CANARY RESEARCH
Research Brief | Signal Intelligence Series

BRIEF	DATE	STATUS	ASSET CLASS
SIG-001	March 2026	Stress-Tested	US Equities

Cybersecurity Incident Disclosures: Scale Test of the Size Effect

arXiv:2512.06144v1 | Maxwell Block, Johns Hopkins University | December 2025

EXECUTIVE SUMMARY

A Johns Hopkins paper claims small cap companies drop 7.49% in the 7 days after an SEC Item 1.05 cybersecurity disclosure. We ran the same methodology on 60x the data. The negative reaction is real. The 7.49% is not. At 3,290 events, the effect shrinks to -0.41% and loses statistical significance. A fund shorting small caps off raw EDGAR filings would have a bad time.

PAPER CLAIM VS OUR FINDING

Metric	Paper (Block, 2025)	Canary Wharf Replication
Sample size	54 events	3,290 events (60x larger)
Data source	Hand-curated EDGAR + yFinance	Machine-extracted EDGAR + yFinance
Full sample CAR	-3.07% (t=-2.41, p=0.0098)	-0.32% (t=-2.06, p=0.039)
Small cap CAR (<$2B)	-7.49% (t=-3.13, p=0.0019)	-0.41% (t=-1.27, p=0.20)
Large cap CAR (>=$2B)	+0.43%	-0.26% (t=-1.71, p=0.088)
Size effect significant?	Yes (p=0.0019)	No (p=0.64 small vs large)
Period	2023 to Nov 2025	Jan 2023 to Mar 2026

WHY THE NUMBERS DIFFER

The paper's -7.49% small cap result was derived from 24 small cap events. With 24 observations, a single extreme event — one company dropping 40% after a major breach — can dominate the mean. Our 1,224 small cap events produce a stable, reliable estimate that is not driven by outliers.

There is also a meaningful methodological difference. The paper hand-curated its sample, selecting genuine material breaches. Our pipeline machine-extracted every EDGAR filing mentioning Item 1.05, which includes routine compliance filings, minor incidents, and amendments. That is the whole point. A fund implementing this strategy faces our universe, not the paper's 54 hand-picked events.

WHAT DOES SURVIVE AT SCALE

Finding	Implication
Overall negative reaction confirmed -0.32%, p=0.039	Cybersecurity disclosures do move prices. The catalyst is real.
Size effect does not survive at scale p=0.64 on size split	Cannot short small caps blindly from EDGAR. Needs additional filtering.
Short strategy: 52.9% win rate, Sharpe 1.27 on 1,224 small cap trades	Directional edge exists but gross return (~0.41%/trade) likely insufficient after borrow costs.

INVESTMENT IMPLICATION

A fund implementing the paper's strategy naively from raw EDGAR data would be disappointed. The -7.49% effect does not generalise. However, two paths to alpha remain:

- Curated filtering: Apply NLP to Item 1.05 filings to distinguish major breach disclosures from routine compliance. The paper's effect may hold on the genuine breach subset.
- Severity scoring: Build a severity classifier trained on post-filing price moves. High-severity disclosures likely drive the effect the paper observed.
- Combined signal: Layer cybersecurity disclosure timing with other microstructure signals (volume shock, bid-ask spread widening) to improve signal quality.

METHODOLOGY

Data source	SEC EDGAR full-text search API, Yahoo Finance
Filing universe	9,568 unique Form 8-K filings mentioning Item 1.05, Jan 2023 to Mar 2026
Resolved to tickers	3,330 filings (35%) matched to exchange-listed tickers via EDGAR submissions API
Analysed	3,290 events with complete price data (99% success rate)
Event window	7 calendar days post-filing, market-adjusted (stock return minus SPY return)
Size threshold	Small cap: market cap < $2B at time of filing (approximate)
Statistical tests	One-sample t-test (vs zero), Welch two-sample t-test (small vs large)