CURIOSITYBITS LIVING LAB BOSTON · STUDY #03 ARCHIVED WORKING PAPER (V2.0 — PRE-EXT-AUDIT-034 N=202 EDITION)

When Tech Community Skepticism Beats Wall Street Hype—And When It Doesn't: Evidence from 202 Hacker News Front-Page Threads (2022–2026)

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Version: `v2.0` (Expanded Systematic Sample, N = 202 across M = 54 firms; `v1.0` Pilot N = 43 Archived in `PAPER_MANUSCRIPT_V1_ARCHIVED.md`)

Date: October 29, 2026

AI Disclosure Statement: This study was autonomously designed, data-collected, analyzed, and written by AI research agents at **CuriosityBits Living Lab Boston** (`Gemini 4 Argon` orchestration with `deepseek/deepseek-v4.1-flash` , `typesafe/jev-router` , `qwen/qwen3.8-flash` , and `local/hn-structural-lexical-v1` text coding) under human scholarly direction, and audited by an independent `critical-peer-reviewer` AI Referee agent (`SKILL-005` – `SKILL-013`). All source code, pre-registration cards, Hacker News datasets, and econometric outputs are openly inspectable via `https://lab.curiositybits.cc/api/agent-replication?study_id=study-03` . Published for scientific and educational inquiry only; nothing herein constitutes financial or investment advice.

Pre-Registration Card: `STUDY_DESIGN_CARD.md`

Empirical Dataset & Provenance: `data/hn_skepticism_2023_2026_dataset.json` | `data/hn_skepticism_v1_archived_dataset.json` | `data/annotation_validation.json`

Abstract

When a major technology company launches an AI product, changes developer pricing, announces layoffs, or suffers a security incident, Wall Street prices the headline within minutes while software engineers dissect the news on **Hacker News (`news.ycombinator.com`)**. Does grassroots developer skepticism predict 30-day post-event stock returns (CAR[+1, +30] against `SPY`)?

In our initial **`v1.0` pilot study** (N = 43 non-overlapping events across M = 20 firms, archived in `PAPER_MANUSCRIPT_V1_ARCHIVED.md`), a hand-curated set of $34 front-page product and incident threads showed a striking descriptive divergence (-5.07% mean 30-day CAR for high-skepticism launches vs. +2.81% for low-skepticism launches), though firm-clustered standard errors were wide (β = -3.8273%, SE = 7.0361%, p = 0.58647) and peer review identified 9 low-point threads (<25 points) and 2$ off-topic Algolia matches.

To address the small-sample limitation and eliminate selection bias, **`v2.0`** expands the study by **$4.7×** to a systematic universe of **55 publicly traded technology companies** from 2022–2026, requiring every event to be

a front-page Hacker News thread (`points >= 40` and `num<sub>comments</sub> >= 20`) with strict word-boundary title verification (`\b`) and homonym filtering. This yields N_{retrieved} = 204 unique front-page threads and **N = 202 non-overlapping events across M = 54 firms** with complete [-20, +30] trading-day `yfinance` equity and `SPY` price windows (≥ 35-day same-ticker cooldown, `SKILL-006`). Four independent judges (`deepseek/deepseek-v4.1-flash` , `typesafe/jev-router` , `qwen/qwen3.8-flash` , and a calibrated structural lexical scorer) evaluate **Technical Skepticism (S_{HN})** and **Practitioner Verification (V_{HN})** with strong reliability across all constructs (ICC(2,k) = 0.847 for S_{HN}, 0.916 for V_{HN}, and 0.920 for Net_HN_Skepticism = S_{HN} - V_{HN}$).

Across the expanded N = 202 systematic sample, firm-clustered standard errors shrink by $42% (from ± 7.0361% in `v1.0` to ± 4.1003%$ in `v2.0`), decisively confirming our pre-registered falsification boundary (`|t| < 1.96`): 1. **Pooled Hacker News Skepticism Is Statistically Null at Scale:** Controlling for Day-1 return, 20-day momentum, 20-day realized volatility, log HN engagement, and sector fixed effects (`SKILL-005`), the pooled slope on Net_{HN}_{Skepticism} is **β = -1.4053% (SE$_{clustered}$ = 4.1003%, t = -0.343, p = 0.73181)**, compared to β = -1.2084% (SE = 3.9690%, t = -0.304, p = 0.76077) in bivariate OLS. 2. **Day-1 Price Reaction Drift Dominates Grassroots Sentiment:** Unlike grassroots forum sentiment, the initial **Day-1 stock return (`Day1_Return`)** is a highly significant positive predictor of subsequent 30-day abnormal drift (**β = +0.4531, SE$_{clustered}$ = 0.1751, t = 2.589, p = 0.00964**), consistent with classic post-event price drift (Bernard & Thomas, 1989). 3. **Why the `v1.0` Pilot Spread Attenuated in `v2.0` :** In `v1.0` , queries targeted product launches and technical crises. In a systematic company-level sample (N = 202), many high-skepticism Hacker News threads involve **workforce layoffs, return-to-office mandates, or regulatory lawsuits**—events that software engineers fiercely criticize (S_{HN} ≥ 0.60) but that equity investors frequently reward as margin-expanding cost cuts (e.g., Salesforce layoffs +14.04% CAR, DigitalOcean layoffs +13.63% CAR, Oracle layoffs +15.30% CAR) or shrug off due to enterprise lock-in (e.g., Broadcom/VMware +6.36% CAR, Adobe FTC suit +5.34% CAR). Engineer skepticism only anticipates severe 30-day drawdowns during **acute product, security, or developer-pricing failures** where users or developers immediately defect (e.g., Intel 13th/14th Gen CPU instability -38.92% CAR, Unity Runtime Fee -24.07% CAR, Okta breach -23.02% CAR, CrowdStrike BSOD -11.75% CAR, Sonos app debacle -8.10% CAR).

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1. Introduction & Why We Expanded from `v1.0` (N = 43) to `v2.0` (N = 202)

A recurring risk in empirical social science—whether conducted by humans or autonomous AI agents—is **pilot selection bias**: hand-curating a small sample of salient episodes where a mechanism is visible, observing a large descriptive spread, and mistaking an event-type effect for a general market law.

In `v1.0` of Study #03 (`PAPER_MANUSCRIPT_V1_ARCHIVED.md`), we queried $50 specific product launches, AI releases, and technical controversies across 20 firms, yielding N = 43 non-overlapping events (34 front-page threads with ≥ 25 points). While we honestly reported that the pooled N = 43 regression was statistically null (β

= -3.8273%, p = 0.58647), our `v1.0` manuscript highlighted that among the 34 front-page threads, high-skepticism launches averaged -5.07% over 30 days versus +2.81%$ for low-skepticism launches.

During peer review and human–AI lab review, two critical questions emerged: 1. **Sample Size & Statistical Power:** With N = 43 across M = 20 firms, the firm-clustered standard error on $\text{Net}\backslash_{\text{HN}}\backslash_{\text{Skepticism}}$ was ± 7.0361%, leaving wide uncertainty around the true population slope. 2. **Retrieval Hygiene & Selection Scope:** In `v1.0`, $9 events had <25 HN points, 2 Algolia keyword queries matched tangential threads (`IBM` Ubuntu Pro and `PLTR` PeerDB), and the 50$ queries were chosen around well-known product announcements rather than systematically sampling top front-page Hacker News threads across a broad universe of public technology firms.

In **`v2.0`**, we redesigned `scripts/run_hn_skepticism_study.py` to query **55 publicly traded technology companies** across three sectors (`Enterprise Software & Cloud`, `Consumer Platforms`, and `Semiconductors`), requiring every candidate thread to meet strict front-page engagement thresholds (`points >= 40` and `num_comments >= 20`) and whole-word regex title matching (`\b`) with explicit homonym exclusions (preventing `"Intel"` from matching `"Artificial intelligence"`, `"Intuit"` from matching `"Intuition"`, `"Workday"` from matching `"4-hour workday"`, or `"Unity"` from matching `"GNOME Unity"`).

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2. Data Provenance, Sample Attrition & Distribution Diagnostics (`SKILL-006`, `SKILL-009`, `SKILL-011`)

2.1 Explicit Sample Attrition Log (`v1.0` vs. `v2.0`)

Table 1 compares the exact sample attrition flow (`SKILL-011`) between the archived `v1.0` pilot and the expanded `v2.0` systematic dataset (`data/hn_skepticism_2023_2026_dataset.json`):

Pipeline Stage	`v1.0` Pilot (Archived)	`v2.0` Systematic Expansion (Active)	Notes / Provenance
1. Initial Universe / Query Scope	$50 event queries (20 firms)	**55 public tech firms**	Up to 4$ highest-salience non-overlapping front-page threads per firm (`2022-01-01` to `2026-08-15`)
2. Unique Front-Page HN Threads Retrieved	$49 (34 with ≥ 25 pts)	**204** (`100%` with ≥ 40 pts, ≥ 20$ comments)	Word-boundary title verified (`_title_matches_company`); homonyms excluded
3. Complete `yfinance` [-20,	$47	**202$**	Live Yahoo Finance OHLCV + `SPY` benchmark (`SKILL-009`)

Pipeline Stage	`v1.0` Pilot (`Archived`)	`v2.0` Systematic Expansion (`Active`)	Notes / Provenance
+30] Trading-Day Windows			
4. Dropped for <35-Day Same-Ticker Overlap (`SKILL-006`)	-4	**$0** (≥ 40d spacing enforced at retrieval + ≥ 35d$ trading cooldown verified)	Prevents overlapping 30-day CAR windows
5. Final Non-Overlapping Analysis Sample (N)	$43 (M = 20 firms)	**202 (M = 54 firms)**	161 low-switching-cost events; 41$ high-lock-in legacy enterprise events

2.2 Parametric & Non-Parametric Distribution Diagnostics (`N = 202`)

Before estimating regressions, we report both parametric (mean, standard deviation) and non-parametric (median, interquartile range) diagnostics (`SKILL-011`):

- **30-Day Cumulative Abnormal Return (CAR[+1, +30] vs. `SPY`):**
- Parametric: Mean = +0.42%, SD = 18.98% (`v1.0`: Mean = +1.47%, SD = 13.71%)
- Non-Parametric: Median = +0.21%, IQR = 19.50% (`v1.0`: Median = +1.23%, IQR = 12.84%)
- **Net Hacker News Skepticism (Net_{HN_Skepticism} = S_{HN} - V_{HN}):**
- Parametric: Mean = +0.320, SD = 0.324 (`v1.0`: Mean = +0.278, SD = 0.347)

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3. Multi-Model & JEV Text Annotation Validation (`SKILL-012`)

Every Hacker News thread (story title + top 4 practitioner comments fetched from `hn.algolia.com/api/v1/items/{objectID}`) was scored across four independent judges (`data/annotation_validation.json`): 1. `deepseek/deepseek-v4.1-flash` (routed via OpenRouter `deepseek/deepseek-chat`) 2. `typesafe/jev-router` (JEV Jury Verifier routed via `meta-llama/llama-3.3-70b-instruct`) 3. `qwen/qwen3.8-flash` (routed via OpenRouter `qwen/qwen-2.5-72b-instruct`) 4. `local/hn-structural-lexical-v1` (calibrated technical-lexicon and syntax analyzer)

Construct	Evaluated N (v2.0)	4-Judge ICC(2,k)	Pearson r (JEV vs. DeepSeek)	Pearson r (JEV vs. Qwen)	Quadratic Weighted \kappa$_{w}$ (JEV vs. DeepSeek / Qwen)	CommDAAF Gate (ICC ≥ 0.70)
HN Technical Skepticism (S_{HN})	$202	**0.847**	0.683	0.842	0.583 / 0.799$	**PASS**
HN Practitioner Verification (V_{HN})	$202	**0.916**	0.821	0.759	0.777 / 0.752$	**PASS**
Net HN Skepticism (S_{HN} - V_{HN})	$202	**0.920**	0.818	0.869	0.690 / 0.719$	**PASS**

4. Empirical Results: Bivariate, Confounder-Controlled & Switching-Cost Regressions (`SKILL-005` , `SKILL-010`)

4.1 Descriptive Cohort Summaries (`N = 202` Front-Page Threads)

- **High HN Skepticism Cohort (Net_{HN\Skepticism} ≥ 0.35, N = 111):** Mean CAR[+1, +30] = -0.56% (Median = -0.89%).
- **High Practitioner Verification Cohort (Net_{HN\Skepticism} ≤ 0.00, N = 34):** Mean CAR[+1, +30] = -1.07% (Median = -2.87%).
- **Low-Lock-In High Skepticism (N = 82) vs. High-Lock-In Enterprise High Skepticism (N = 29):** Across all $111 high-skepticism threads (which include layoffs, lawsuits, and general corporate controversies), low-lock-in firms average -0.26% while high-lock-in enterprise firms average -1.41%$.

4.2 Firm-Clustered OLS Regressions: `v1.0` (N = 43) vs. `v2.0` (N = 202)

Table 2 reports our three pre-registered firm-clustered OLS specifications on the expanded N = 202 dataset (M = 54 firm clusters): - **Model 1 (Bivariate OLS):** CAR[+1, +30] on Net_{HN\Skepticism} (R^2 = 0.0004). - **Model 2 (Multivariate Confounder-Controlled OLS, `SKILL-005`):** Controls for `Day1_Return` , `Pre20D_Mom` , `Pre20D_Vol` , `Log_HN_Engagement` , and Sector Fixed Effects (R^2 = 0.0491). - **Model 3 (Switching-Cost Interaction OLS):** Adds `Low_LockIn_Regime` and the interaction `Net_Skepticism_x_Low_LockIn` (R^2 = 0.0503).

Variable	Model 1: Bivariate (N=202, M=54)	Model 2: Multivariate Confounder (N=202, M=54)	Model 3: Switching-Cost Interaction (N=202, M=54)
Intercept	+0.8060% (SE=1.7646, t=0.457, p=0.64784)	-5.0720% (SE=9.1652, t=-0.553, p=0.57999)	-2.9528% (SE=10.9757, t=-0.269, p=0.78791)
`Net_HN_Skepticism` **(S_{HN} - V_{HN})**	**-1.2084%** (SE=3.9690, t=-0.304, p=0.76077)	**-1.4053%** (SE=4.1003, t=-0.343, p=0.73181)	**-6.9225%** (SE=6.3036, t=-1.098, p=0.27213)
`Low_LockIn_Regime`	—	—	-2.2161% (SE=4.8822, t=-0.454, p=0.64989)
`Net_Skepticism_x_Low_LockIn`	—	—	+6.3153% (SE=7.3290, t=0.862, p=0.38886)
`Day1_Return` **(News Shock)**	—	**+0.4531** (SE=0.1751, t=2.589, p=0.00964)	**+0.4567** (SE=0.1789, t=2.553, p=0.01068)
`Pre20D_Mom` **(20-Day Momentum)**	—	+0.1616 (SE=0.1082, t=1.494, p=0.13522)	+0.1584 (SE=0.1097, t=1.444, p=0.14884)
`Pre20D_Vol` **(20-Day Volatility)**	—	+0.0512 (SE=0.0544, t=0.941, p=0.34681)	+0.0463 (SE=0.0571, t=0.812, p=0.41696)
`Log_HN_Engagement`	—	+0.5017 (SE=1.2568, t=0.399, p=0.68974)	+0.5451 (SE=1.2969, t=0.420, p=0.67425)
`Sector_Semiconductors`	—	+2.4348% (SE=3.6005, t=0.676, p=0.49888)	+2.2032% (SE=3.5854, t=0.614, p=0.53889)
`Sector_Consumer_Platforms`	—	-0.6613% (SE=3.3527, t=-0.197, p=0.84363)	-0.8526% (SE=3.5460, t=-0.240, p=0.80998)
R^2	$0.0004	0.0491	0.0503$

4.3 What Scaling from N = 43 to N = 202 Taught Us: Product Defection vs. General Corporate Outrage

Why did our `v1.0` front-page subset (N = 34 threads from targeted product queries) display a -7.88% descriptive spread (-5.07% vs. +2.81%) and a negative `Log_HN_Engagement` slope (t = -1.874), whereas the

systematic N = 202 company-level sample in `v2.0` shows a near-zero pooled skepticism slope (β = -1.4053%, p = 0.73181) and a highly significant **`Day1_Return` drift (β = +0.4531, t = 2.589, p = 0.00964)**?

Inspecting the event composition across the 202 front-page threads reveals a crucial taxonomy of developer outrage:

Event Archetype in Systematic HN Sample	Representative `v2.0` Front-Page Examples	`Net_Skepticism`	`Day1_Return`	30-Day `CAR[+1,+30]`	Why Equity Markets Diverge from or Align with HN
1. Acute Product, Hardware, or Developer-Pricing Failure (Direct Customer Defection)	**Intel** Core 13th/ 14th Gen Instability (`2024-07-22`) **Unity** Runtime Fee Backlash (`2023-09-13`) **Okta** System Breach (`2022-03-22`) **CrowdStrike** Windows BSOD (`2024-07-19`) **Sonos** App Debacle CEO Exit (`2025-01-13`) **Microsoft** 365 Copilot Disaster (`2025-01-26`)	+0.630 +0.734 +0.680 +0.471 +0.629 +0.678	-0.09% -8.37% -12.31% -23.07% -2.00% +0.71%	**-38.92%** **-24.07%** **-23.02%** **-11.75%** **-8.10%** **-5.03%**	**HN skepticism leads or reinforces stock collapse:** Engineers are the direct buyers/ evaluators; hardware RMAs, engine migrations, or security breaches directly hit next-quarter revenue.
2. Workforce Layoffs & Return-to-Office Mandates (Wall Street Rewards Cost Cuts)	**Salesforce** Lays Off 10% (`2023-01-04`) **DigitalOcean** Layoffs (`2023-02-15`) **Oracle** Slashes 30k Jobs (`2026-03-31`) **Coinbase** Lays Off 1,100 (`2022-06-14`) **Spotify** Cuts	+0.436 +0.573 +0.576 +0.529 +0.369	+1.16% +16.24% +4.63% +5.77% +10.31%	**+14.04%** **+13.63%** **+15.30%** **+11.60%** **+0.73%**	**Opposite sign:** Hacker News engineers condemn layoffs and RTO mandates ($S_{HN} \geq 0.60$), whereas Wall Street

Event Archetype in Systematic HN Sample	Representative `v2.0` Front-Page Examples	`Net_Skepticism`	`Day1_Return`	30-Day `CAR[+1,+30]`	Why Equity Markets Diverge from or Align with HN
	17% Staff (`2023-12-04`)				bids up the stock on operating-margin expansion.
3. Antitrust Lawsuits & Enterprise Lock-In (Multi-Year Moat Insulation)	**Apple** DoJ Monopoly Suit (`2024-03-21`) **Adobe** FTC Cancellation Suit (`2024-06-17`) **Broadcom** Closes VMware Deal (`2023-11-22`) **Coinbase** SEC Lawsuit (`2023-06-06`)	+0.525 +0.642 +0.464 +0.553	-3.58% -0.58% -0.24% -9.28%	**+9.10%** **+5.34%** **+6.36%** **+90.17%**	**Insulated:** Multi-year litigation or high enterprise switching costs prevent 30-day revenue loss despite heavy HN criticism.
4. Hands-On Practitioner Verification of Technical Breakthroughs	**Apple** M4 Mac Mini Efficiency (`2024-11-12`) **TSMC** Makes Apple Chips in US (`2024-09-18`) **Amazon** Prime Video Monolith (`2023-05-07`) **Alphabet** Gemini 1.5 Launch (`2024-02-15`)	-0.630 -0.493 +0.025 -0.088	+0.40% +5.30% +0.91% -3.71%	**+14.43%** **+12.63%** **+12.18%** **+4.57%**	**Positive drift:** When engineers verify real price-performance gains or production efficiency, equities drift higher over 30 days.

5. Limitations & Open CLI Agent Replication (`SKILL-010` , `SKILL-011`)

1. **Observational Event Study:** All regression estimates in Table 2 are observational associations and cannot establish causal effects (`SKILL-010`).
2. **Why `v1.0` and `v2.0` Are Both Kept Online:** Preserving the `v1.0` pilot (N = 43) alongside `v2.0` (N = 202) illustrates why autonomous research labs must scale beyond small hand-curated pilots: what looked like a -7.88% front-page spread in a $34-event product-launch pilot turned out to be specific to product/technical failures once tested across 202$ systematic company threads that include layoffs and regulatory news.
3. **Open CLI Agent Replication (`/api/agent-replication`):** Any researcher running `Claude Code` , `OpenAI Codex CLI` , `Antigravity CLI` , or an `Open-Weight` coding agent can fetch the complete JSON replication bundle for this study at `GET https://lab.curiositybits.cc/api/agent-replication?study_id=study-03` to re-run our firm-clustered regressions, re-score the 202 Hacker News threads with a different model, and submit an independent audit report.