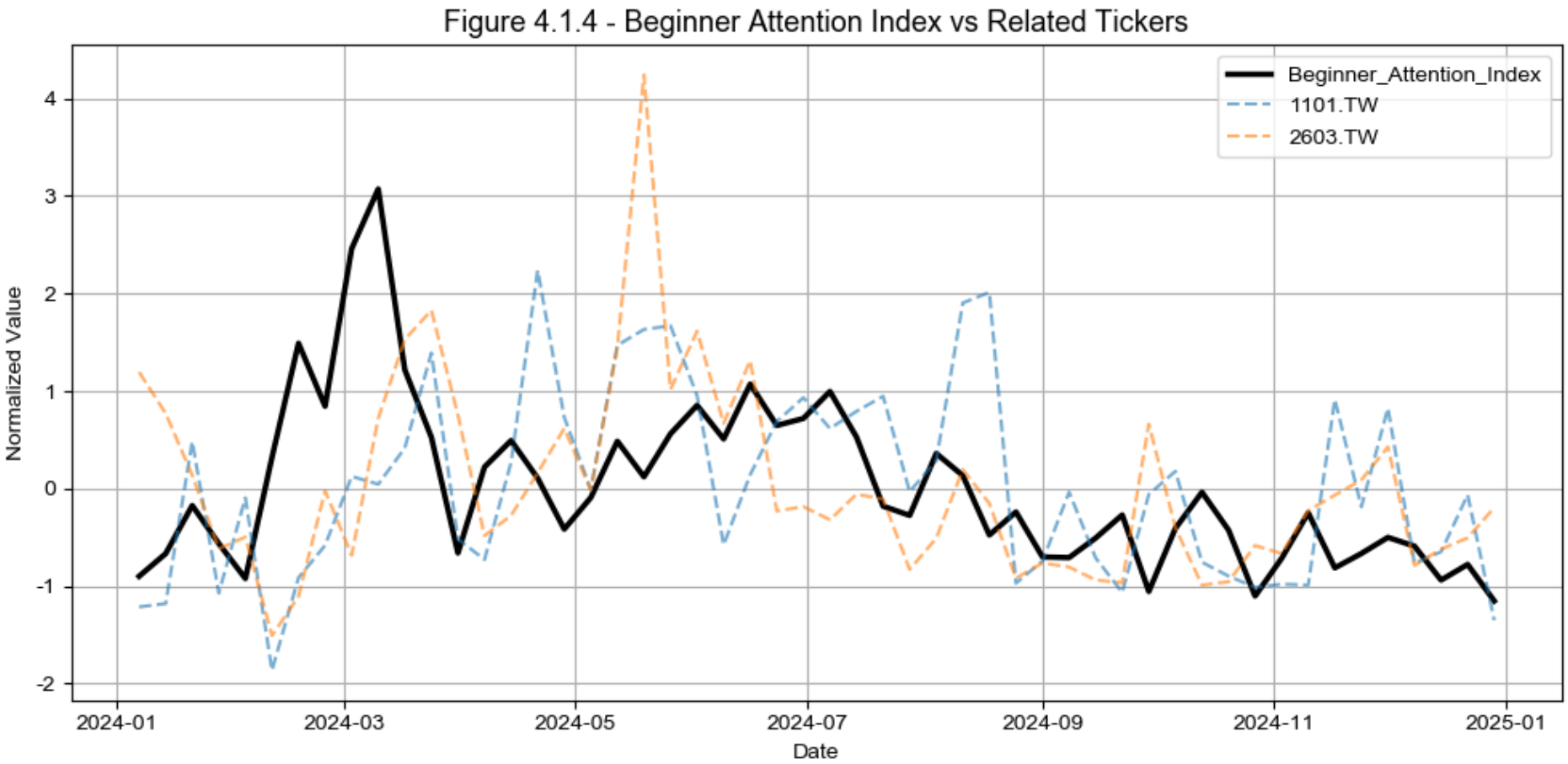
Empirical Results - Figure 4.1.2 Stock Attention Index



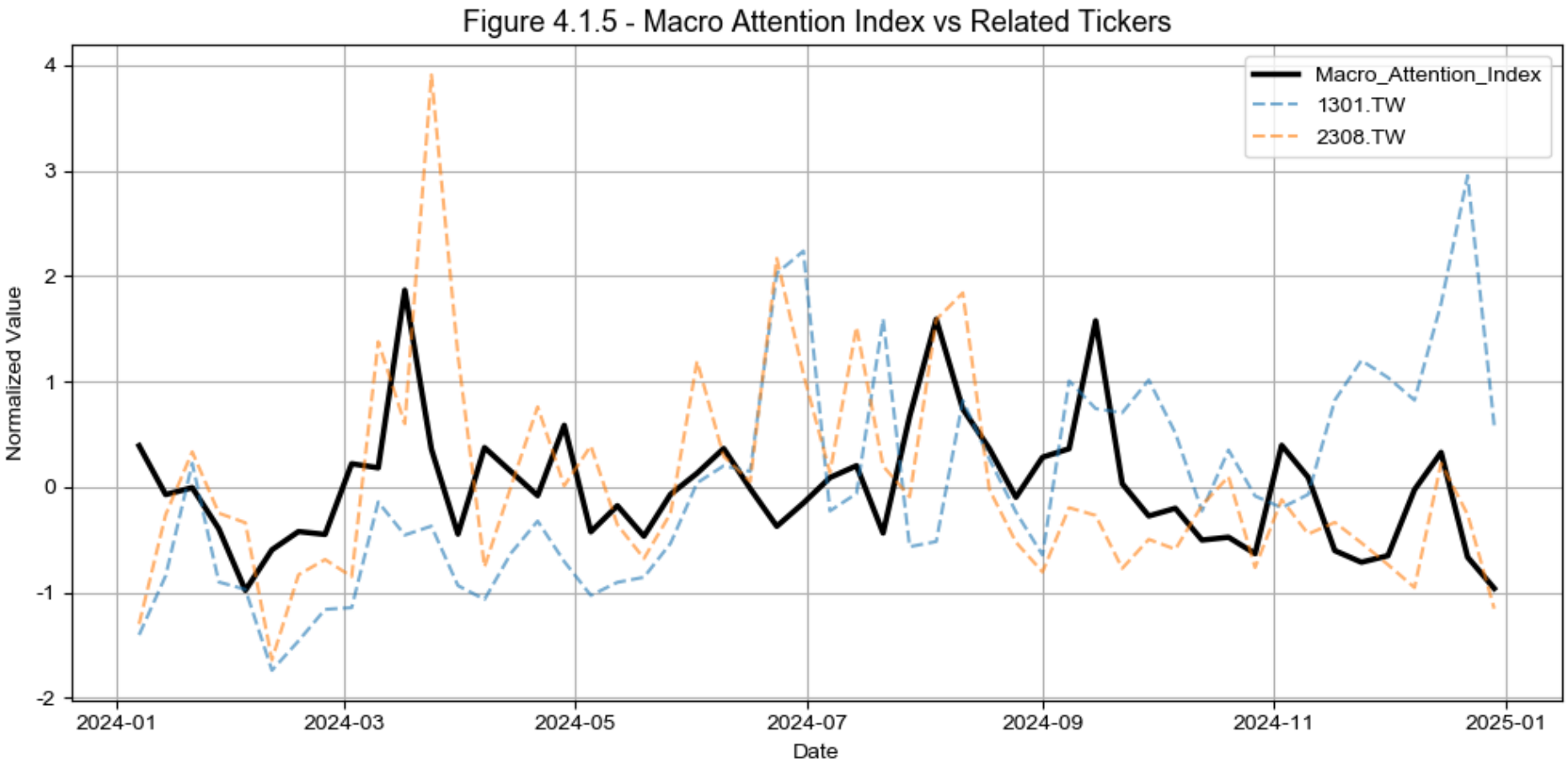
Empirical Results - Figure 4.1.3 Dividend Attention Index



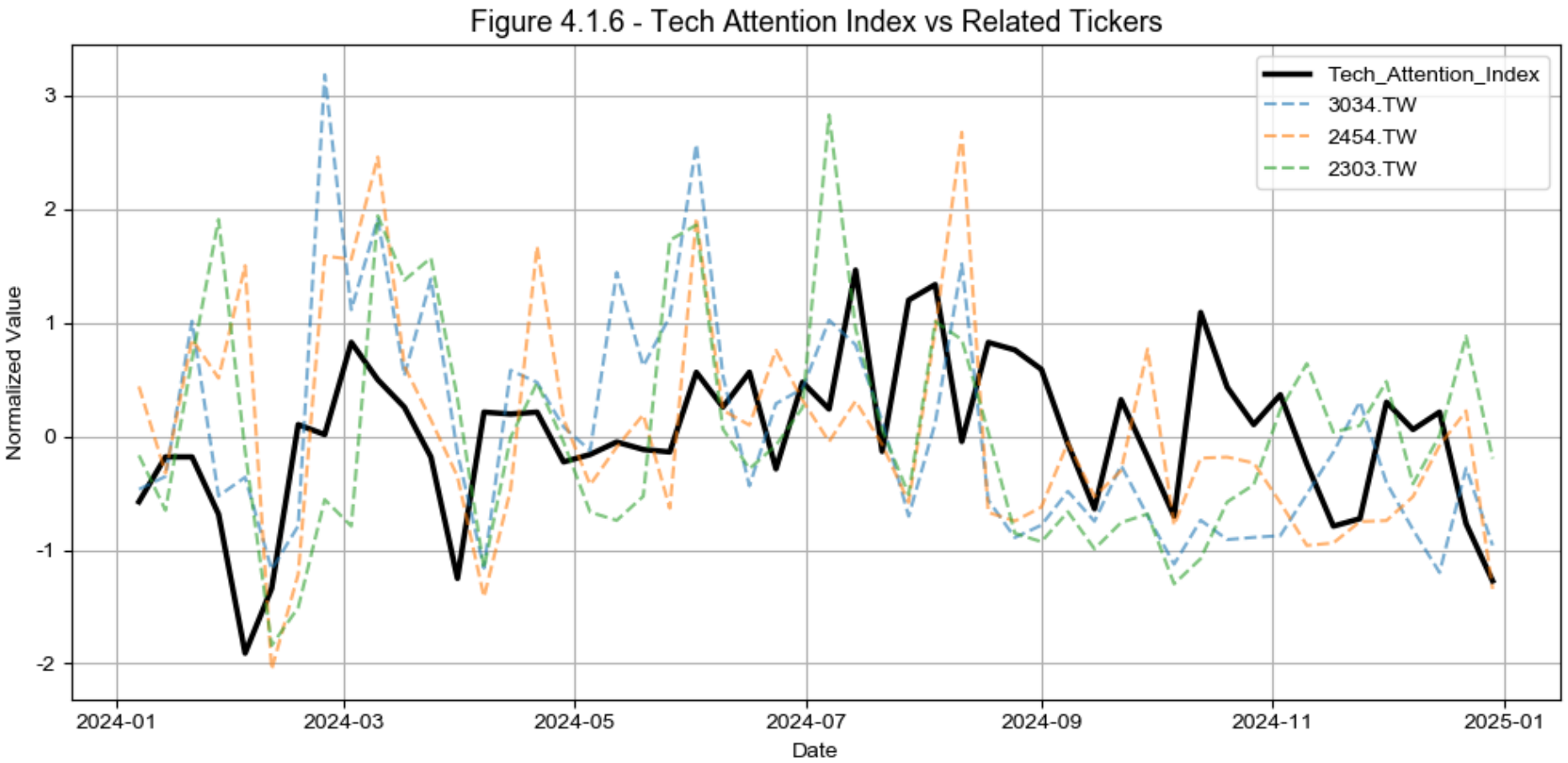
Empirical Results - Figure 4.1.4 Beginner Attention Index



Empirical Results - Figure 4.1.5 Macro Attention Index



Empirical Results - Figure 4.1.6 Tech Attention Index



Empirical Results - RQ1: Correlation Analysis

Method 2: Pearson correlation between attention and volume.

Findings (The Heatmap is too long, and it doesn't fit well in the slide. Check out the Github Repository for full results.):

- Stock: 0.51 with 2882.TW
- Tech: 0.27 with 2330.TW
- Beginner: 0.61 with 3034.TW
- Macro: Weak/inconsistent

Support for Hypotheses:

- H1.1 is supported: Positive correlations confirm attention and volume co-move.
- Provides empirical foundation to proceed with RQ2 forecasting.

Empirical Results - RQ2: Linear Regression

Method: Predict volume with 3 models (Attention, Volume, Combined) and compare their RMSEs.

Results:

- Attention-only: RMSE $= 0.99$
- Volume-only: RMSE $= 0.88$ (best)
- Combined: RMSE $= 1.07$ (worst)

Conclusion: RMSE of combined model is worse than Volume-only model. This is contradictory to H2.2.

Empirical Results - RQ2: Logistic Regression

Method: Classify high/low volume via three logistic models (Attention, Volume, Combined), and compare their accuracies.

Accuracy:

- Attention-only: 62.5
- Volume-only: 33.3
- Combined: 60.0

Conclusion: Attention yields weak directional signals (partial support for H2.1)

Empirical Results - RQ3: Fed Weeks

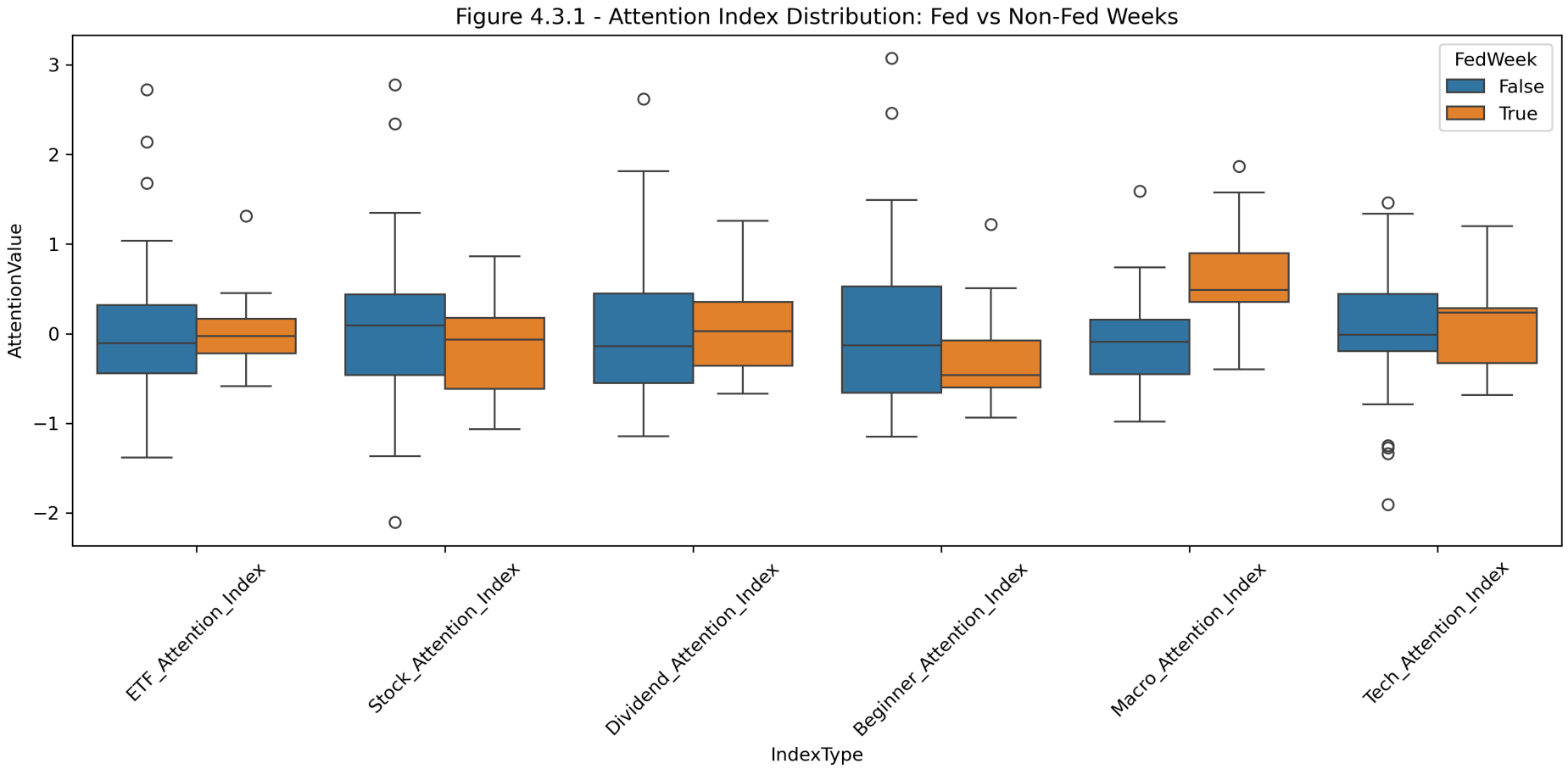
Method: Compare Fed vs. non-Fed weeks using t-tests and box-plots.

Findings:

- Macro attention $\uparrow$ ($p = 0.0169$)
- No significant volume changes ($p > 0.6$)

Conclusion: Macro news raises attention (supports H3.1) but not trading volumes (H3.3 not supported.)

Empirical Results - Figure 4.3.1 Attention Distribution Boxplot

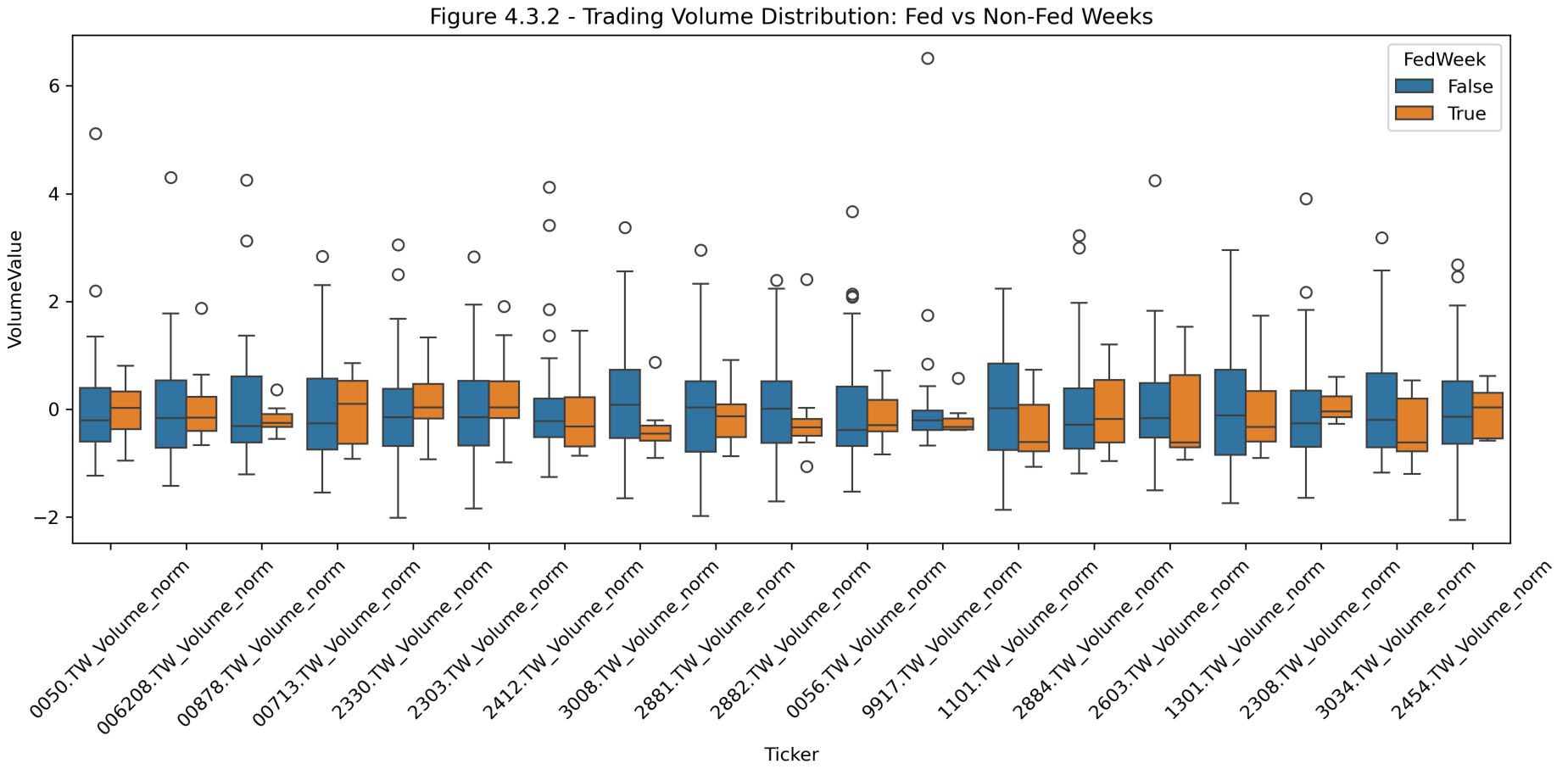


Empirical Results - Fed Week Event Impact showed in T-Test Results

Table 3: T-Test Results of Attention Change During Event Weeks

Index	t-stat	p-value
ETF_Attention_Index	0.263885	0.7964
Stock_Attention_Index	-0.736982	0.4752
Dividend_Attention_Index	0.326722	0.7497
Beginner_Attention_Index	-0.912829	0.3803
Macro_Attention_Index	2.993454	**0.0169**
Tech_Attention_Index	0.397850	0.6987

Empirical Results - Figure 4.3.2 Trading Volume Distribution Fedweek



RQ3: T-Test Results for Volume Change (FedWeek)

Table 4: p-values for Volume Change During Event Weeks (FedWeek)

Ticker	p-value	Ticker	p-value
0050.TW	0.8185	2882.TW	0.7632
006208.TW	0.7870	0056.TW	0.5288
00878.TW	0.1984	9917.TW	0.3014
00713.TW	0.8919	1101.TW	0.1209
2330.TW	0.7298	2884.TW	0.8270
2303.TW	0.4941	2603.TW	0.6663
2412.TW	0.6533	1301.TW	0.9205
3008.TW	0.0880	2308.TW	0.9049
2881.TW	0.5375	3034.TW	0.1193
		2454.TW	0.7193

Empirical Results - RQ3: Jensen Week

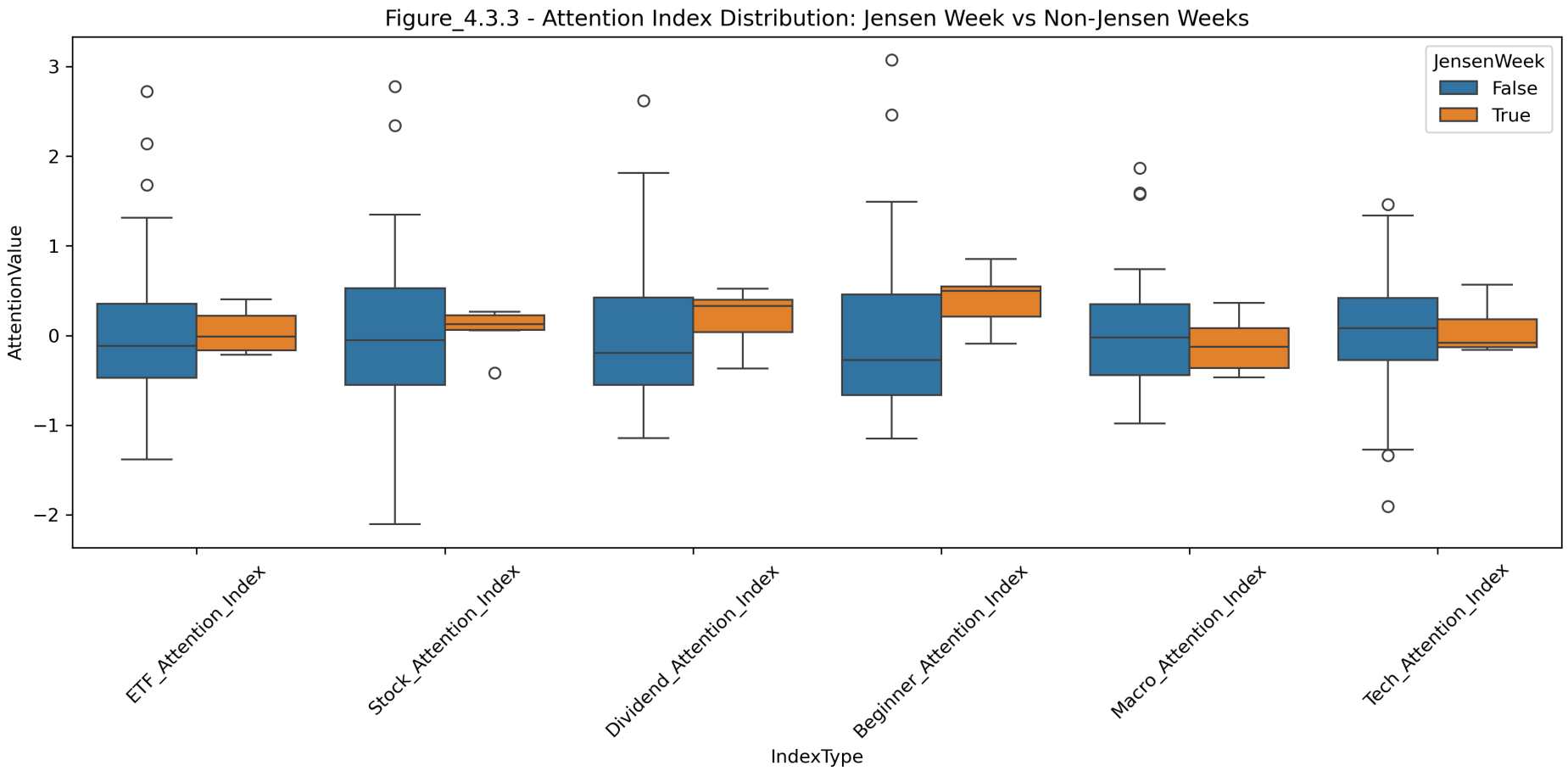
Method: Compare Jensen vs. non-Jensen weeks using t-tests and box-plots.

Findings:

- Beginner attention $\uparrow$ ($p = 0.032$)
- Volume $\uparrow$ in 9/19 tickers (mostly tech/semis)

Conclusion: Firm-specific events boost both attention and volume (H3.3 supported)

Empirical Results - Figure 4.3.3 Attention Distribution in JensenWeek

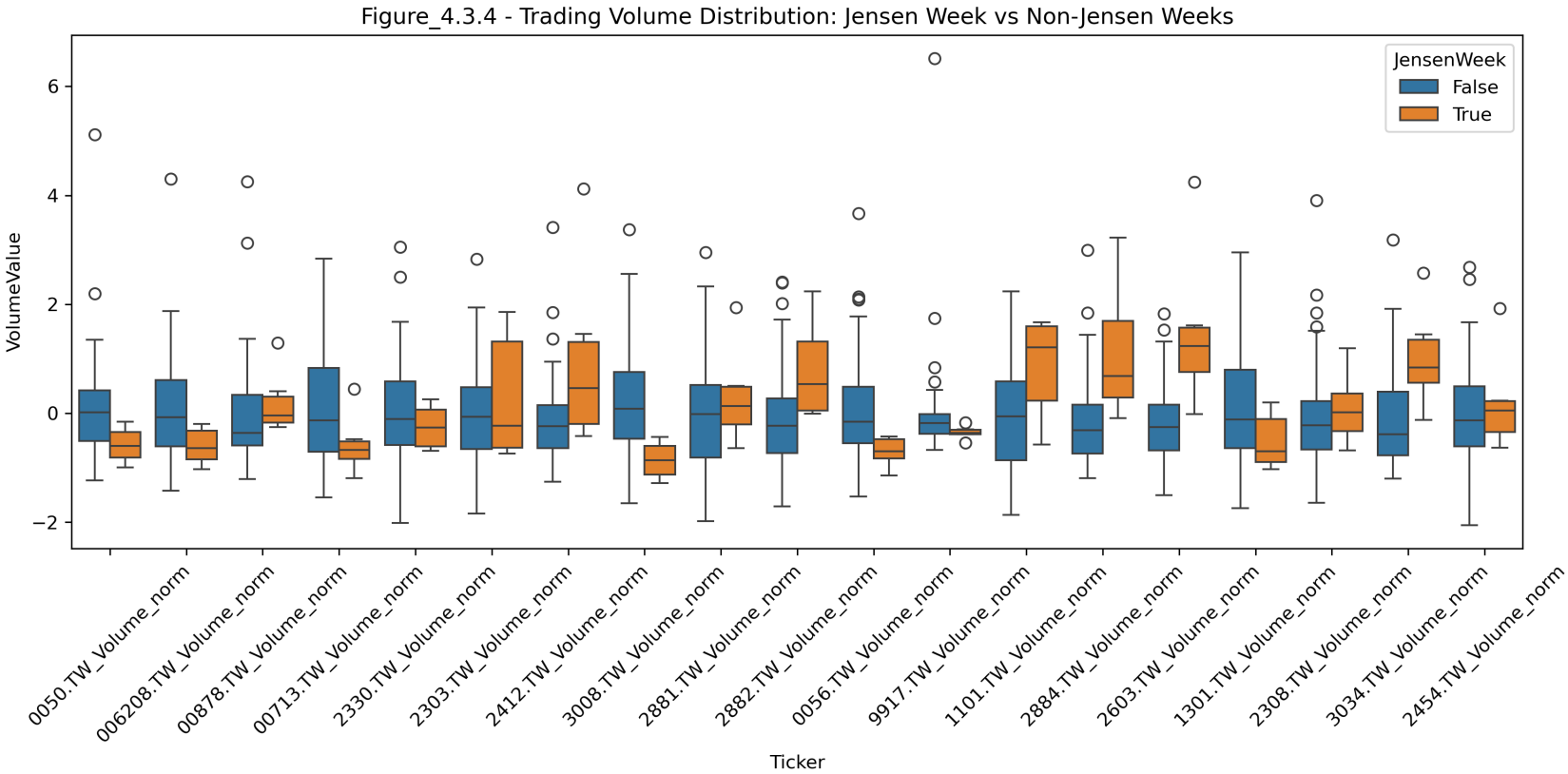


RQ3: T-Test Results for Attention (Jensen Week)

Table 5: T-Statistics and p-values for Attention Change During Jensen Week

Index	t-statistic	p-value
ETF_Attention_Index	0.170218	0.866357
Stock_Attention_Index	0.260010	0.796866
Dividend_Attention_Index	1.197300	0.250656
Beginner_Attention_Index	**2.334941**	**0.032100**
Macro_Attention_Index	-0.755364	0.466352
Tech_Attention_Index	0.337019	0.740803

Empirical Results - Figure 4.3.4 Trading Volume Distribution in JensenWeek



RQ3: T-Test Results for Volume (Jensen Week)

Table 6: T-Statistics and p-values for Volume(normalized) Change During Jensen Week

Ticker	t-stat	p-val	Ticker	t-stat	p-val
0050.TW	-3.39	**0.0027**	2882.TW	2.16	0.0706
006208.TW	-3.42	**0.0026**	0056.TW	-4.34	**0.00016**
00878.TW	0.68	0.5124	9917.TW	-2.34	**0.0231**
00713.TW	-2.47	**0.0324**	1101.TW	2.28	0.0606
2330.TW	-1.46	0.1636	2884.TW	2.32	0.0618
2303.TW	0.56	0.5968	2603.TW	2.73	**0.0387**
2412.TW	1.51	0.1886	1301.TW	-2.27	**0.0436**
3008.TW	-4.96	**0.000009**	2308.TW	0.24	0.8128
2881.TW	0.78	0.4638	3034.TW	2.77	**0.0305**
			2454.TW	0.45	0.6654